A LEARNING RESOURCE FOR REAL ESTATE APPRAISAL AND VALUATION

UNIVERSITY OF READING
UNIVERSITY COLLEGE LONDON
Please read the large print

- This is a first draft.
- This document basically consists of a question bank of real estate appraisal and valuation problems used by Pat McAllister and Peter Wyatt whilst teaching at various institutions.
- It was produced in June 2012 by four students who, in a short space of time, took a lot of fragmented materials to try to produce a coherent, single document – many thanks to Sarah Bolitho, Ben Warwick, Rachel Ward and Josh Tyler for their hard work.
- It isn’t their fault that some of the answers are missing – it’s ours.
- We are happy to offer it as a learning resource to real estate students and their lecturers more broadly, in the hope that it may make this stuff a little easier.
- It is work in progress. In particular, we appreciate that there is a lot of scope for improvement in terms of the sequencing of the questions. A weakness is that similar topics are sometimes covered in different sections. We think that it is best used as a place to pull out groups of questions and answers from the different sections and to adapt them to your particular needs.
- Sorry - we are too busy to offer any support. But, feedback and suggestions are welcome.
- Obsolescence is often a problem in setting appraisal questions. We have tried to make sure that dates of valuation etc are specified but a few may have slipped through.
- We should admit that we have been inconsistent in handling transaction costs. Sometimes we have included them, but mainly we’ve ignored them. Where we have included them, it is generally at the level prevailing in 2012.
- A lot of the material is very UK-centric. We need to be much more global in our outlook in future.

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Formulae

Compounding and discounting:

Future value of £1

\[ FV \text{ £1} = (1 + r)^n \]

Present value of £1

\[ PV \text{ £1} = \frac{1}{(1 + r)^n} \]

Future value of £1 per annum

\[ FV \text{ £1} pa = \frac{1}{r} \left( \frac{(1 + r)^n - 1}{r} \right) \]

Sinking fund (SF) for £1

\[ SF \text{ £1} = \frac{r}{(1 + r)^n - 1} \]

Present value of £1 per annum (YP)

\[ PV \text{ £1} pa = \frac{1 - \frac{1}{(1 + r)^n}}{r} \]

YP (dual rate)

\[ YP(\text{dualrate}) = \frac{1}{r + SF} \]

YP (dual rate with tax)

\[ YP(\text{dualrate with tax}) = \frac{1}{r + \left( SF \times \frac{1}{1-t} \right)} \]

In all above equations, \( r \) = rate of return and \( n \) = number of time periods

Implied rental growth rate:

\[ g = \left( \frac{1}{r} \left( \frac{(1 + r)^y - 1}{y} \right) \right)^\frac{1}{p} - 1 \]

where \( g \) = rental growth rate  \( y \) = all risks yield  \( r \) = target rate  \( p \) = rent review period

IRR linear interpolation:

\[ IRR = R_1 + \left( \frac{R_2 - R_1}{NPV_1 + NPV_2} \right) \left( \frac{NPV_1}{NPV_1 + NPV_2} \right) \]

where \( R_1 \) = lower trial rate  \( NPV_1 \) = NPV at lower trial rate  \( R_2 \) = higher rate  \( NPV_2 \) = NPV at higher rate  and + and - signs are ignored

Unless otherwise stated assume 6m or 6.1m deep zones
The Principles of Discounting

Question 1

Alfred and George are brothers. They have both been given an endowment of £5,000 by Great Uncle Edward. George will receive his money immediately whilst Alfred must wait one year.

Assuming both brothers are prudent investors, who has received the most favourable treatment and why?

*You may disregard the effect of inflation.*

Question 2

If Uncle Edward wished to treat both brothers equally but still wishes to have a gap of one year between the endowments, how much should he pay Alfred?

*Assume money can earn interest at 10% per annum.*

Question 3

If Alfred’s endowment was payable in five years’ time what sum should be payable to make both of equal value?

So far we have known the sum paid immediately and have calculated the equivalent future sum. But the concept can also work in reverse.

Question 4

Suppose the Alfred’s endowment was £5,000 and was payable in one year, what sum should be paid as an endowment to George today in order to equalise the sums?
Time value of money: Compounding and Discounting

**Question 1**  
*Future Value of a lump sum*

The roof of a factory will need replacing in four years’ time as part of a rolling programme of maintenance. The current cost of the work is estimated to be £25,000. Building costs are forecast to increase at an average annual rate of 3.5% per annum over this period of time.

What will the cost of the repair be in four years’ time?

**Question 2**  
*Present Value of a lump sum*

If money can be invested in a secure bond investment and receive an annual return of 4% per annum, how much capital should be invested now to meet the estimated future expenditure calculated in (1)?

**Question 3**  
*Future Value of a level annuity*

There are major repair works planned in eight years’ time for the entire industrial estate that you hold in your investment portfolio.

Assuming that you can invest money at an average rate of return of 6.5% per annum, how much will accrue if you invest £50,000 at the end of each year for the next eight years?

**Question 4**  
*Sinking Fund (PMTs on a level annuity)*

Rather than set aside a capital amount now for the roof repair in (1) you decide to set aside equal annual instalments.

What should these instalments be assuming that the repair will cost the amount that you estimated in (1) and assuming that you can invest money at a rate of return of 4% per annum?

**Question 5**  
*Present Value of a level annuity*

How much would you pay for the right to receive £50,000 per annum over the next 15 years assuming average investment returns of 8% per annum?

**Question 6**

You have won first prize in the Readers’ Digest draw!! You can choose one of two prizes:

a. £100,000 in five years’ time  
b. £10,000 at the end of each of the next ten years

Which would you choose, assuming an average investment return rate of 5% per annum?
Question 7
What about if the £50,000 per annum was receivable over the next:
   a. 60 years
   b. 1,000 years?

Question 8
An investment valued at £10,000 offers a return of 6% per annum.
What will be the value of the investment after:-
   (a) One year
   (b) Five years
   (c) Seven years?

Question 9
An investment offers a cash-flow of £50,000 in six years’ time.
What is the present value of the investment if the rate of interest to be used in compounding and
discounting is 10%?

Question 10
An investment offers a monthly return of 2%.
What is the equivalent annual return?

Question 11
An investment offers an annual return of 24%.
What is the equivalent?
   (a) Monthly and
   (b) Daily return?

Question 12
A financial investment of £16,000 offers a fixed repayment over the following four years of £5,000
per annum. An investor requires a rate of return of 7%.
Is this investment worthwhile?
Time Value and Real Estate

As well as discounting individual sums, we can discount a series of future sums. This forms the basis of property valuation since a property bought for investment will produce a series of rental incomes and the sum paid will reflect the amount and timing of these rents.

Question 1

Your client proposes to purchase a property which will produce a rent of £5,000 pa for the next five years.

Assuming a discount rate of 10% pa, what is the capital value of these rents?

Question 2

A property has just been let for £90,000 p.a. The lease is for nine years and provides for three-yearly rent reviews.

Calculate the present value of the rents received during the lease.

You should do this in two ways:

a) Discounting rents individually
b) Discounting in blocks

In doing this valuation you may assume the following:-
- A discount rate of 7% pa
- Rental growth at 3% pa
- Rents are received annually in arrears

Question 3

Modify the valuations in question 2 to include an expenditure of £40,000 at the end of year six.

Question 4

Rework question 2 to allow for a 15 year lease with five-year rent reviews.
Discounting Real Estate Cash-Flows to Present Value

Question 1

A retail property has just been let for 6 years at a net rent of £25,000 per annum. The rent is paid annually in advance.

Using a discount rate of 6%, calculate the total present value of the rents to be received during the term of the lease.

You may use the table below to set out your calculations:

<table>
<thead>
<tr>
<th>Rent Received</th>
<th>PV of £1 @ 6% pa</th>
<th>Present value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Discounted Value

Question 2

A similar retail property next door to that described in Question 1 is located on a corner and has the added advantage of a return frontage. Its current rental value is therefore higher at £30,000 per annum. It is occupied by a well-known chain of chemists who have indicated they wish to stay there for the foreseeable future.

Set out a similar table to that shown in Question 1 but incorporate a rent review after 3 years. The new rent, which will then be fixed for the following 3 years, will be based upon an anticipated growth of 3% per annum over the next 3 years. You may make your own assumption regarding yield.

Question 3

Your client proposes to purchase an older industrial property currently let for £40,000 per annum (net) receivable annually in arrears. There are no opportunities to review the rent until the lease expires in 5 years time. It is anticipated that he will have to spend something in the order of £25,000 after 3 years to renew the roof, which is the landlords' responsibility.

Calculate the total present value of those rents, which should reflect the liability of the roof expenditure. You may use a discount rate of 7.5% per annum.

You may use the table below for your calculations.
Question 4

You are responsible for the management of a block of 4 flats. In 5 years time the central heating system will need upgrading at an estimated cost then of £15,000. You propose to set aside a lump sum of money now to make provision for this outlay.

Assuming this money will earn interest at 4% per annum and all tenants will contribute an equal share, how much should each contribute?

Question 5

If the tenants in Question 4 decided they would contribute £4,000 each into the fund, how much would be in the fund in 5 years time?

Question 6

A commercial property has just been let on a 5-year lease at a net rent of £40,000 per annum. The rent is payable annually in advance.

Using a discount rate of 5%, calculate the total present value of the rents to be received during the term of the lease.

You may use the table below for your calculations.

<table>
<thead>
<tr>
<th>Rent</th>
<th>Received</th>
<th>PV of £1 @ 5%</th>
<th>Present (discounted) Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>£40,000</td>
<td>Immediately</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td>After 1 year</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td>After 2 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td>After 3 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td>After 4 years</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Total Discounted Value
Question 7

Rework the question above on the basis of rent being paid annually in arrears.

You may use the table below for your calculations.

<table>
<thead>
<tr>
<th>Rent</th>
<th>Received</th>
<th>PV of £1 @ 5%</th>
<th>Present (discounted) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>£40,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>£40,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>£40,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Discounted Value</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Question 8

Consider how you would modify the "valuation" in Question 7 if the owner had to pay a sum of £10,000 for unexpected repair work at the end of year 2.

Question 9

You are deciding on the discount rate to apply to a retail property in your valuation. Indicate whether you would increase or decrease your proposed rate in view of each of the following circumstances:

<table>
<thead>
<tr>
<th>Circumstances</th>
<th>+ or -</th>
</tr>
</thead>
<tbody>
<tr>
<td>You have secured a first-class tenant</td>
<td></td>
</tr>
<tr>
<td>You have heard that planning permission for a new retail mall nearby has been granted</td>
<td></td>
</tr>
<tr>
<td>The property has been recently modernised</td>
<td></td>
</tr>
<tr>
<td>The tenant wants to take a short lease</td>
<td></td>
</tr>
<tr>
<td>There is a public right of way running across part of the rear service yard</td>
<td></td>
</tr>
</tbody>
</table>
Discounting Blocks of Income

**Question 1**

What is the value of the right to receive £100,000 annually in advance in perpetuity assuming a discount rate of 10%?

- £1,000,000
- £1,100,000
- £10,000
- £995,000

**Question 2**

What is the value of the right to receive £100,000 per annum quarterly in advance in perpetuity assuming an annual nominal rate of 10%?

- £1,062,344
- £40,000,000
- £1,000,000
- £1,250,000

**Question 3**

What is the value of the right to receive £100,000 per annum annually in arrears in perpetuity assuming a discount rate of 10%?

- £100,000
- £10,000,000
- £1,000,000
- £1,250,000

**Question 4**

a) What is the value of the right to receive £100,000 per annum for three years receivable annually in arrears if it grows at 3% compound per annum assuming a target rate of return of 10%. The first payment is £103,000.

b) What is the value of the right to receive £100,000 per annum for three years receivable annually in arrears assuming a target rate of return of 6.8%?

c) What do you notice?
**Question 5**

Your client has a rental income of £1,000 pa for the next 3 years, the first income being received in one year’s time (i.e. in arrears).

Assuming a discount rate of 8% p.a. what is the capital value of these incomes?

**Question 6**

What are the limitations of using YP (PV £1 per annum)?

**Question 7**

A property is expected to produce a rent of £1,000 pa for 3 years followed by £1,500 for the following 3 years followed by £2,000 pa for the final 3 years of a 9 year lease. The rents are paid annually in arrears.

Use a yield of 8% to discount the rents.

**Question 8**

A retail property has just been let for its maximum (rack) rent of £50,000 pa. It is let on a 9-year lease with 3-year rent reviews.

Assuming that the rental value of the premises increases by 4% each year, calculate the rent that can be expected at the first review (after 3 years) and the second review (after 6 years).

*You may use the table below for your answer.*

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£50,000 pa</td>
</tr>
<tr>
<td>4 – 6</td>
<td></td>
</tr>
<tr>
<td>7 - 9</td>
<td></td>
</tr>
</tbody>
</table>

*Check the answers of question 1 with your tutor before proceeding to the next question.*
**Question 9**

Carry out a valuation of the property in Question 1 by "discounting" the rents individually at a yield of 6% pa.

For the purposes of this exercise, assume the rents are paid annually in arrears.

*You may use the table below for your answer.*

<table>
<thead>
<tr>
<th>Rent</th>
<th>Year</th>
<th>PV of £1</th>
<th>Discounted Rent</th>
</tr>
</thead>
<tbody>
<tr>
<td>£50,000</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£50,000</td>
<td>2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£50,000</td>
<td>3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>£</td>
<td>9</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total Discounted Value</strong></td>
<td></td>
<td><strong>£</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Question 10**

Rework the "valuation" in Question 2 using the "Years Purchase" approach. A line diagram is shown below to help you.

*You may use the table overleaf for your answer.*
<table>
<thead>
<tr>
<th>Period</th>
<th>Rent Expected</th>
<th>YP @ 6%</th>
<th>Future Value</th>
<th>PV @ 6%</th>
<th>Discounted Rents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>£50,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Total Discounted Value of Rental Flow £</td>
</tr>
</tbody>
</table>

**Question 11**

You have discovered that the tenant company, to whom the property is about to be let, has been having severe financial difficulties lately.

Rework your valuation to reflect this situation.

*You may use the table below for your answer.*

**Question 12**

If your borrowing rate is 8% per annum but your payments are quarterly, what is the quarterly rate that is used to calculate your payments?

**Question 13**

If your borrowing rate is 12% per annum but your payments are monthly, what is the monthly rate that is used to calculate your payments?
Question 14

A small housing development company (the housing is normal sized – it’s the company that’s small) is interested in buying a plot of land on which there is planning permission to build two houses. Below is their expected cash flow for the development. Interest rate is 10% per annum.

Fill in the blanks.

<table>
<thead>
<tr>
<th>RESIDENTIAL DEVELOPMENT - DISCOUNTED CASH FLOW</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarter</td>
</tr>
<tr>
<td>EXPENDITURE</td>
</tr>
<tr>
<td>Construction</td>
</tr>
<tr>
<td>Demolition</td>
</tr>
<tr>
<td>Prof fees</td>
</tr>
<tr>
<td>Sale fees</td>
</tr>
<tr>
<td>Contingency</td>
</tr>
<tr>
<td>Profit</td>
</tr>
<tr>
<td>RECEIPTS</td>
</tr>
<tr>
<td>Sales</td>
</tr>
<tr>
<td>Net cash flow</td>
</tr>
<tr>
<td>PV</td>
</tr>
<tr>
<td>NPV</td>
</tr>
<tr>
<td>Amount available for land (before deduction of purchase costs)</td>
</tr>
<tr>
<td>Amount available for land (after deduction of purchase costs)</td>
</tr>
</tbody>
</table>
Recap Questions (1)

Question 1

The Market Rent is:

- The current rental value
- The estimated rental value
- The full rental value
- All of the above
- None of the above

Question 2

Assuming a target rate of return of 10%, what is the present value of the right to receive £100,000 of rent after one year?

Question 3

Assuming a growth rate of 10% per annum, how much will £90,909 of rent have grown to after one year?

Question 4

What is the present value of the right to receive £100,000 of rent annually in arrears for three years assuming a discount rate of 10%?

Question 5

What is the present value of the right to receive £100,000 of rent annually in arrears in perpetuity assuming a discount rate of 10%?

Question 6

What is the present value of the right to receive £100,000 in perpetuity annually in arrears starting in three years time (so that the first payment is actually in four years time) assuming a discount rate of 10%?
Question 7
What is the present value of the right to receive £100,000 annually in arrears for the next three years plus £150,000 annually in arrears in perpetuity starting in three years time assuming a discount rate of 10%?

Question 8
What problems do you think confidentiality poses for valuers?

Question 9
What problems do you think thin trading poses for valuers?

Question 10
What problems do you think heterogeneity poses for valuers?

Question 11
You need to be able to work on when rents will change and what they will change to in the future.

Let’s say that a property was let three years ago on a 15 year FRI lease with UORRs every five years. The rent passing is £100,000 and the Market Rent is £120,000. Rents are forecasted to grow at 3% per annum.

What is the rent expected to change to at the first rent review?

- £120,000
- £106,900
- £127,308
- £132,000

Question 12
A property was let on 1 July 2010 on a 10 year FRI lease with UORRs every five years. The rent passing is £200,000 and the Market Rent is £250,000. Rents are forecasted to grow at 2.5% per annum. Assume that the date of valuation is 1 January 2012.

What is the rent expected to change to at the first rent review?

- £250,000
- £272,567
- £271,875
- £218,053
Question 13

A property was let on 1 April 2010 on a 10 year FRI lease with UORRs every five years. The rent passing is £200,000 and the Market Rent is £150,000. Rents are forecasted to grow at 2.5% per annum. Assume that the date of valuation is 1 January 2012.

What is the rent expected to change to at the first rent review?

○ £150,000
○ £200,000
○ £219,403
○ £164,553
Recap Questions (2)

Question 1
A shop has just been let on a 15 year FRI lease with upward only rent reviews every five years at £100,000 per annum annually in arrears.

What is its value assuming a capitalisation rate or yield of 10%?

- £826,466
- £1,100,000
- £1,000,000
- £760,608

Question 2
A shop let on a 15 year FRI lease with upward only rent reviews every five years has just had a rent review setting the rent at £75,000 per annum. A sale price has just been agreed at £1,250,000.

What yield (capitalisation rate) is indicated by this transaction?

Question 3
The (larger) shop next door was just been let on a 15 year FRI lease with upward only rent reviews every five years at £100,000 per annum annually in arrears.

What is its value?

YOU ONLY NEED TWO PIECES OF INFORMATION TO VALUE A RACK RENTED PROPERTY!!!!

When properties are not rack rented, valuing them becomes a bit more complicated. Essentially we have to put a value on two components.
**Question 4**

A shop’s current Market Rent is £100,000. However, the rent can’t change for another three years.

What is the value of the right to receive £100,000 in perpetuity receivable annually in arrears but starting in three years’ time assuming a capitalisation rate or yield of 7.5%?

- £1,073,281
- £1,100,000
- £1,000,000
- £1,123,452

**Question 5**

The same shop was let two years ago on a 15 year FRI lease with upward only rent reviews every five years at £75,000 per annum.

What is the value of the right to receive the £75,000 for three years (WHY IS IT FOR THREE YEARS?) receivable annually in arrears assuming a capitalisation rate/yield of 7.5%? *(Remember – it’s the Present Value of £1 per annum formula)*

- £193,311
- £225,000
- £195,039
- £223,452

**Question 6**

A shop nearby was let three years ago on a 15 year FRI lease with upward only rent reviews every five years at £125,000 per annum (HOW MANY YEARS WILL THIS BE RECEIVED?). Its current Market Rent is £150,000.

What is the value of the freehold interest in the shop assuming a capitalisation rate/yield of 6.5%?

- £2,034,598
- £2,307,692
- £1,923,077
- £2,262,177

**Question 7**

What are the four pieces of information to value a reversionary property? (2 facts, 2 estimates)
**Question 8**

What is the value of the right to receive an income of £100,000 per annum for five years receivable annually in arrears when the cash flow is growing at 4% per annum assuming a target rate of return of 10%?

NB. The first payment will be £104,000 etc. Work through the cash flow, discount each cash flow and add them up.

When you have done this, compare it with valuing this cash flow by keeping the £100,000 static but applying a discount rate of 5.7692%.

**Question 9**

As you may notice, everything in traditional valuation methods (by far the most commonly used in practice) is expressed in current terms. The rent paid is, er, the rent actually being paid. The Market Rent is the estimated amount that the property could currently let for. How is the fact that the rents will (almost certainly) change in the future not accounted for in the valuation? How is future growth taken into account?

a) It is assumed that there is no future growth and that rents will stay the same:
   - ○ True
   - ○ False

b) Future rental growth is taken into account in the yield:
   - ○ True
   - ○ False

c) We can estimate the implied future rental growth by analysing yields:
   - ○ True
   - ○ False

d) You need to forecast rental growth to estimate Market Value:
   - ○ True
   - ○ False
Recap Questions (3)

Question 1
How much will £100 be worth if it grows at 8% for five years with interest payable annually?

- £147.76
- £146.93
- £158.69
- £59049

Question 2
How much will £100 be worth if it grows at 2% per quarter for five years?

- £148.81
- £146.93
- £148.59
- £110.41

Question 3
Calculate the value of the right to receive £100 receivable in five years’ time assuming a discount rate of 8%.

- £146.93
- £399.27
- £68.06
- £63.01

Question 4
Calculate the value of the right to receive £100 every year for five years payable annually in arrears assuming a discount rate of 8%.

- £399.27
- £462.28
- £68.06
- £146.93

Question 5
Calculate the value of the right to receive £100 every year for five years payable annually in advance assuming a discount rate of 8%.

- £462.26
- £431.21
- £399.27
- £68.06
Question 6
What is the value of the right to receive £100,000 annually in advance in perpetuity assuming a discount rate of 8%?

- £1,250,000
- £1,350,000
- £1,000,000
- £800,000

Question 7
What is the value of the right to receive £100,000 per annum quarterly in advance in perpetuity assuming an annual nominal rate of 8%?

- £1,311,660
- £5,147,595
- £1,250,000
- £1,350,000

Question 8
The IRR is the discount rate at which:

- The NPV is positive.
- The NPV is negative
- The NPV is correct
- The NPV is balanced
- None of the above

You should be able to guess or infer the answers to the next questions.

No calculations allowed

Question 9
In order to calculate the IRR of a potential investment, you estimate two NPVs.

At 10% NPV is £251.32 and at 20% NPV is -£26.62.

What is the IRR

- 12.31%
- 15.2%
- 18.9%
- 22.1%
Question 10

In order to calculate the IRR of a potential investment, you estimate two NPVs.

At 10% NPV is £410.58 and at 20% NPV is £89.12 (positive).

What is the IRR?

○ 23.6%
○ 10.2%
○ 18.9%
○ Not enough information

Question 11

An investment generates the following cash flow:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Expenditure</th>
<th>Income</th>
<th>Capital Receipt</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-£100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>£5</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>£5</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>£5</td>
<td>£100</td>
</tr>
</tbody>
</table>

What is the capital return per period?

○ 0%
○ 6%
○ 5%
○ None of the above
Question 12

An investment generates the following cash flow:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Expenditure</th>
<th>Income</th>
<th>Capital Receipt</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-£100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>£10</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>£10</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>£10</td>
<td>£110</td>
</tr>
</tbody>
</table>

a) What is the income return per period?
   - 0%
   - 10%
   - 13.33%
   - None of the above

b) Approximately what is the capital return (per period) of the investment (approx.)?
   - 0%
   - 10%
   - 3%
   - None of the above

c) What is the Internal Rate of Return (IRR) of the investment (approx.)?
   - 20%
   - 10%
   - 13%
   - None of the above
Question 13

Fill in the blanks below:

Think about a rich woman buying a big house in London, leasing it for £75,000 per annum and selling it for £1,200,000. What IRR did she get? What was her achieved NPV?

<table>
<thead>
<tr>
<th>Period</th>
<th>Purchase</th>
<th>Sale</th>
<th>Net Cash</th>
<th>PV factor @ 10%</th>
<th>PV of cash flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-£1,000,000</td>
<td></td>
<td>-£1,000,000</td>
<td>1.0000</td>
<td>-£1,000,000</td>
</tr>
<tr>
<td>1</td>
<td>£75,000</td>
<td>£75,000</td>
<td>0.9091</td>
<td>£61,983</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>£75,000</td>
<td>£75,000</td>
<td>0.8264</td>
<td>£56,349</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>£75,000</td>
<td>£75,000</td>
<td>0.6830</td>
<td>£51,226</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>£75,000</td>
<td>£75,000</td>
<td>0.6209</td>
<td>£791,675</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>£75,000</td>
<td>£1,200,000</td>
<td>£1,275,000</td>
<td>0.6209</td>
<td>£791,675</td>
</tr>
</tbody>
</table>

NPV | £1,029,415 |
IRR | 10.73% |
When you are asked to "value" a property, you are essentially trying to convert one type of asset into another. The purchaser will receive a property and in return the purchaser will hand over a lump sum of cash to the vendor.

In commercial property, the "return" to the purchaser comes in the form of an income for a set number of years (or indefinitely if it’s a freehold interest)

Because these incomes will be received over a long period, we cannot simply add up the face value of the incomes to be received and equate that to the "value" in today's terms...
...an income to be received in the future has a lower value in today's terms and thus the rent has to be "discounted" at an appropriate rate.

<table>
<thead>
<tr>
<th>Period</th>
<th>Rents Expected*</th>
<th>Discounted Present Value (@10%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Year 1</td>
<td>£5,000</td>
<td>£5,000</td>
</tr>
<tr>
<td>Year 2</td>
<td>£5,000</td>
<td>£4,545</td>
</tr>
<tr>
<td>Year 3</td>
<td>£5,000</td>
<td>£4,132</td>
</tr>
<tr>
<td>Year 4</td>
<td>£5,000</td>
<td>£3,756</td>
</tr>
<tr>
<td>Year 5</td>
<td>£5,000</td>
<td>£3,415</td>
</tr>
<tr>
<td>Total “value” today</td>
<td></td>
<td>£20,848</td>
</tr>
</tbody>
</table>

* This example assumed that rents are received in advance

Therefore "valuing" a property involves two stages:

**Stage 1:** Estimating the amount of rent to be received in each year

**Stage 2:** Converting (or discounting) those rents to be in terms of their present equivalent value

The first stage usually involves assessing the current level of rent and then applying a "rental growth" factor to estimate the future rents. Once you have identified the rents expected, you can adopt one of
two approaches to convert them to their present day equivalent value (i.e. the discounting process). You can:

Discount each rent individually using the discounting (PV) table.

OR

Discount them in "blocks" using the YP (years purchase) table.

<table>
<thead>
<tr>
<th>Discounting Rents Individually</th>
<th>Discounting Rents in Blocks</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
</tr>
<tr>
<td>➢ Very logical</td>
<td>➢ Quicker</td>
</tr>
<tr>
<td>➢ Can cope with rents in arrears or advance very easily</td>
<td></td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td></td>
</tr>
<tr>
<td>➢ Very time consuming if you have a long period to deal with</td>
<td>➢ Initially very confusing</td>
</tr>
<tr>
<td></td>
<td>➢ Requires 2 tables (YP and PV)</td>
</tr>
<tr>
<td></td>
<td>➢ YP table must “match” the rental pattern (arrears/advance)</td>
</tr>
</tbody>
</table>

In compiling your PV table (called a discounted cash flow table), in addition to the rents, you need to know the discount rate and the rental pattern (i.e. receivable in advance or in arrear). The example shown above has rents paid in advance. This can be deduced because the first rent is actually not discounted and is worth its full face value. Where necessary, the table can be easily modified to reflect a rental pattern where rents are received in arrears. This would involve discounting the initial rent for one year and the second rent for two years and so on.

Although this is quicker, it does initially cause some confusion because it involves a two-stage discounting process. It is particularly beneficial for properties held for longer terms.

**Question**

Value a property that has a current rental value of £12,000 p.a. This has just been let on a 25 year lease with five-year review periods. Rents are paid annually in arrears. Assume a rental growth rate (to estimate future rents) of 2% p.a. and a discount rate of 7%.
IPD Valuation – Financial Maths Assessment

Question 1

How much will £100 be worth if it grows at 5% for 10 years with interest payable annually?

- £150.00
- £163.93
- £161.69
- £162.89

Question 2

Calculate the present value of the right to receive £100 receivable in 10 years time assuming a discount rate of 5%.

- £62.39
- £50.00
- £61.39
- None of the above

Question 3

Calculate the present value of the right to receive £100 every year for ten years payable annually in arrears assuming a discount rate of 5%

- £772.17
- £61.39
- £1000
- £693.21

Question 4

What is the quarterly equivalent of an annual interest rate of 10%?

- 2.5%
- 2.41%
- 1.94%
- 2.61%
Question 5

What is the present value of the right to receive £100 every year in perpetuity (forever) receivable annually in arrears assuming a discount rate of 5%?

- £500
- £1250
- £2100
- None of the above

Question 6

What is the present value of the right to receive £100 every year in perpetuity (forever) receivable annually in arrears starting in three years’ time (n.b. first payment is received in four years) assuming a discount rate of 5%?

- £1727.67
- £1645.40
- £1681.23
- £1645.40
- £2000

Question 7

What is the present value of the right to receive £50 every year for three years receivable annually in arrears plus £100 every year in perpetuity (forever) receivable annually in arrears starting in three years’ time assuming a discount rate of 8%?

- £1781.57
- £1863.84
- £1792.85
- None of the above

Question 8

In order to calculate the IRR of a potential investment, you estimate two NPVs. At 10% NPV is £110.50 and at 20% NPV is -£109.95. What is the IRR approximately?

- 12%
- 15%
- 19%
- 21%
Question 9

In order to calculate the IRR of a potential investment, you estimate two NPVs. At 10% NPV is £600 and at 20% NPV is £100 (positive). What is the IRR approximately?

- 22%
- 15%
- 18%
- 30%

Question 10

An investment generates the following cash flow:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Expenditure</th>
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<td>3</td>
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<td>5</td>
<td>100</td>
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What is the capital return per period?

- 0%
- 6%
- 5%
- None of the above

Question 11

An investment generates the following cash flow:

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<td></td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>10</td>
<td>110</td>
</tr>
</tbody>
</table>

What is the income return per period?
**Question 12**

Fill in the blanks:

```
<table>
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<td>£1,200,000</td>
<td>£1,275,000</td>
<td>0.6209</td>
<td>£1,029,415</td>
</tr>
</tbody>
</table>
```

**Question 12**

The term rent is:

- Rent payable until rent review or lease expiry
- Rent payable until lease expiry
- Rent payable at rent review
- Rent payable per quarter
- None of the above
Question 13

Which of the following statements are true?

*Valuers’ estimates of the Market Value of real estate assets.....*

a) Act as a proxy in real estate markets for their actual prices.
b) Will always be accurate.
c) Are not mainly reliant on transaction evidence from real estate markets
d) Will not vary between different valuers.
e) Will change every month.

Question 14

Which of the following statements are true?

*Appraisers estimates of the Investment Value of real estate assets....

a) Act as a proxy in real estate markets for their actual prices.
b) Are used to measure historic investment performance.
c) Are mainly reliant on transaction evidence from real estate markets
d) Will not vary between different appraisers.
e) Are often used to estimate potential offer prices in the asset acquisition process.

Question 15

Which of the following statements are true?

*IPD use estimates of Market Value in order to.....

a) Estimate price changes in commercial real estate markets.
b) Estimate investment performance of real estate assets.
c) Estimate total returns for assets, sectors and investment groups
d) Benchmark the investment performance of different investors.
e) Estimate capital returns for assets, sectors and investment groups
Yields

Question 1

a) Compare the capital value of a property producing an income of £300,000 p.a. using yields of:
   i. 5%
   ii. 5.5%

b) List three facts about YIELDS.

c) List three facts about VALUATIONS.

d) How do clients use information on yields in their decision-making process?

Question 2

A retail property is about to be auctioned. It is currently let at its rack rent of £120,000 p.a. The property is located in a prime position and bidding should be brisk. Assuming the bidding starts at £1,000,000 and proceeds in £100,000 steps to the eventual sale figure of £1,800,000:-

a) Plot the initial yield at each bid
b) Explain what you see

Question 3

Where might you obtain yield information from?

Question 4

A retail property has been vacant for some time. Its potential rental value (if a tenant could be found) would be about £60,000 p.a. The property was recently purchased by a speculator who has succeeded in persuading a well-known national retailer to take a 15-year lease but at an initial rent of £55,000 p.a.

Consider the effect of this on the capital value by comparing the situation when empty and when tenanted.

Remember: \[ \text{capital value} = \frac{\text{rental value}}{\text{yield}} \]

Question 5

Your client owns the freehold interest in a retail property, which has just been let for a term of 15 years with 5 yearly rent reviews. The initial rent is £45,000 p.a. but rental values are expected to rise by an average of 4% p.a. over the term of the lease.

Using an equated yield of 9%, prepare a detailed DCF table showing the total net present value of the incomes over that period. Complete the DCF by capitalising the remaining term using an initial yield of 6% p.a.
Use the table below for your answer (the shaded column is optional).

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP</th>
<th>Future CV</th>
<th>PV</th>
<th>Net Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>£45,000 pa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You are advised to draw a diagram to assist in visualising the cash flows.

**Question 6**

Rework Question 5 to extend the detailed DCF calculations through a second 15-year lease period before completing the remainder of the term. Compare the two outcomes.

*Either re-enter all the data from the first 15 years into the table below or just the NPV figures for that period.*

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP</th>
<th>Future CV</th>
<th>PV</th>
<th>Net Present Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You don’t need to do any valuation for the first part of the next three questions. You need to solve the problem using some instinct and intuition (have a guess first) and a graph (apply some logic). Then, use your estimate to check if you are right.
Question 7

An office has just been sold for £13m. It is let at £500,000 per annum on a 20 year FRI lease with upwardly only rent reviews every five years. The current Market Rent is £750,000. There are three years until the next rent review. I valued at 6% and 5% and got £11.832m and £14.319m respectively.

The actual yield (in this deal) must be close to?
Can you plot the values and yields on a graph to work on the actual yield obtained when the property was sold?
Can you value the property using yield of 6.5%? You should get an answer close to £13m?

Question 8

A shop has just been sold for £2,864,000. It is let at £100,000 per annum on a 20 year FRI lease with upwardly only rent reviews every five years. The current Market Rent is £150,000. There are three years until the next rent review. I tried 4.75% and 5.25% and got £3.021m and £2.722m respectively.

The actual yield must be close to?
Can you plot the values and yields on a graph to work on the actual yield obtained when the property was sold?
Can you value the property using your estimate? You should get an answer close to £2.864m?

Question 9

A warehouse has just been sold for £6.5m. It is let at £300,000 per annum on a 20 year FRI lease with upwardly only rent reviews every five years. The current Market Rent is £400,000. There are two years until the next rent review. I valued at 5% and 6.25% and got £7.81m and £6.22m respectively.

The actual yield must be close to? Can you do a check?
Question 10

A retail warehouse has just been sold for £32m. It is let at £1,000,000 per annum on a 20 year FRI lease with upwardly only rent reviews every five years. The current Market Rent is £1,300,000. There are two years until the next rent review. I valued at 5% and 4.5% and got £25.5m and £28.33m respectively.

The actual yield must be close to? Can you do a check?

Question 11

Your director has asked you to advise on the Market Rent and yields for Property 1 to be valued in a business park. The property in question is a 15,000 square metre (net internal area) office development constructed three years ago. Fortunately a number of recent letting and investment transactions have taken place in the park. Property 1 was let three years ago on a 20 year lease on an FRI basis with upward only rent reviews every five years. The rent passing is £2,500,000 per annum. Property 2 of similar age and specification (16,000 square metres net internal area) was let a month ago at a rent of £3,200,000. Property 3 of similar age and specification (14,500 square metres net internal area) was let two months ago at a rent of £2,900,000. This property has recently been sold for £48,330,000. Property 4 of similar age and specification (15,000 square metres net internal area) has just been sold for £48,050,000. It was let two years ago on a 20 year full repairing and insuring lease with five yearly upwardly only rent reviews at a rent of £2,850,000.

a) The Market Rent of Property 1 is:

- £3,350,000
- £2,750,000
- £3,000,000
- £2,500,000
- None of the above

b) An appropriate All Risks Yield would be:

- 6.5%
- 4.5%
- 5%
- 5.5%
- 6%
c) The equivalent yield is:

- 6.25%
- 6.2%
- 6%
- 6.5%
- None of the above

d) The value of property 1 is:

- £45,217,000
- £47,473,000
- £47,531,000
- £47,061,000
- None of the above

**Question 12**

What is the quarterly effective rate of an annual nominal interest rate of 10%?

- 2.5%
- 2.41%
- 4%
- 40%
- None of the above
Equivalent Yields

One of the most common measures of a properties relative value is Net Initial Yield (NIY). Indeed, a common question at the RICS Assessment of Professional Competence is to define NIY, which is:

Question 1
Assuming transaction costs at 5.8%, what Net Initial Yield is reflected in a deal selling a High Street shop for £2,116,000 where the rent received is £100,000?

Question 2
A property has just been sold at a Net Initial Yield of 7.5%. The rent received is £1,058,000. Assuming transaction costs of 5.8%, what was the price paid?

Working out the (net) equivalent yield is much trickier. However, it is just the same as working out the IRR. You need to estimate the Market Value (NPV in IRR) twice and interpolate. This requires you to guess the yield.

Question 3
A warehouse property has just been sold for £12,040,000. The property is 7,500 sq meters (Gross Internal Area). Recent letting transactions suggest that the property’s Market Rent is £100 psm. The current rent passing is £500,000. It was let three years ago on a 15 year FRI lease with upward-only rent reviews every five years. Assuming transaction costs at 5.8%, can you calculate the equivalent yield indicated by this transaction?

First you need to work on the total amount of money invested – Price plus acquisition costs. Then you need to value the property twice using (guessed) yields.

The equivalent yield is always somewhere between the NIY and the reversionary yield (Market Rent/Price paid plus purchaser’s costs).

Question 4
The adjacent warehouse property has to be valued. The property is 6500 square metres (Gross Internal Area). The current rent passing is £425,000. It was let 2.5 years ago on a 15 year FRI lease with upward-only rent reviews every five years. Assuming transaction costs at 5.8%, what is its Market Value?
Yields and Acquisition Costs

When trying to teach valuation and appraisal, in order to focus on the broad principles, I often omit details such as acquisitions costs when working out yields and calculating values. However, in practice, they need to be included. It isn’t complicated but it’s another thing to think about.

Let’s take an example. A property has just been sold.

<table>
<thead>
<tr>
<th>Rent Passing</th>
<th>£410,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market Rent</td>
<td>£625,000</td>
</tr>
<tr>
<td>Term</td>
<td>3 Yrs</td>
</tr>
<tr>
<td>Price Paid</td>
<td>£8,553,100</td>
</tr>
</tbody>
</table>

Investors actually work out the Net Initial Yield. They calculate the relationship between money invested i.e. the price paid plus acquisition costs and the rental income.

In the case above, the total money invested assuming acquisition costs of 5.7625%:

\[ £8,553,100 + £492,872 = £9,045,962 \]

The Net Initial Yield is then:

\[ £410,000/£9,045,962 = 4.53\% \]

Essentially, yields are calculated by adding acquisition costs onto the price paid. It suggests a reversionary yield of:

\[ 625,000/9,045,962 = 6.91\% \]

Can you work out the equivalent yield indicated by the deal above?

Remember: (a) the equivalent yield has to be between the initial and the reversionary yield, (b) you take two guesses of the yield to do two valuations and (c) you can use graphical interpolation to estimate the yield by plotting the valuations and yields.

Then when a valuation is done it is standard practice to adjust the valuation by taking off acquisition costs. Unfortunately this is not quite as simple as deducting 5.5% or 5.7625% from the valuation estimated gross of costs.
For example:

Valuation (gross of costs) = £1,000,000

Less acquisition costs at 5.7625% = 1,000,000(0.942375) = 942,375

What is the problem with this calculation? If we start from £942,375 and then add 5.7625% acquisition costs £942,375 * 1.057625), the total is £996,679 not £1,000,000. This is because acquisition costs are calculated as a proportion of the actual price and not the gross of costs valuation. For example, Stamp Duty is 4% of the price paid (which the valuation is trying to estimate) and not 4% of the price paid including acquisition costs.

The calculation is:

Valuation net of acquisition costs =

In the example above we know that:

- Valuation net of acquisition costs*(1.057625) = Valuation gross of acquisition costs
- Dividing both sides by 1.0525
- Valuation net of acquisition costs = 1,000,000/1.057625 = £945,515 = valuation net of acquisition costs.

So, the final step in all valuations is to take off acquisition costs.

Question 1

A retail unit is currently let at a rent of £150,000 per annum with three years until the next rent review. Market evidence suggests that the Market Rent is £200,000. The unit has been sold for £3,025,350. Assuming acquisition costs of 5.7625%, which of the following statements is false.

a) The unit is reversionary
b) The net initial yield is 4.69%
c) The reversionary yield is 6.25%
d) The equivalent yield is 6%
e) All statements are false

No. 10 High Street has recently been let to a major jewellery retailer on a 20 year full repairing and insuring lease from 1 October 2010 with five yearly upwardly only rent reviews. The current rent passing is £75,000 per annum. It has just been sold to an institutional investor for £1,181,500.
Question 2

Assuming acquisition costs at 5.7625%, the All Risks Yield is

a) 16.67%

b) 15.75%

c) 6.00%

d) 6.35%

e) None of the above

Question 3

A property has been just been let at £100,000 per annum on a 15 year FRI lease with UORR every five years. Market transactions suggest that similar properties are selling at all risks yields of 6.5%. Assuming acquisition costs of 5.7625%, what is the Market Value of the property?

a) £1,538,462

b) £1,449,808

c) £1,454,638
Yields and Transaction Costs

Question 1
A retail unit is currently let at a rent of £150,000 per annum with three years until the next rent review. Market evidence suggests that the Market Rent is £200,000. The unit has been sold for £3,025,350. Assuming transaction costs of 5.7625%, which of the following statements is false:

a) The unit is reversionary
b) The net initial yield is 4.69%
c) The reversionary yield is 6.25%
d) The equivalent yield is 6%
e) All statements are false

Question 2
No. 10 High Street has recently been let to a major jewellery retailer on a 20 year full repairing and insuring lease from 1 September 2010 with five yearly upwardly only rent reviews. The current rent passing is £75,000 per annum. It has just been sold to an institutional investor for £1,181,500.
Assuming transaction costs at 5.7625%, the All Risks Yield is:

a) 16.67%
b) 15.75%
c) 6.00%
d) 6.35%
e) None of the above

Question 3
A shop in Princes Street, Edinburgh has recently been sold. You have been provided with the following details

<table>
<thead>
<tr>
<th>Sale Price:</th>
<th>£5,744,254</th>
</tr>
</thead>
<tbody>
<tr>
<td>Term until rent review:</td>
<td>3 years</td>
</tr>
<tr>
<td>Rent passing:</td>
<td>£200,000</td>
</tr>
<tr>
<td>Market Rent:</td>
<td>£250,000</td>
</tr>
</tbody>
</table>

What is the equivalent yield? (Set up the valuation in Excel and change the yield until it gives you an answer of £5,744,254.)

48
Question 4

The valuation of a NHS hospital would typically involve the use of:

- The cost approach
- The income approach
- The residual approach
- The hospital approach
- All of the above

Question 5

The income approach is generally used to value:

- Houses
- Offices
- Hotels
- Individuals’ net wealth
- Public houses

Question 6

The Market Rent is often termed:

- The current rental value
- The estimated rental value
- The full rental value
- The rack rental value
- The Open Market Rental Value (OMV)
- All of the above

Question 7

A property is rack rented when:

- The rent passing > Market Rent
- The rent passing < Market Rent
- The rent passing = Market Rent
- All of the above
- None of the above
Question 8
A freeholder has:
- A lease on a property
- Ownership of a property
- A property without cost
- The right to evict the tenant
- The right to enter

Question 9
In the UK, rent reviews take place:
- Every quarter
- Every year
- Every five years
- At the end of the lease
- Whenever the tenant requests

Question 10
In the UK, the rent at rent review:
- Can only fall
- Can only rise or remain the same
- Can rise or fall
- Rises only with inflation
- None of the above

Question 11
Typically in the UK, the tenant pays for:
- All repairs and Insurance
- Full insurance
- Full internal repairs and insurance
- Just internal repairs
- Full internal insurance
Question 12

The term rent is:

- [ ] Rent payable until rent review or lease expiry
- [ ] Rent payable until lease expiry
- [ ] Rent payable at rent review
- [ ] Rent payable per quarter
- [ ] None of the above

Question 13

Which of the following statements are true?

*Valuers’ estimates of the Market Value of real estate assets….*

- [f] Act as a proxy in real estate markets for their actual prices.
- [g] Will always be accurate.
- [h] Are not mainly reliant on transaction evidence from real estate markets
- [i] Will not vary between different valuers.
- [j] Will change every month.

Question 14

Which of the following statements are true?

*Appraisers estimates of the Investment Value of real estate assets….*

- [f] Act as a proxy in real estate markets for their actual prices.
- [g] Are used to measure historic investment performance.
- [h] Are mainly reliant on transaction evidence from real estate markets
- [i] Will not vary between different appraisers.
- [j] Are often used to estimate potential offer prices in the asset acquisition process.

Question 15

Which of the following statements are true?

*IPD use estimates of Market Value in order to….*

- [f] Estimate price changes in commercial real estate markets.
- [g] Estimate investment performance of real estate assets.
- [h] Estimate total returns for assets, sectors and investment groups
- [i] Benchmark the investment performance of different investors.
- [j] Estimate capital returns for assets, sectors and investment groups
Recap Questions

Question 1

A retail unit is currently let at a rent of £125,000 per annum with three years until the next rent review. Market evidence suggests that the Market Rent is £150,000. The unit has been sold for £1,666,660.

Assuming transaction costs of 5.8%, which of the following statements is false:

- The unit is reversionary
- The net initial yield is 7.09%
- The reversionary yield is 8.51%
- The equivalent yield is 7.00%
- The total sum invested is £1,763,326

Question 2

No. 20 High Street has recently been let to a major jewellery retailer on a 20-year full repairing and insuring lease from 1 March 2012 with five-yearly upward-only rent reviews. The current rent passing is £250,000 per annum. It has just been sold to an institutional investor for £2,953,686.

Note that when the property sold is rack-rented, the Net Initial Yield, Reversionary Yield and the Equivalent Yield are all the same. (Confusingly?) This is called the All Risks Yield.

Assuming transaction costs at 5.8%, the Net Initial Yield/All Risks Yield is:

- 12.5%
- 8.46%
- 8.00%
- 11.75%
- None of the above

Question 3

Estimating the Market Value of reversionary properties requires:

- Estimates of Market Rent and yield and information on period to rent review or lease expiry and the rent paid.
- Estimates of Market Rent and yield, information on period to rent review or lease expiry and an estimate of the investor’s target rate of return.
- Just information on rent paid and the yield.
- Estimates of Market Rent and yield, information on period to rent review or lease expiry, an estimate of the investor’s target rate of return, estimates of rental growth, depreciation and future sale price.
- None of the above are required.
Question 4

A development appraisal of an office site taking into account costs and revenues (apart from finance costs and land acquisition fees and taxes) produces the following net cash flow.

What is the residual surplus available for land purchase assuming finance costs at 10% per annum and land acquisition fees and taxes at 5.8% of land value (give or take £500)?

- £1,000,000
- £942,000
- £945,179
- £1,058,000
- None of the above

Question 5

Going concern value is the basis for estimating the value of:

- Retail Warehouse parks
- Business parks
- Distribution parks
- Educational facilities
- None of the above

Question 6

No. 6 Width Street has been the subject of recent open market activity. It was let two months ago to AGP (a major US fashion chain) on a 15-year full repairing and insuring lease with five-yearly upward-only rent review provisions. The rent agreed was £288,750 per annum. It has an 11 metre frontage and is 15 metres deep. It is a two-storey property with the first-floor being used for storage. The first-floor is also 11 metres by 15 metres.

A square metre of the first-floor storage has a Market Rent of 5% of a square metre of Zone A. Zone A is the first six metres.

Give or take £10, the Market Rent per square metre ITZA indicated by the letting of No. 6 is:

- £1750
- £1666
- £1255
- £2500
- None of the above
**Question 7**

For residential land and property transacting at £1,000,000 or more, in the UK stamp duty land transfer tax (SDLT) is currently:

- 3.5%
- 4%
- 5.8%
- 5%
- None of the above

**Question 8**

Which of the following statements is false?

*When estimating Market Value using conventional equivalent yield approaches:

- All inputs are expressed at current levels.
- It is assumed that there is no future growth in rent and it is expected that rents will stay the same.
- Rental growth is implied in the yield.
- The equivalent yield is often obtained from the analysis of transactions involving comparable properties.
- Property heterogeneity can limit the reliability of comparables as signals of price levels.
SIMPLE INVESTMENT ANALYSIS

Relationship between capital and income

Question 1

An investor deposited a capital sum of £6,000 and receives an annual income of £480 (gross).

What is the yield expressed in annual terms?

Question 2

A variation of the above is where the yield and capital are known and we wish to calculate the total expected annual income. This simply requires a modification of the formula:

\[ \text{Annual Income} = \text{________} \]

An investment pays a gross yield of 11.5% pa. What annual income is produced from an initial capital deposit of £90,000?

Question 3

The third variation is where the yield is known and we are asked to calculate the amount of capital required to generate a particular level of income.

Once again the formula is modified as follows:

\[ \text{Capital} = \text{________} \times 100 \]

An investor wishes to receive an income of £7,000 per annum from a Building Society account currently given a yield (interest rate) of 5%.

What capital sum has to be invested?
**Investments giving capital growth only**

**Question 4**

Yield analysis where the investment gives its **return** in the form of **capital growth** is equally straightforward so long as the investment is held for exactly one year. This is because the standard yield is calculated as a rate **per annum** and any price increase can be expressed as a percentage of the in the original capital value:

\[
\text{Yield} = \frac{\text{Final Price} - \text{Initial Price}}{\text{Initial Price}} \times 100
\]

An investor bought a vintage motor car for £50,000 and sold it 1 year later for £55,000. What yield did the investment show?

However, if the gain is accumulated over several years the calculations become more difficult since the yield, to be meaningful, should be expressed on an annual basis. The mathematics now involves the principal of **compounding**.

**Question 5**

An investor purchased an antique for £3,000 and sold it 9 years later for £5,400. What yield did the investment produce in annual percentage terms?
Investments giving both income and capital growth - Analysis v. Speculation

Calculations are simple when done retrospectively but at the time of investment the investor will not of course, know the eventual selling price of the article. The analysis will therefore take the form of a calculation to assess whether the likely sale price based on past performance and the expected market conditions will produce a sufficient yield to warrant investment.

Some investments have a possibility of giving both. The main investments that fall into this category are stocks and shares and property. Question 7 provides a relatively simple example:-

**Question 1**

An investor purchased a property for £150,000 which he held for 5 years. During that time he let in out as a holiday home and received a net income of £13,500 pa. At the end of the 5 years he sold it for £200,750.

What total yield does this investment show?

**Question 2**

An investor holds 5,000 shares in a textile company that she purchased 4 years ago at a price of £1.30/share. She sold them recently for £1.60/share and in the meantime had received dividends averaging £455 pa.

What total yield does this investment show?

**Question 3**

An investor has £14,000 into her Building Society account. She recently received her half-yearly interest payment of £1,085. What annual interest rate does the account pay?

**Question 4**

Mrs. Williams has £250,000 deposited in a deposit account at her bank. Last year this gave 5.75% pa interest. What income did she receive?

**Question 5**

An income of £4,225 was received last year from an investment with an interest rate of 6.5% pa.

How much capital had been invested?
**Question 6**

An investor purchased a rare oil painting for £45,000 recently. He hopes his investment will show a yield equivalent to 6% pa.

If he sells it in 7 years time what sum must it fetch in order to meet this target?

**Question 7**

A price of £22,500 was recently paid for a painting. The vendor paid £15,000 for it 6 years earlier.

What annual yield did this investment show?

**Question 8**

You bought 1000 BT shares when they were privatised at a cost of £1.87 each. You sold them 7 years later when the share price had risen to £2.76. Whilst you held the shares you had a dividend payment of £200 each year.

What was the total yield?

*Remember always express yields as a % per annum!*
Question 1
What are the typical characteristics of a prime property?

Question 2
Excluding rent and value list eight ways in which properties may differ.
(Think about two shops next to each other on a busy High Street)
Question 3

The supply of property is elastic:

- True
- False

Question 4

Bond income payments are termed dividends:

- True
- False

Question 5

Commercial property is highly liquid:

- True
- False

Question 6

Commercial property provides capital security:

- True
- False

Question 7

Income from commercial property is closely linked to inflation:

- True
- False

Question 8

Share prices are volatile:

- True
- False

Question 9

Property provides poor diversification benefits:

- True
- False
Question 10

Which of the following statements is false?

- Commercial property generally offers investors less income security than government bonds
- In UK commercial property leases, rents always go to market level at rent review
- Commercial property assets are usually less liquid than shares in listed property companies.
- Trading costs for commercial property are higher than for shares and bonds
- The capital values of commercial properties can fall as well as rise

Question 11

RICS stands for:

- Royal Institution of Certified Surveyors
- Royal Institute of Chartered Surveyors
- Royal Institute of Certified Surveyors.
- Royal Institution of Chartered Survivors
- None of the above

Question 12

Investors’ target rates of return from real estate assets are often linked to:

- Expected inflation only
- Expected risk premium for real estate only
- Minimum required return for investing cash or giving up liquidity
- All of the above
- Only (a) and (b)
Question 13

To assess risk the valuer will need to know:

<table>
<thead>
<tr>
<th>NATURE OF RISK</th>
<th>SOURCE OF INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Risk to the Income</strong></td>
<td></td>
</tr>
<tr>
<td>Is it tenanted? If not, what are the prospects of attracting a good tenant?</td>
<td></td>
</tr>
<tr>
<td>If it is tenanted, is the tenant reliable, financially sound</td>
<td></td>
</tr>
<tr>
<td><strong>Characteristics of the Rental Flow</strong></td>
<td></td>
</tr>
<tr>
<td>The Frequency/pattern of rent</td>
<td></td>
</tr>
<tr>
<td>The rent review pattern</td>
<td></td>
</tr>
<tr>
<td>Other lease terms</td>
<td></td>
</tr>
<tr>
<td><strong>Risks Attached to the Physical Asset</strong></td>
<td></td>
</tr>
<tr>
<td>Is the building structurally sound?</td>
<td></td>
</tr>
<tr>
<td>Is it a good location?</td>
<td></td>
</tr>
<tr>
<td>Are there any future developments likely to improve/detract from, the investment potential?</td>
<td></td>
</tr>
<tr>
<td><strong>Legal and/or Legislative Threats</strong></td>
<td></td>
</tr>
<tr>
<td>Are there terms in the lease that restrict the landlords powers?</td>
<td></td>
</tr>
<tr>
<td>Are there legislative proposals in the pipeline that will affect the investment</td>
<td></td>
</tr>
<tr>
<td><strong>Future Trends</strong></td>
<td></td>
</tr>
<tr>
<td>Rental growth?</td>
<td></td>
</tr>
<tr>
<td>Competing investments</td>
<td></td>
</tr>
<tr>
<td>Interest rates</td>
<td></td>
</tr>
</tbody>
</table>
Question 1

A 1960’s factory is 1,000 square metres and offices of 100 square metres, currently vacant and to which your client wishes to transfer his thriving engineering business.

The following information is available from office records and other sources:

<table>
<thead>
<tr>
<th>Factory</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Area of 2,000 square metres including 150 square metres of office space, modern building recently let at £55,000 per annum on a 15-year lease with 5-year rent reviews.</td>
</tr>
<tr>
<td>B</td>
<td>Area of 2,500 square metres plus 300 square metres of office accommodation above part, built in the 1970’s and currently let on a 15-year lease and recently reviewed to £65,000 per annum for the next 5 years.</td>
</tr>
<tr>
<td>C</td>
<td>An area of 750 square metres without office accommodation built before the 1930’s on a cramped site and let at a rent of £11,250 per annum.</td>
</tr>
<tr>
<td>D</td>
<td>Recently completed basic factory units of 1,500 square metres letting readily at £28 per square metre, the developers are prepared to provide the area of office space required by the individual tenant at a rent of £60 per square metre, the units may be purchased to show a 7.5% yield but none have so far been sold.</td>
</tr>
<tr>
<td>E</td>
<td>An old factory with a floor area of 3,000 square metres in good structural condition, recently let at £16 per square metre and sold immediately afterwards to a local investor for £345,000.</td>
</tr>
</tbody>
</table>

Give your opinion as to the factory’s capital value.
Question 2

Your client owns a shop at Number 22 High Street in a provincial town. It is a two-storey building of traditional construction with the first floor being used for storage. The property is in a reasonable state of repair and is currently vacant and available to let on FRI terms, but the client would also contemplate a freehold sale. Its area in terms of zone A (ITZA) is 75 square metres.

Comparable evidence schedule:

<table>
<thead>
<tr>
<th>Unit</th>
<th>NIA</th>
<th>ITZA</th>
<th>Lease Terms</th>
<th>Rent</th>
<th>Condition/Construction</th>
<th>Tenant Details</th>
<th>Sale Price (where relevant)</th>
</tr>
</thead>
<tbody>
<tr>
<td>27</td>
<td>86</td>
<td></td>
<td>Let 5 years on 10 year FRI lease with rent review in year 5</td>
<td>£172,000 (agreed at recent rent review)</td>
<td>Moderate / traditional</td>
<td>Independent (clothes) fashion retailer</td>
<td>n/a</td>
</tr>
<tr>
<td>12</td>
<td>102</td>
<td></td>
<td>Let 1 year on 15 year IRI lease with 5 year rent reviews, tenant’s break clause in year 5</td>
<td>£250,000</td>
<td>Good / modern</td>
<td>Sports clothes retailer</td>
<td>Sold 6 months ago for £2.8m</td>
</tr>
<tr>
<td>17</td>
<td>45</td>
<td></td>
<td>Let 6 months ago on 5 year FRI lease, six months rent free</td>
<td>£118,000</td>
<td>Good / traditional</td>
<td>Mobile phone shop</td>
<td>n/a</td>
</tr>
<tr>
<td>30</td>
<td>65</td>
<td></td>
<td>Let 1 year on 10 year IRI Lease with rent review in year 5</td>
<td>£140,000</td>
<td>Poor / 1960s</td>
<td>Health food retailer</td>
<td>Sold at auction 1 year ago for £1.5m</td>
</tr>
</tbody>
</table>

Using the comparable evidence above and explaining the logic behind your reasoning:

(a) Estimate the market rental value of the property.
(b) Calculate its market capital value.

Assumptions:
- The retail pitch deteriorates as you go along the High Street towards the higher numbers
- All rent reviews are upward only
- The units are rectangular in plan and there are no return frontages
Question 3

The table below shows comparables being considered for the valuation for a rent review that should have been agreed in May 2008 of an office suite of 350 sq.m. on the 3rd Floor of 28 St Georges Terrace. This comprises an 8 storey office building in the heart of the business district of a large city. It was completed in 1991 and although it initially took some 5 years to fully let, it is now fully occupied. All the comparables are located within the same locality.

Rank the comparables in order of usefulness with relation to the subject property.

<table>
<thead>
<tr>
<th>Date</th>
<th>Address</th>
<th>Transaction Type</th>
<th>Comments</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/05</td>
<td>6th Floor 28 St Georges Terrace</td>
<td>New Lease</td>
<td>Documented</td>
<td></td>
</tr>
<tr>
<td>8/05</td>
<td>3rd Floor 34 St Georges Terrace</td>
<td>Lease Renewal</td>
<td>By agreement and documented</td>
<td></td>
</tr>
<tr>
<td>4/06</td>
<td>18 Corporation Sq</td>
<td>New Lease</td>
<td>Telephoned Agent</td>
<td></td>
</tr>
<tr>
<td>9/06</td>
<td>16 St Georges terrace</td>
<td>Rent Review</td>
<td>By arbitration and documented</td>
<td></td>
</tr>
<tr>
<td>6/07</td>
<td>5th Floor 28 St Georges Terrace</td>
<td>Rent review</td>
<td>By agreement and documented</td>
<td></td>
</tr>
<tr>
<td>10/07</td>
<td>8 Spencer Place</td>
<td>New Lease</td>
<td>Documented</td>
<td></td>
</tr>
<tr>
<td>1/08</td>
<td>4th Floor 28 St Georges Terrace</td>
<td>New Lease</td>
<td>Documented</td>
<td></td>
</tr>
<tr>
<td>2/08</td>
<td>7th Floor 28 St Georges Terrace</td>
<td>Rent Review</td>
<td>By arbitration and documented</td>
<td></td>
</tr>
<tr>
<td>6/08</td>
<td>6th floor 28 St Georges Terrace</td>
<td>Rent Review</td>
<td>Documented</td>
<td></td>
</tr>
<tr>
<td>6/08</td>
<td>5 Corporation St</td>
<td>Lease Renewal</td>
<td>Telephoned agent</td>
<td></td>
</tr>
<tr>
<td>9/08</td>
<td>30 St Georges Terrace</td>
<td>Asking Rent</td>
<td>Letting Details</td>
<td></td>
</tr>
</tbody>
</table>
Question 4

You have been instructed to value 18 Bath Street, a three-storey building comprising ground floor shop unit with basement and first and second floor offices located on the north side of the main street of a large town, on the edge of the prime pitch.

The shop is available to let on terms to be negotiated. The offices have recently been let to a local firm of accountants on a 15-year IRI lease with a break clause after five years. A rent-free period of 6 months was granted. The negotiated rent was £20,000 per annum. There is no service charge arrangement. The ground floor has an internal width of 7.5 metres and a depth of 18 metres, with 50 square metres of basement space available for storage. The offices on the upper floors total 100 square metres net internal area (NIA). The property is in a fair state of repair and could benefit from some physical improvement.

Comparable evidence schedule:

<table>
<thead>
<tr>
<th>Property</th>
<th>Details</th>
</tr>
</thead>
</table>
| 32 Bath Street| Two storey premises in good condition with ground floor retailing and first floor storage.  
A total equivalent area of 125 square metres is let to a national sports clothes retailer on a 25-year FRI lease. The rent was reviewed at the end of last year at £37,500 per annum net.  
The property has just been sold at auction to a private investor for £500,000. |
| 3 Bristol Road| Two storey premises in poor condition located off Bath Street on a slightly secondary pitch.  
Recently re-let as a newsagents on a 10-year internal repairing lease with a rent review after 5 years at a rent of £24,500 per annum.  
The total zone A equivalent area (including first floor storage) has been calculated at 85 square metres.  
No rent free period was offered but a fitting-out period of three months was granted. |

Making assumptions where necessary and explaining your methodology value the freehold interest in 18 Bath Street using the comparable evidence provided.
Question 5

Using the zoning principle calculate the rental value of the retail property shown.

You should use a zone A rate of £1,400/sq.m and 6 m deep zones. Include all space in the “remainder” at the same rate/sq.m

Question 6

Shop 2 has just been let for £63,000 pa. Analyse this transaction to find the value of Zone A.

Using 6m deep zones, Use this zone A rate to value shop 1.
Question 7

a) Value Shop 1 using a zone A rate of £1,600/sqm/pa. It has an upper floor accessed from the stairs shown shaded. Use 6m deep zones.

b) Value Shop 2, which has a return frontage and no upper floor. The high street is the busiest frontage. Use the same zone A rate.

Question 8

Your client, Paperclip, is a national high street chain of book sellers and stationers that occupies one of the larger units in a covered shopping centre in a medium sized market town in the south of England. The unit is occupied on a 15 year internal repairing lease with five yearly upward only rent reviews to market rent and your client wishes to negotiate a new 15 year lease on similar terms. It is situated near the entrance to the shopping centre where the pedestrian flows are best.

Comparable evidence schedule:
<table>
<thead>
<tr>
<th>Retail Unit and location</th>
<th>Tenant details</th>
<th>Internal width</th>
<th>Depth</th>
<th>First floor sales/storage space</th>
<th>Rent agreed</th>
<th>Lease terms</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subject unit</strong></td>
<td>Paperclip</td>
<td>10m</td>
<td>20m</td>
<td>100 sq m first floor sales space plus 80 sq m storage</td>
<td>To be determined</td>
<td>Assumed similar to current lease</td>
</tr>
<tr>
<td><strong>Comp 1</strong></td>
<td>The Baby Shop selling cosmetics and clothes for infants</td>
<td>6m</td>
<td>11m</td>
<td>30 sq m basement storage</td>
<td>Rent recently reviewed to £64,800 pa</td>
<td>Internal repairing lease, 10 year term five years ago</td>
</tr>
<tr>
<td>Small unit in same shopping centre; further from main entrance</td>
<td>Tommy Girl regional chain of slightly down market women’s fashion</td>
<td>8m</td>
<td>14m</td>
<td>50 sq m first floor storage</td>
<td>Recent letting at £126,000 p.a. Contribution to fitting out by way of 6 month rent free</td>
<td></td>
</tr>
<tr>
<td><strong>Comp 2</strong></td>
<td>Vacant to let</td>
<td>9m</td>
<td>15m</td>
<td>70 sq m on first floor</td>
<td>Asking rent £95,000 p.a.</td>
<td>To let on 10 year internal repairing lease with rent review year 5</td>
</tr>
<tr>
<td>Marginally smaller unit towards the back of the same shopping centre</td>
<td>U-Fone national mobile phone network provider and retailer</td>
<td>5m</td>
<td>8m</td>
<td>Small amount of storage space at back of ground floor</td>
<td>Recent letting at £78,000 per annum</td>
<td>Five year IRI lease</td>
</tr>
</tbody>
</table>
Assumptions:

- All units are rectangular in shape
- The prime pitch in the town is on the High Street on either side and opposite the entrance of the shopping centre.
- The pitch deteriorates the further back into the shopping centre that you go.
- A service charge is payable by tenants of the shopping centre, covering the usual items.

a) Analysing the comparable evidence presented above, advise your client as to the level of rent that should be agreed under the new lease, explaining your reasoning where appropriate

b) Make recommendations to your client about any improvements to the terms of any new lease that they should seek to agree.
Market Value

Question 1
Market Value is:

- The value of a market open for business
- The estimated price reasonably achievable given a number of assumptions
- The value to a buyer given a number of assumptions
- The value to the owner given a number of assumptions
- None of the above

Question 2
For which of the following are estimates of Market Value not often used:

- to measure achieved returns
- for financial reporting and accounts
- to estimate the lending security of real estate assets
- to estimate the exchange value of real estate assets
- to estimate the worth to an investor or a group of investors

Question 3
Assuming a capitalisation rate of 6%, the value of the property just let on a 15 year FRI lease with five yearly upwardly only rent reviews at a rent of £100,000 (payable annually in arrears) is:

- £1,766,666
- £971,225
- £1,600,000
- £1,050,000
- None of the above

Question 4
Assuming a capitalisation rate of 6%, the value of the property just let on a 15 year FRI lease with five yearly upwardly only rent reviews at a rent of £100,000 (payable annually in arrears) is:

- £2,288,000
- £2,210,000
- £2,266,000
- £2,308,000
- None of the above
**Question 5**

Here is a tenancy schedule for Reading House. It has three tenants.

<table>
<thead>
<tr>
<th>Unit</th>
<th>Tenant</th>
<th>Unexpired Term (yrs)</th>
<th>Rent paid</th>
<th>NIA (sq m)</th>
<th>Market Rent (psm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Intelsoft</td>
<td>2</td>
<td>£100,000</td>
<td>500</td>
<td>£225</td>
</tr>
<tr>
<td>2</td>
<td>GNiDirect</td>
<td>3</td>
<td>£95,000</td>
<td>500</td>
<td>£225</td>
</tr>
<tr>
<td>3</td>
<td>Phonavod</td>
<td>4</td>
<td>£90,000</td>
<td>500</td>
<td>£225</td>
</tr>
</tbody>
</table>

Value the three units.

*Recent transaction evidence (deals) suggests that similar properties have been selling at yields of 6%.*

**Question 6**

An investor is offered the right to buy a building. It was let four years ago on a 15 year FRI lease with upward only rent reviews at a rent reviews every five years at a rent of £300,000 payable annually in arrears. The current Market Rent is estimated to be £400,000. The asking price is £6,800,000. An investor has asked you to advise them how much their maximum bid could be before deduction of costs and fees (i.e. ignore costs and fees). They have a six year holding period. They estimate that rental growth in the building will be 3% per annum (assuming for rental growth in the market at 5% per annum and that rental depreciation in the building will be 2% per annum). The research department are forecasting that the exit yield will be 6%. The investor’s target rate of return is 8%.

a) The Market Rent at the end of Year 1 of the cash flow is expected to be (give or take £10)

- £400,000
- £303,000
- £309,000
- £403,000
- None of the above

b) The Market Rent at the end of Year 6 is expected to be (give or take £10)

- £472,000
- £354,000
- £358,220
- £400,000
- None of the above
c) Their maximum bid could be approximately (give or take £1000)

- £5,710,000
- £6,817,300
- £10,320,250
- £2,360,000
- None of the above

d) Which of the following statements is true?

*If the projected Internal Rate of Return is above the target rate of return:*

- The target rate of return is not expected to be obtained
- The Gross Present Value will be below the asking price
- The Net Present Value will be negative
- The investor should not pay the asking price
- All of the above statements are false

**Question 7**

The figures reported below represent the outcome of ‘best bids’ for a free standing retail unit in a large provincial centre. Contracts have just been exchanged and completion will occur next week. The bids have been ranked according to size of bid. The subject property was let five years ago to a major international retailer on a 15 year FRI lease with five yearly rent reviews on an upward only basis. The rent review had just been agreed at £600,000 per annum and the price suggests an Gross Initial Yield of ? %. The highest bid is from a reputable investor. There is no indication that the bidder owns any adjoining properties and can obtain a synergistic (the value formerly known as ‘marriage’) value.

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>£12,000,000</td>
</tr>
<tr>
<td>2</td>
<td>£11,000,000</td>
</tr>
<tr>
<td>3</td>
<td>£10,050,000</td>
</tr>
<tr>
<td>4</td>
<td>£10,000,000</td>
</tr>
<tr>
<td>5</td>
<td>£9,990,000</td>
</tr>
<tr>
<td>6</td>
<td>£9,985,000</td>
</tr>
<tr>
<td>7</td>
<td>£9,980,000</td>
</tr>
<tr>
<td>8</td>
<td>£8,500,000</td>
</tr>
<tr>
<td>9</td>
<td>£8,000,000</td>
</tr>
</tbody>
</table>

The latest asset valuation (carried out two months ago) was £10,000,000. Three months ago a similar quality (but smaller) property with a similar tenant on a similar lease with a similar reversion period
was sold for £8.33 million. It was rack rented and the rent passing was £500,000 (representing an ARY of ?%).

Given this information, what do you consider to be the Market Value of the building?

*Please take 5-10 minutes to discuss in groups of 3/4. I will then ask a group member to state the agreed figure.*

**Question 8**

You have been instructed to value a similar property (tenant/lease) nearby just let at £550,000 per annum.

What do you consider to be the Market Value?

*Please take 5-10 minutes to discuss in groups of 3/4. I will then ask a group member to state the agreed figure.*

**Question 9**

It is now three months later. Since this transaction (now three months old), the market has experienced a dramatic change. The availability of credit has considerably reduced. Share markets have fallen by approximately 25%. Shares in REITs and property have fallen on average by the same amount with highly leveraged listed vehicles being worst hit. Corporate bond prices have fallen in value by approximately 20%. The commercial property market has effectively ‘stalled’ and no-one seems to be buying or selling.

The quarterly valuation is now due. The property was valued at £12,000,000 in the last quarterly valuation? Given the absence of any recent comparables, should (if so, how) the valuer adjust the valuation?

**Question 10**

Unit 10, dot.com Park is let to Compass (a software company) on a 20 year lease with five yearly rent reviews with two years and three months until the next rent review. The current rent passing is £200,000 pa for a 2000 square metre unit.

Provide a valuation of the freehold interest (ignoring transaction costs).

*Market Evidence:*

- Unit 12, a similar warehouse unit nearby let to Oracle was recently sold to a large property company for £4,167 million. It was rack rented at £250,000 per annum on a 20 year lease on full repairing and insuring terms with five yearly upwardly only rent reviews.
- Unit 12 also had a recent rent review. A figure of £125 per square metre was agreed.
Question 11

A retail unit is currently let at a rent of £250,000 per annum with three years until the next rent review. Market evidence suggests that the Market Rent is £300,000. The unit has been sold for £5,850,000. Ignoring transaction costs.....

a) The unit is rack rented  TRUE / FALSE

b) The initial yield is 5.12%  TRUE / FALSE

c) The reversionary yield is 4.27%  TRUE / FALSE

d) The equivalent yield is 5.5%  TRUE / FALSE

Question 12

A shop in Princes Street, Edinburgh has recently been sold. You have been provided with the following details

<table>
<thead>
<tr>
<th><strong>Sale Price:</strong></th>
<th>£5,744,254</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Term until rent review:</strong></td>
<td>3 years</td>
</tr>
<tr>
<td><strong>Rent passing:</strong></td>
<td>£200,000</td>
</tr>
<tr>
<td><strong>Market Rent:</strong></td>
<td>£250,000</td>
</tr>
</tbody>
</table>

What is the equivalent yield? (Set up the valuation in Excel and change the yield until it gives you an answer of £5,744,254.)
Exam-Style Questions

Question 1

No. 5 is a 260 square metre unit let to a major fashion retailer. It is a two storey property with the first floor being used for storage. It has a 10 metre frontage and is 13 metres deep. The property was let on a 15 year full repairing and insuring lease with five yearly upwardly only rent reviews from 1 September 2001. The current rent passing is £243,000.

Recent investment and letting activity indicates that the MRV is £2500 per square metre in terms of Zone A and that this type of investment is trading at equivalent yields in the region of 5.25%. Assume that first floor storage space is valued at 10% of Zone A.

Using the information outlined above and making clear your assumptions, provide your estimate of the Market Value of the freehold interest in No. 5 High Street.

Question 2

Surf Plaza was constructed in 2000 and is located on a large business park at the edge of town near a motorway junction. It was developed on the site of a former timber treatment yard. Although previously contaminated, the site was rendered ‘suitable for use’ by a combination of soil removal and chemical treatments. A groundwater barrier was also installed. The development comprises 15,000 square metres (net internal area). It is let to Normal Life (a major UK insurance company) from 1 January 2002 on a 15 year lease on full repairing and insuring terms with five yearly upward only rent reviews. The current rent passing is £4,500,000 per annum.

There has been little recent investment and letting activity. Discussions with the agency and investment teams suggests that the (effective) Market Rent for prime office space is £200 per square metre and that the all risks yield for comparable rack rented properties is in the region of 6%.

Using the information outlined above and making clear your assumptions, provide an estimate of the Market Value of Surf Plaza ignoring the implications of the previous contamination.

Assume a date of valuation of 1 July 2005. Your client’s target rate of return is 8%.

Thames Plaza, was completed in 2001 and is located on a large business park at the edge of town near a motorway junction. The development comprises 3,000 square metres (net internal area) over three floors of equal size. The building is currently vacant. However, you have just received an offer from a business support services company who are very keen to take a lease on the basis of a 10 year full repairing and insuring lease with no rent reviews at a rent of £785,000.
The letting market has been relatively subdued over the last six months. Local letting agents estimate that similar properties are taking six months to let with an incentive of a rent free period of 12 to 18 months (depending on the length of the lease). Details of the outcomes of recent transactions are outlined below.

In comparable schemes nearby, recent lettings indicate that properties on 10 year leases on full repairing and insuring terms with five yearly upward only rent review clauses have recently have been achieving (net effective) rents in the region of £250 per square metre.

Recent investment activity suggests that comparable properties let on the basis of five yearly upward only rent reviews and with unexpired lease terms of 10 years or more have been trading at all risks yields in the region of 5%. The Rateable Value of Thames Plaza is £680,000.

Using the information outlined above and making clear your assumptions, provide an estimate of the Market Value of Thames Plaza.

Assume a date of valuation of 1 July 2007. Your client normally has a target rate of return of 7% for this type of office investment

Question 4

RealLogis owns four large distribution properties in the area where the M1 and M6 join. You have been instructed to provide estimates of the current Market Value of one of the assets, ‘Asset 1’;

<table>
<thead>
<tr>
<th>Location:</th>
<th>DRIFT Logistics Park, Daventry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease:</td>
<td>20 year full repairing and insuring lease with upward only rent reviews every five years from 1 December 2005.</td>
</tr>
<tr>
<td>Building:</td>
<td>Modern 15,000 square metre distribution unit completed in November 2005</td>
</tr>
<tr>
<td>Tenant:</td>
<td>Strong covenant</td>
</tr>
<tr>
<td>Rent passing:</td>
<td>£750,000</td>
</tr>
<tr>
<td>Rateable Value:</td>
<td>£675,000</td>
</tr>
</tbody>
</table>

Currently modern distribution assets in this area let to strong covenants with unexpired lease terms in excess of seven years have been selling at yields in the region of 5.5%.
Local agents estimate that high quality, modern distribution space is currently letting at £60 per square metre. However, available properties are taking on average six months to let. A one year rent free period is standard for properties let on leases for 10 years or longer.

**Estimate the Market Value of the freehold interest in Asset 1**

*RealLogis has a target rate of return of 9%. Assume a valuation date of 1 June 2008.*

**Question 5**

No. 27 High Street is let to a major fashion chain on a 15 year lease on full repairing and insuring terms with upward only rent reviews every five years from 1 January 1997. The current rent passing is £315,000 and the Market Rent is estimated to be £330,000. The Rateable Value is £302,000.

Following the collapse of a number of retailers, there are a number of vacant premises in the High Street. Discussions with local letting agents suggest that premises will take 6-9 months to let and that a rent-free period of one year will be required as an incentive.

The best transaction evidence is from the auction market. Three shops in similar ‘cathedral cities’ have been sold in the last three months. The first was let to a strong covenant with 12 years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of 7.5%. The second (sold at the same auction) was let to a strong covenant with two years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%. The third (sold last month) was also let to a strong covenant with three years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%.

Currently, investors have a target rate of return of 9% for ‘safe’ investments. For more risky investments, target rates of return of 11% are typical.

**Provide an estimate of the Market Value of the freehold interest in No. 27 High Street.**

*The date of valuation is 30th June 2009.*
Question 6

Unit 1 is let to a mobile phone operator on a 20-year full repairing and insuring lease from 1 October 2008 with provision for upward-only rent reviews every five years. Its internal dimensions are 5 metre (frontage) by 22 metres (depth). This includes an area of 4 metres by 5 metres at the rear of the shop which is used for storage. The current rent passing is £107,000 per annum. Recent transaction evidence indicates that similar properties are letting at £2,500 per square metre and selling at equivalent yields of 6%.

Using the information outlined above and making clear your assumptions, provide your estimate of the Market Value of the freehold interest in Unit 1.

Assume a date of valuation of 1 July 2011 for the valuation.
INVESTMENT METHOD

Investment Value

Question 1
A calculation of worth or Investment Value is:

- The value to the general investment market
- The value to a specific investor or group of investors
- The same as Market Value
- The price that would be obtained if sold
- None of the above

Question 2
Investment Value is:

- The same as Market Value
- The same as a Calculation of Worth
- The same as Market Rent
- The same as Open Market Value
- The same as Market Worth

Investment Valuations using ARY approach

Rack-rented freeholds

Question 1
A freehold shop in a provincial town has recently been let on full repairing and insuring (FRI) terms at a market rent (MR) of £50,000 pa.

Value the freehold interest, assuming a yield of 7%.

Question 2
Modern freehold offices are let on internal repairing and insuring (IRI) terms at £500,000 pa with five year rent reviews.

Value the freehold interest, assuming the yield is 8%.
Reversionary freeholds

Question 3

Using the term and reversion technique, value the freehold interest in a shop in a good trading position, let on FRI terms at £50,000 pa.

The lease has 4 years unexpired, the current MR is £60,000 pa and the yield on rack-rented freeholds is 6%.

Question 4

A property is let on FRI terms with 4 years unexpired at £10,000 pa. The current MR is £15,000 pa and yields on rack-rented freeholds are 6%.

Value the freehold interest using:

a) Term and reversion approach.

b) Core and top-slice approach.

Question 5

You have been asked to value the freehold interest in a shop unit in the high street of a provincial market town in Dorset. The shop is let on a 20 year FRI lease with 5 year upwards only rent reviews and with 17 years remaining on the lease. The contract rent is currently £100,000 per annum. The market rent is estimated to be £125,000 per annum. Your analysis of comparable evidence suggests initial yields average 9% for this type of investment.

Value the freehold interest using:

(a) Use a term and reversion approach.

(b) Use a core and top-slice approach.

(c) How would you value the shop if the rent passing was £150,000 per annum?

Leasehold interests with a fixed profit rent

Question 6

A shop is let on an FRI lease at £10,000 pa with 8 years unexpired on the lease. The tenant has sub-let the premises on the same lease terms at £12,500 pa and the sub-lease expires 3 days before the head-lease.
Value the leasehold and sub-leasehold interests, assuming a leasehold yield of 8% and a sub-leasehold yield of 8.5% and a tax liability of 30%. The current market rent of the property is £16,000 pa.

**Question 7**

a) Value a fixed term income of £9,000 per annum receivable for five years at a rate of return on capital of 9% and the creation of a sinking fund at 6%.

b) Value the same income stream but now assume tax is payable on the interest earned from the sinking fund at a rate of 40%.

**Full DCF Valuations**

The value of the property (or interest) is the sum total of the NPV’s.

*Example of a year-by year DCF:*

<table>
<thead>
<tr>
<th>Year</th>
<th>Rent</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>£1,000</td>
<td>0.9259</td>
<td>£925.90</td>
</tr>
<tr>
<td>2</td>
<td>£1,000</td>
<td>0.8573</td>
<td>£857.30</td>
</tr>
<tr>
<td>3</td>
<td>£1,000</td>
<td>0.7938</td>
<td>£793.80</td>
</tr>
<tr>
<td>4</td>
<td>£1,500</td>
<td>0.7350</td>
<td>£1102.50</td>
</tr>
<tr>
<td>5</td>
<td>£1,500</td>
<td>0.6806</td>
<td>£1020.90</td>
</tr>
<tr>
<td>6</td>
<td>£1,500</td>
<td>0.6302</td>
<td>£945.30</td>
</tr>
<tr>
<td>7</td>
<td>£2,000</td>
<td>0.5835</td>
<td>£1167.00</td>
</tr>
<tr>
<td>8</td>
<td>£2,000</td>
<td>0.5043</td>
<td>£1080.60</td>
</tr>
<tr>
<td>9</td>
<td>£2,000</td>
<td>0.5002</td>
<td>£1000.40</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>£8893.70</td>
</tr>
</tbody>
</table>
Example of a “blocked” DCF:

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>Dis. Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3</td>
<td>£1,000</td>
<td>2.5771</td>
<td>£2,577</td>
<td>n/a</td>
<td>£2,577</td>
</tr>
<tr>
<td>4–6</td>
<td>£1,500</td>
<td>2.5771</td>
<td>£3,866</td>
<td>0.7938</td>
<td>£3,068</td>
</tr>
<tr>
<td>7–9</td>
<td>£2,000</td>
<td>2.5771</td>
<td>£5,154</td>
<td>0.6302</td>
<td>£3,248</td>
</tr>
</tbody>
</table>

**Total Discounted Value** £8,893

**Using DCF to value freehold real estate investments**

DCF calculations when used for freehold interests are infinitely long. Look at this example:

An investor is proposing to purchase the freehold interest in a property. It has just been let on a 9 year FRI & Exclusive lease for £10,000 p.a. Rental growth is expected to average 3% p.a. during the term of the lease and the lease provides for rent reviews every 3 years.

Set out a DCF to provide a valuation of the freehold interest using a discount rate of 8% p.a.

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1–3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>4–6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
<td>£22,355</td>
</tr>
<tr>
<td>7–9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6301</td>
<td>£19,392</td>
</tr>
</tbody>
</table>

The following DCF has been taken to 250 years which may be regarded as “perpetuity” for all practical purposes. Thus, the value of £194,411 can be taken as the correct answer.
<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
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</tr>
<tr>
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<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6301</td>
<td>£19,392</td>
</tr>
<tr>
<td>52 – 54</td>
<td>£45,154</td>
<td>2.5771</td>
<td>£116,367</td>
<td>0.0197</td>
<td>£2,297</td>
</tr>
<tr>
<td>55 – 57</td>
<td>£49,341</td>
<td>2.5771</td>
<td>£127,157</td>
<td>0.0157</td>
<td>£1,993</td>
</tr>
<tr>
<td>58 – 60</td>
<td>£53,917</td>
<td>2.5771</td>
<td>£138,948</td>
<td>0.0124</td>
<td>£1,729</td>
</tr>
<tr>
<td>61 – 63</td>
<td>£58,916</td>
<td>2.5771</td>
<td>£151,832</td>
<td>0.0098</td>
<td>£1,499</td>
</tr>
<tr>
<td>244 – 246</td>
<td>£13,165,750</td>
<td>2.5771</td>
<td>£33,929,415</td>
<td>0.000000008</td>
<td>£0.26</td>
</tr>
<tr>
<td>247 – 249</td>
<td>£14,386,570</td>
<td>2.5771</td>
<td>£37,075,587</td>
<td>0.000000006</td>
<td>£0.22</td>
</tr>
<tr>
<td>250 – 252</td>
<td>£15,720,594</td>
<td>2.5771</td>
<td>£40,513,495</td>
<td>0.000000005</td>
<td>£0.19</td>
</tr>
<tr>
<td><strong>Total Discounted Value (to date)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>£194,411</strong></td>
</tr>
</tbody>
</table>

However it can be seen from the DCF above that because of the effects of discounting incomes received after say 30-40 years make little difference to the outcome. Nevertheless all DCF tables for practical purposes have to be terminated in some way. The possible ways are:

1. To calculate the DCF to a point where the NPV becomes insignificant
2. To use DCF for the first part (say 25 years) and then calculate the remainder in a single block

Look at the result of terminating the above DCF at different points using the definitive value as a benchmark.
### Value after 9 years

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>1.0000</td>
<td>£25,771</td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
<td>£22,355</td>
</tr>
<tr>
<td>7 – 9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6301</td>
<td>£19,392</td>
</tr>
</tbody>
</table>

**Total Discounted Value (to date)**

£67,517

Clearly terminating at this point would result in a totally inaccurate valuation.

### Value after 30 years

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>1.0000</td>
<td>£25,771</td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
<td>£22,355</td>
</tr>
<tr>
<td>7 – 9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6301</td>
<td>£19,392</td>
</tr>
<tr>
<td>10 – 12</td>
<td>£13,048</td>
<td>2.5771</td>
<td>£33,625</td>
<td>0.5002</td>
<td>£16,821</td>
</tr>
<tr>
<td>13 – 15</td>
<td>£14,258</td>
<td>2.5771</td>
<td>£36,743</td>
<td>0.3971</td>
<td>£14,591</td>
</tr>
<tr>
<td>16 – 18</td>
<td>£15,580</td>
<td>2.5771</td>
<td>£40,150</td>
<td>0.3152</td>
<td>£12,657</td>
</tr>
<tr>
<td>19 – 21</td>
<td>£17,024</td>
<td>2.5771</td>
<td>£43,873</td>
<td>0.2502</td>
<td>£10,979</td>
</tr>
<tr>
<td>22 – 24</td>
<td>£18,603</td>
<td>2.5771</td>
<td>£47,942</td>
<td>0.1987</td>
<td>£9,524</td>
</tr>
<tr>
<td>25 – 27</td>
<td>£20,328</td>
<td>2.5771</td>
<td>£52,387</td>
<td>0.1577</td>
<td>£8,261</td>
</tr>
<tr>
<td>28 – 30</td>
<td>£22,213</td>
<td>2.5771</td>
<td>£57,245</td>
<td>0.1252</td>
<td>£7,166</td>
</tr>
</tbody>
</table>

**Total Discounted Value (to date)**

£147,517

This produces a better answer but is still too inaccurate to use.
### Value after 75 years

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>1.0000</td>
<td>£25,771</td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
<td>£22,355</td>
</tr>
<tr>
<td>7 – 9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6301</td>
<td>£19,392</td>
</tr>
<tr>
<td>10 – 12</td>
<td>£13,048</td>
<td>2.5771</td>
<td>£33,625</td>
<td>0.5002</td>
<td>£16,821</td>
</tr>
<tr>
<td>64 – 66</td>
<td>£64,379</td>
<td>2.5771</td>
<td>£165,911</td>
<td>0.0078</td>
<td>£1,301</td>
</tr>
<tr>
<td>67 – 69</td>
<td>£70,349</td>
<td>2.5771</td>
<td>£181,296</td>
<td>0.0062</td>
<td>£1,128</td>
</tr>
<tr>
<td>70 – 72</td>
<td>£76,872</td>
<td>2.5771</td>
<td>£198,107</td>
<td>0.0049</td>
<td>£979</td>
</tr>
<tr>
<td>73 – 75</td>
<td>£84,000</td>
<td>2.5771</td>
<td>£216,477</td>
<td>0.0039</td>
<td>£849</td>
</tr>
</tbody>
</table>

Total Discounted Value (to date) £188,857

This answer is reasonably accurate but still requires a long DCF calculation.

The other strategy is to use a “hybrid” valuation in which the early years are incorporated into a standard DCF (including rental growth), but the later years are capitalized in one block. We can only do the latter if we assume that the rent from that point on is fixed (thus ignoring any future rental growth).

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>n/a</td>
<td>£25,771</td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
<td>£22,355</td>
</tr>
<tr>
<td>7 – 9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6302</td>
<td>£19,392</td>
</tr>
<tr>
<td>10 – Perp</td>
<td>£13,048</td>
<td>12.5*</td>
<td>£163,097</td>
<td>0.5002</td>
<td>£81,589</td>
</tr>
</tbody>
</table>

Total Discounted Value £149,106

*YP in perpetuity @ 8%

Although this has the advantage of being a relatively short calculation, the answer is clearly unacceptably inaccurate. Is there a way of achieving both a relatively short DCF calculation and an accurate answer?
The inaccuracy in the valuation above lays in the fact that the final rent capitalized (£13,048) was assumed to be fixed for ever more (necessary to enable us to capitalize the rent in perpetuity). However this ignored all the future rental growth and inevitably thereby built in an error. The way to overcome this is to modify the yield used to capitalize this “fixed” rent. In fact, we could use something called an *initial yield* instead of the 8% (known as an *equated yield*).

We will learn more about initial yields later, but basically it is simply the yield derived from linking the current (initial) rent of a property to its capital value. We already know the true capital value of the property in the example above (£194,411) because we calculated that using a full DCF. We also know the current rent (£10,000 pa). So, the initial yield would be:-

\[
\frac{10,000 \times 100}{194,411} = 5.14\% \text{ pa}
\]

If we capitalized the “fixed” rent in the final line of the shortened DCF using this yield we would get:

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ 8%</th>
<th>Future Value</th>
<th>PV @ 8%</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 3</td>
<td>£10,000</td>
<td>2.5771</td>
<td>£25,771</td>
<td>n/a</td>
<td>£25,771</td>
</tr>
<tr>
<td>4 – 6</td>
<td>£10,927</td>
<td>2.5771</td>
<td>£28,161</td>
<td>0.7938</td>
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<td>7 – 9</td>
<td>£11,941</td>
<td>2.5771</td>
<td>£30,772</td>
<td>0.6302</td>
<td>£19,392</td>
</tr>
<tr>
<td>10 – Perp</td>
<td>£13,048</td>
<td>19.441*</td>
<td>£253,666</td>
<td>0.50024</td>
<td>£126,896</td>
</tr>
</tbody>
</table>

**Total Discounted Value**

£194,414

*YP in perp. @ 5.14%

It can be seen that the answer is very accurate.

**Question 1**

Your client is proposing to purchase the freehold interest in a property. It has just been let on a 15 year FRI lease for £150,000 p.a. You have inspected the property and feel the following variables are appropriate:

- rental growth is expected to average 2.5% p.a. for the foreseeable future
- the lease provides for rent reviews every 3 years
- an equated yield of 9%

Set out a detailed DCF for the term of the lease and complete the valuation by capitalising the remaining period at an initial yield of 5.5% p.a.
Question 2

A retail property has been let on a 15-year lease with 3 yearly rent reviews. The initial rent payable is £17,000 p.a. but this is expected to increase by an average of 4% p.a. for the foreseeable future. The property, although small, is located in a prime position in a busy high street. The tenant is a blue-chip company with a sound financial background. The (equated) yield range for retail properties in the town is 7%-10% p.a.

a) Calculate the rental flow for the period of the lease. You should also take the opportunity of calculating the rent that would be charged at the beginning of a second lease (after 15 years).

You may use the table below for your answer.

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ ?</th>
<th>Future Value</th>
<th>PV @ ?</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>£17,000 pa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4-6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7-9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10-12</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13-15</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16- perp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

b) Given the description of the investment, what yield would you think would be appropriate to “discount” the rental incomes?

c) Using the discount rate selected, complete the DCF table for the duration of the lease (i.e. up to year 15).

d) The legal interest to be purchased is freehold. Complete the valuation by discounting the rent calculated for years 16 – infinity at an initial yield of 5% p.a.

e) How would the above valuation change if the property was let last year (i.e. we are 1 year into the first review period).

You may use the table below for your answer.
### Full DCF, ARY & Short-Cut DCF Valuations

**Question 1**

A small shop let two years ago at a rent of £10,000 p.a.

The property is let on a 15-year lease on a five yearly rent review pattern and there is a rent review in 3 years time. The frontage is 5m and the depth is 15m. Next door is a similar shop, let on identical terms, with a 5m frontage but a depth of 12m. The freehold investment interest in this property recently sold for £300,000 and this represented a 5% initial yield for the investor whose target return you know to have been 11%.

Using a full DCF and making any necessary assumptions value the freehold reversion.

Implied Rate of Rental Growth Formula:

\[
g = \left( \frac{-y(1 + r)^{n}}{r} + y \right)^{\frac{1}{n}} - 1
\]

Where:

- \(r\) = Target Rate
- \(y\) = Initial Yield

---

**Table:**

<table>
<thead>
<tr>
<th>Period</th>
<th>Rent</th>
<th>YP @ ?</th>
<th>Future Value</th>
<th>PV @ ?</th>
<th>NPV</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2</td>
<td>£17,000 pa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6-8</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9-11</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12-14</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15- perp</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Question 2

A prime retail property at 24 Stall Street, Bath was let seven years ago on a 25-year lease. Rent reviews are every five years and at the last review the rent was agreed at £16,000 p.a. 28 Stall Street, on the same side of the road as the subject property, recently let on standard lease terms for £19,050 p.a. with five-year rent reviews, no incentives and was subsequently sold to an institutional investor for £317,500.

A surveying technician in your practice has supplied you with the following details regarding the subject and comparable properties (assume 6m zones, no return frontages or masked areas):

<table>
<thead>
<tr>
<th></th>
<th>24 Stall Street</th>
<th>28 Stall Street</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frontage</td>
<td>8m</td>
<td>7m</td>
</tr>
<tr>
<td>Depth</td>
<td>15m</td>
<td>17m</td>
</tr>
</tbody>
</table>

a) You have been asked to prepare a full DCF valuation of the freehold retail investment opportunity at 24 Stall Street. The investors’ target return for prime retail property in Bath is 11%. Make all other assumptions as necessary.

b) Check your valuation using an ARY technique, making any assumptions that you think are appropriate.

Question 3

77 High Street, Fishponds, Bristol is currently let at a rent of £22,000 per annum on a 15-year FRI lease that commenced three years ago with rent reviews every five years. The frontage is 7m and the depth 14m. A similar shop at 81 High Street in the same parade, with a frontage of 6m and a depth of 15m, was recently let at a zone A rent of £410.26/sqm. The landlord subsequently sold this property investment for £266,667.

Value the freehold interest in 77 High Street using:

a) Term and reversion ARY approach

b) Short-cut DCF approach. Assume the yield on long dated gilts is 10% and the combined market / covenant risk for this property is 2%. Use the formula at the bottom of the page to calculate the implied annual rental growth rate.

You may assume that your firm uses 6m zones for retail zoning.
Question 4

You are the investment surveyor acting on behalf of the landlord of a business park in Poole, Dorset and you have been asked to produce a valuation of the freehold interest in one of the office buildings on the park for accounting purposes.

The building in question comprises 1,500 m² of usable floorspace and was let to Cartman Animations Ltd. two years ago at a rent of £50,000 pa. The lease is for 15 years and incorporates five year upward only rent reviews. Having recently visited the business park you discover that a similar unit on the park, totalling 2,500 m² net internal area, recently let for £40 / m² on similar lease terms as the subject property. Discussions with your client, the landlord, reveal that the initial yield on purchasing the business park was 9%.

Value the freehold interest in the property using:

a) An ARY approach.

b) A short-cut DCF approach. You may assume that the landlord's target rate of return is 15% and use the formula at the bottom of the page to calculate the implied annual rental growth rate.

Question 5

Our Price Records in Commercial Road, Bournemouth was let one year ago at a rent of £100,000 p.a. on a 15 year FRI lease with a five year rent review pattern. Next door to Our Price is Monsoon - a comparable property which was recently let on similar rent review pattern at £120,000 p.a. The freehold investment in Monsoon has just sold for £2,000,000.

Value the freehold interest of Our Price using:

c) An ARY approach.

d) A short-cut DCF approach. You may assume a target rate of return of 13% and use the formula previously listed previously to calculate the implied annual rental growth rate.
Question 6

A head-lease has 15 years to run at a fixed rent of £10,000pa on FRI terms. The current rack rent is £15,000pa on FRI terms. The property has just been sublet on a lease due to expire one day before the end of head-lease and this sub-lease contains rent reviews in years 5 and 10.

You are aware that freehold investments in similar properties are being valued using an ARY of 5% and you are aware that investors for these properties are seeking a target rate of return of 11%. You assume that the rental growth rate at the rent reviews in the sub-lease will be the same as that on similar rack rented freeholds. Make any necessary assumptions and use the growth rate formula to calculate the implied annual rental growth rate.

Reap Questions

Question 1

Assuming a capitalisation rate of 5%, provide a valuation of a property just let at £50,000 per annum on a 20 year FRI lease with upwardly only rent reviews.

Question 2

An investment generates the cash flow below over three years:

<table>
<thead>
<tr>
<th>Capital Invested/received</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>-£1,000,000</td>
</tr>
<tr>
<td>1</td>
<td>£60,000</td>
</tr>
<tr>
<td>2</td>
<td>£60,000</td>
</tr>
<tr>
<td>3</td>
<td>£1,100,000</td>
</tr>
</tbody>
</table>

a) What was the income return per period (as a percentage)?
b) What was the total capital return over the whole period (as a percentage)?
c) What approximately was the average capital return per period (as a percentage)?
d) What was the IRR approximately?
Question 3

No. 2 Clumber Street, Nottingham was let to Arcadia on a 21 year FRI lease 2.5 years ago with 5-yearly rent reviews. The current rent paid is £50,000 pa. It is estimated that the current Market Rent of No. 2 is £75,000

Assuming a capitalisation rate of 7% provide valuations of No. 2.

<table>
<thead>
<tr>
<th>Lease Start</th>
<th>Rent Review Period</th>
<th>Current Rent</th>
<th>ERV</th>
<th>Term</th>
<th>FRI</th>
</tr>
</thead>
<tbody>
<tr>
<td>7 yrs ago</td>
<td>5</td>
<td>£500,000</td>
<td>£750,000</td>
<td>20</td>
<td>Yes</td>
</tr>
<tr>
<td>8 yrs ago</td>
<td>5</td>
<td>£450,000</td>
<td>£750,000</td>
<td>20</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Question 4

How do you think the current Market Rent and capitalisation rate are obtained for No. 2 Clumber Street?

Question 5

Asia House is a 5,000 square metre office development let to two different ‘blue chip ‘tenants occupying 2,500 square metres each.

The details of the tenancies are:

Provide a valuation of the freehold interest in Asia House. Assume a yield of 6%.

Suggest that you value the two tenancies separately and add the two valuations to obtain a valuation of the whole property.

Question 6

Africa House has just been sold to a property unit trust for £14.2 million. Its net lettable area is 3000 square metres. It was let two years ago on a 15 year full repairing and insuring lease with upward-only rent reviews every five years at £600,000 per annum.

Nearby, Europe House (NLA ~ 2500 sq. m.) has just been let to a major telecoms operator for (£750,000).

What yield or capitalisation rate is indicated by the price obtained for Africa House?
Rack-rented and reversionary freehold investments

Question 1

A property is rack rented when:

- The rent passing > the rental value
- The rent passing < the rental value
- The rent passing = the rental value
- All of the above
- None of the above

A property is termed rack rented when the rent that the tenant is paying is equal to the Market Rent. It is termed reversionary when the tenant is paying less than it is worth. This often occurs in the UK because rents are typically fixed for five years. Sometimes, a property can become over-rented – the rent that the tenant is paying more than the

Question 2

A rent review has just been agreed for £125,000 per annum on a retail warehouse.

Would you classify the property as:

- Rack Rented
- Reversionary

Question 3

Rack-rented properties are really, really, really, really easy to value. It is simply the rent divided by a capitalisation rate or yield (we’ll ignore transaction costs for the moment). As we’ll see later (Tommaso has already told you), this process is a remarkably short way of discounting a stream of income that is a perpetuity. Dividing by a yield is really just a long winded way of applying a multiplier.

Ex. Let’s say that a shop is let at a rent of £100,000. Deals suggest that similar properties are selling at a cap rate (or yield of 5%) So £100,000 divided by 5% is £2,000,000. That’s the same as multiplying the rent by 20.

Assuming a capitalisation rate of 7.5% and rent receivable annually in arrears, provide a valuation of the freehold interest in the property in question 2.
Question 4

So, where do these yields or cap rates come from? How do valuers get yields? They come from deals.

Provide a valuation of a property just let at £100,000 per annum on a 20 year FRI lease with upwardly only rent reviews. A similar (but smaller) property in the locality has let at £75,000 per annum has sold for £1,500,000.

Remember – you need two pieces of information to do a valuation of a rack-rented property

Question 5

No. 2 Westgate, Oxford is let to Arcadia on a 21 year FRI lease three years ago with five yearly upward-only rent reviews. The current rent passing is £75,000 p.a. No. 8 Westgate which is the same size as No.2 has recently been let at an annual rent of £100,000. Assume a yield of 5%.

Provide a valuation of the freehold interest in No. 2.

Remember – you need four pieces of information to do a valuation of a reversionary property

Question 6

You work for a firm of Chartered surveyors and an investment client has requested a valuation of a freehold shop property in the centre of Exeter.

The shop was let one year ago to Dixons plc at a rent of £100,000 per annum. The lease is for a term of 15 years with rent reviews every fifth year.

Recent discussions with your colleagues in the Agency Department of your firm have identified with a comparable property recently let on a similar review pattern at an open market rent of £200,000 per annum. This investment property has just sold for a price based on an initial yield of 6%. The client’s target rate of return is 13%.

Your client has asked for two valuations:

a) An ARY valuation

b) A short-cut DCF valuation

c) A full DCF approach
Question 7

An office building in Edinburgh was let to an insurance company three years ago on a 15 year lease with five yearly upwards only rent reviews. The rent passing is £74,000 p.a. FRI and analysis of comparables suggests that that Market Rent is £80,000 p.a.

A similar building was let eight years ago to a local partnership of solicitors for 15 years with the same rent review arrangements. The rent passing is £68,000 p.a. FRI and the Market Rent is estimated to be £72,000 p.a. The building has recently been sold to a property company for £1.2million.

a) Value the freehold interest in the insurance company building using an ARY method justifying the variables you use.

b) Value the building again using a short-cut DCF method justifying the variables you use.

c) Critically assess the way that future rental growth is allowed for in each valuation.

Question 8

An office building in the City of London was let four years ago on a 15-year full repairing and insuring (FRI) lease with five-yearly upward-only rent reviews. The tenant is a financial services company, listed in the Financial Times 250 Index. The rent passing is £120,000 per annum. The Market Rent has been estimated from comparable lettings to be £105,000 per annum on FRI terms.

(a) Demonstrate how the property can be valued using a:

i. Conventional all-risks yield (ARY) approach and
ii. Discounted cash-flow (DCF) approach.

Make realistic assumptions about the yield(s) used in the ARY approach and the rate(s) of return used in the DCF approach.

(b) Using your valuations as illustrations, discuss the advantages and disadvantages of each method.
**Question 9**

An industrial unit with a gross internal area (GIA) of 2,500 square metres is located on a well-established industrial estate with good road connections. It was built 22 years ago and was let on completion on a 25 year lease to an engineering firm on FRI terms, with five-year upward only rent reviews. The passing rent is £100,000 per annum.

The following comparable evidence of properties on the same industrial estate is available:

<table>
<thead>
<tr>
<th>Comparable</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Comparable A</strong></td>
<td>A unit of 1,500 sqm GIA, built ten years ago, has recently been let on a 10 year FRI lease to a company fabricating window units at a rent of £67,500 per annum.</td>
</tr>
<tr>
<td><strong>Comparable B</strong></td>
<td>An older unit, let to firm manufacturing automotive components, has recently been sold to a local property investor for £800,000. A net rent of £80,000 per annum was recently set at rent review.</td>
</tr>
</tbody>
</table>

(a) Calculate the freehold capital value of the industrial premises using a term and reversion OR layer method.

(b) Calculate the freehold capital value of the industrial premises using a short-cut DCF adopting a rental growth rate of 2.5% per annum and a target rate of return of 12%.

(c) Account for the difference between the two answers with particular reference to the use of different yields.

**Question 10**

An industrial unit was let three years ago for distribution and storage use by a substantial plc. The lease runs for ten years with an upwards only rent review to market rent in the fifth year. The rent passing is £70,000 per annum on FRI terms and analysis of lettings in the area suggests the market rent is now £79,000 per annum on the same terms.

You are aware of the following sales of similar properties, all let on FRI leases, in the locality:
<table>
<thead>
<tr>
<th>Sale details</th>
<th>Lease</th>
<th>Contract rent (£ pa)</th>
<th>MR (£ pa)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comp 1</td>
<td>Let two years ago on a ten year lease with an upward-only rent review to MR in year five</td>
<td>£60,000</td>
<td>£64,000</td>
<td>Let to plc as regional maintenance depot for small electrical goods</td>
</tr>
<tr>
<td>Sold recently for £840,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp 2</td>
<td>Let two years ago on a five year lease</td>
<td>£85,000</td>
<td>£91,000</td>
<td>Let to local company, used for printing</td>
</tr>
<tr>
<td>Sold three months ago 2005</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>For £1,120,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Comp 3</td>
<td>Let four months ago on a five year lease</td>
<td>£92,000</td>
<td>£92,000</td>
<td>Let to local company, used for electrical component manufacture and distribution</td>
</tr>
<tr>
<td>Sold recently for £1,150,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) Analyse the sales to find both initial and reversionary yields.

(b) Value the freehold interest in the building, using an ARY method.

(c) Value the building again, using a DCF method. Explain and justify all assumptions that you make.

(d) Explain the relationship between the all-risks yield and the target rate of return, illustrating your answer by reference to the two valuations above.
Revision Questions

Question 1

The majority of rental payments in the UK are payable:

- Quarterly in advance
- Annually in arrears
- Quarterly in arrears
- Annually in advance

Question 2

How much will £100 be worth if it grows at 2% per quarter for five years with interest payable annually in arrears:

- £147.76
- £146.93
- £158.69
- £59,049

Question 3

How much will £100 be worth if it grows at 2% per quarter for five years with interest payable quarterly in arrears:

- £148.81
- £146.93
- £148.59
- £110.41

Question 4

Calculate the value of the right to receive £100 receivable in five years time assuming a discount rate of 8%:

- £146.93
- £399.27
- £68.06
- £63.01
Question 5

Calculate the value of the right to receive £100 every year payable annually in arrears for five years assuming a discount rate of 8%:

- £399.27
- £462.28
- £68.06
- £146.93

Question 6

Calculate the value of the right to receive £100 every year payable annually in advance for five years assuming a discount rate of 8%:

- £462.28
- £431.21
- £399.27
- £68.06

Question 7

What is the quarterly equivalent of an annual interest rate of 8%:

- 2%
- 1.94%
- 4%
- 1.22%

Question 8

Calculate the value of the right to receive £100 every year for five years with payments of £25 payable quarterly in advance assuming an annual discount rate of 8%:

- £419.04
- £399.27
- £462.28
- £421.21
Question 9

Provide a valuation of a property just let at £50,000 per annum on a 20 year FRI lease with upwardly only rent reviews. A similar (but larger) property in the locality has let at £75,000 per annum has sold for £1,500,000.

Question 10

No. 2 Clumber Street, Nottingham is let to Arcadia Plc on a 21 year FRI lease 3 years ago with 5-yearly rent reviews. The current rent passing is £50,000 pa.

Market Evidence: No. 10 Clumber Street has recently been sold by Standard Life to New Star’s authorised Property Unit Trust. The rent passing was £75,000 and the purchase price was £1,500,000. The property was rack rented.

No. 8 Clumber Street which is the same size as No. 2 has recently been let at an annual rent of £75,000.

Using an equivalent yield, provide valuations of the freehold interest in No. 2.

Question 11

No. 4 Clumber Street, Nottingham is let to Sears on a 20-year FRI lease with nine and a half years unexpired with no provision for rent reviews. The rent passing is £100 per square foot ITZA. The shop has an 8 m frontage and is 24 m deep.

Market Evidence: No. 12 Clumber Street recently let at £150 per square foot ITZA on a 20-year FRI lease with five yearly rent reviews. The internal dimensions are the same as No. 4.

See previous question for other comparables. Use 7m zones.

Provide a valuation of the freehold interest on No. 4 using term and reversion method.

Question 12

The subject property on Broad Street was let to Next Stores Plc on 25 year FRI lease two years ago with UORR every five years. The rent passing was agreed at 100 per sq. ft ITZA. The dimensions of the shop are 21 sq ft frontage x 50 ft depth ground floor.

A nearby unit was recently let to Carphone Warehouse on a 20 year lease at a rent of £76,000 on a 20 year FRI lease with five yearly upwardly only rent reviews. The dimensions of the shop are 18 ft frontage x 55 ft depth.
Another retail unit in Broad Street rack rented at a rent of £100,000 was recently sold for £2.25 million.

Value the freehold interest in the subject property.

Question 13

Until recently investors were accepting initial yield from commercial property investments of under 5% when they could have achieved a return of 5% risk free from government bonds.

Why were they prepared to buy property on the basis of such low initial returns?

Leasehold Investments

Question 1

Paragon Pension Co. is contemplating purchasing the head leasehold interest of a factory from Urban Property Investments plc. The factory is occupied by Make-a-Splash Ltd who manufactures plastic mouldings for bathroom fittings. The head lease was granted to Urban Property 40 years ago for a term of 50 years at a fixed net rent of £10,000 per annum. Urban Property sub-let the factory on a 20-year FRI lease with five yearly rent reviews to Make-a-Splash ten years ago. The current rent is £223,000 per annum and the next rent review is due in one month’s time. Market evidence suggests that freehold investments of similar industrial premises are selling at 9% yields and rental growth has been running at around 2% per annum for the last few years.

a) Construct a growth-explicit cash flow and use it to calculate the value of the head-leasehold interest to Paragon Pension Co, stating any assumptions you make.

b) Value the same interest using the traditional dual rate method, again noting assumptions where appropriate.

c) Account for any difference between the two values calculated and identify any problems with the methods that may contribute to such a variation.
Question 2

A manufacturing company owns the head leasehold interest of a large industrial unit, built in the 1950’s on a well-established estate. The head lease was granted 50 years ago for a term of 70 years at a head rent of £15,000 per annum without review. The company has since relocated its operations to new purpose built premises on the same estate and subsequently sub-let the old premises five years ago on a 25 year FRI lease to a printing firm. The rent was reviewed last month to £345,000 p.a.

(a) Using a discounted cash flow, calculate the value of the head lessee’s interest assuming a leasehold target rate of 14% and a rental growth rate of 1.5% p.a.

(b) Calculate the value of the head lessee’s interest using the dual rate method, assuming an accumulative rate of 4% p.a. and an equivalent (All Risks) freehold yield of 12%.

(c) Compare and contrast the methods and results

A private investor owns the head-lease of a four-storey terraced office building on the periphery of the centre of a provincial town. The lease was granted for a term of 99 years and has 18 years left to run at a fixed head rent of £5,000 per annum net. The office is sub-let in its entirety to a well-established financial services company on a 25-year lease granted seven years ago with five-year upward only rent reviews at a passing rent of £180,000 per annum net.

(a) Using a discounted cash flow, calculate the value of the head lessee’s interest assuming a leasehold target rate of 10% and a rental growth rate of 2% per annum.

(b) Calculate the value of the head lessee’s interest using a traditional dual rate technique at a tax rate of 40% and a gross accumulative rate of 4%. The freehold all risks yield for similar properties is around 8%.

(c) Compare and contrast the two methods.
PROFITS METHOD

Question 1

The senior valuation partner of your firm calls you in to his office. He has been asked to value a large portfolio for a client and would like to run through the methods of valuation in relation to several properties in the portfolio to ensure that you are willing and able to assist with the valuation.

Your senior partner asks you to provide a brief description (without figures but using valuation frameworks where appropriate) of your approaches to the valuation of the following:

a) A Hotel
b) A Golf Course
c) A Petrol Filling Station
d) A Brewery

Question 2

A 39-registration residential care home property is freehold with vacant possession except for the existing residents, all of whom continue to occupy the premises under the terms of their existing contracts.

The business retains the following registration:

<table>
<thead>
<tr>
<th>Description</th>
<th>Care Home (CRH)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Maximum Numbers</strong></td>
<td>39</td>
</tr>
<tr>
<td><strong>Service Category</strong></td>
<td>Care Home only</td>
</tr>
<tr>
<td><strong>Service User Conditions</strong></td>
<td>Dementia over 65 (30 max)</td>
</tr>
<tr>
<td></td>
<td>Physical Disability over 65 (39 max)</td>
</tr>
<tr>
<td></td>
<td>Old age not falling within any other category (39 max)</td>
</tr>
</tbody>
</table>

The Local County Council Social Services fees for the current year for elderly people in need of personal care are shown in the following table:
At the time of your inspection the home is accommodating 37 residents. They range in age from 70 to 90 and virtually all of the dementia registered places are occupied.

You have been provided with the following information regarding current fee levels:

<table>
<thead>
<tr>
<th>No of Residents</th>
<th>Weekly Fee</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>£370.00</td>
</tr>
<tr>
<td>1</td>
<td>£385.00</td>
</tr>
<tr>
<td>1</td>
<td>£390.00</td>
</tr>
<tr>
<td>1</td>
<td>£400.00</td>
</tr>
<tr>
<td>1</td>
<td>£410.00</td>
</tr>
<tr>
<td>1</td>
<td>£411.00</td>
</tr>
<tr>
<td>1</td>
<td>£449.00</td>
</tr>
<tr>
<td>9</td>
<td>£457.00</td>
</tr>
<tr>
<td>18</td>
<td>£480.00</td>
</tr>
<tr>
<td>1</td>
<td>£486.00</td>
</tr>
<tr>
<td>1</td>
<td>£495.00</td>
</tr>
</tbody>
</table>

The list provided indicates that 11 of the existing residents are privately funded.

**Staffing**

The home is effectively run under management by the registered manager. She is supernumerary to the care rota. There are few agency costs and there is a full complement of regular, long-term, staff.
You have been asked to value a 39-registration residential care home with no accounts or records of trade available. You therefore need to create a projected trading and profit and loss account for the business using the information provided. Where necessary make assumptions as to costs for the various expenditure headings expected.
COST METHOD

Question 1

Value the freehold of a purpose-built glass works which comprises interlinking industrial buildings of mainly trussed roof or portal frame construction, housing specialised plant and machinery together with extensive single-storey finished-product warehousing and ancillary temporary office accommodation. The property has been developed over a number of years on a site of approximately ten hectares.

Market evidence shows that current land values are approximately £250,000 per hectare. Calculate the depreciated replacement cost (DRC*) of these premises.

Schedule of accommodation:-

<table>
<thead>
<tr>
<th>Description</th>
<th>Life Expectancy of Modern Equivalent</th>
<th>Life Expectancy of Existing Building</th>
<th>Gross Replacement Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main glass works</td>
<td>60</td>
<td>20</td>
<td>6,000,000</td>
</tr>
<tr>
<td>Laboratory &amp; toilets</td>
<td>60</td>
<td>20</td>
<td>1,000,000</td>
</tr>
<tr>
<td>Canteen &amp; offices</td>
<td>30</td>
<td>5</td>
<td>800,000</td>
</tr>
<tr>
<td>Finished-product warehouse</td>
<td>60</td>
<td>40</td>
<td>10,000,000</td>
</tr>
</tbody>
</table>

*Value of land for the existing use plus gross replacement of modern equivalent buildings reduced by a depreciation allowance.
VALUATION CONTEXT

Question 1

The Valuation of cinema would typically be carried out using:

○ The residual approach
○ The profits approach
○ The cost approach
○ The insurance approach
○ None of the above

Question 2

A valuation of a housing site would be carried out using:

○ The residual approach
○ The profits approach
○ The cost approach
○ The insurance approach
○ All of the above

Question 3

Valuations for insurance purposes are carried out using:

○ The residual approach
○ The profits approach
○ The cost approach
○ The insurance approach
○ All of the above

Question 4

The valuation of a NHS hospital would typically involve the use of:

○ The cost approach
○ The income approach
○ The residual approach
○ The hospital approach
○ All of the above
Question 5

The income approach is generally used to value:

- Houses
- Offices
- Hotels
- Individuals’ net wealth
- Public houses

Question 6

The Market Rent is often termed:

- The current rental value
- The estimated rental value
- The full rental value
- The rack rental value
- The Open Market Rental Value (OMV)
- All of the above

Question 7

A property is rack rented when:

- The rent passing > Market Rent
- The rent passing < Market Rent
- The rent passing = Market Rent
- All of the above
- None of the above

Question 8

A freeholder has:

- A lease on a property
- Ownership of a property
- A property without cost
- The right to evict the tenant
- The right to enter
**Question 9**

In the UK, rent reviews take place:

- [ ] Every quarter
- [ ] Every year
- [ ] Every five years
- [ ] At the end of the lease
- [ ] Whenever the tenant requests

**Question 10**

In the UK, the rent at rent review:

- [ ] Can only fall
- [ ] Can only rise or remain the same
- [ ] Can rise or fall
- [ ] Rises only with inflation
- [ ] None of the above

**Question 11**

Typically in the UK, the tenant pays for:

- [ ] All repairs and Insurance
- [ ] Full insurance
- [ ] Full internal repairs and insurance
- [ ] Just internal repairs
- [ ] Full internal insurance

**Question 12**

The term rent is:

- [ ] Rent payable until rent review or lease expiry
- [ ] Rent payable until lease expiry
- [ ] Rent payable at rent review
- [ ] Rent payable per quarter
- [ ] None of the above
Question 13
Which of the following statements are true?

Valuers’ estimates of the Market Value of real estate assets.....

k) Act as a proxy in real estate markets for their actual prices.
l) Will always be accurate.
m) Are not mainly reliant on transaction evidence from real estate markets
n) Will not vary between different valuers.
o) Will change every month.

Question 14
Which of the following statements are true?

Appraisers estimates of the Investment Value of real estate assets....

k) Act as a proxy in real estate markets for their actual prices.
l) Are used to measure historic investment performance.
m) Are mainly reliant on transaction evidence from real estate markets
n) Will not vary between different appraisers.
o) Are often used to estimate potential offer prices in the asset acquisition process.

Question 15
Which of the following statements are true?

IPD use estimates of Market Value in order to......

k) Estimate price changes in commercial real estate markets.
l) Estimate investment performance of real estate assets.
m) Estimate total returns for assets, sectors and investment groups
n) Benchmark the investment performance of different investors.
o) Estimate capital returns for assets, sectors and investment groups

Question 16
What method of valuation should be used to value the following:

a) Great Expectations (a pub).
b) The Royal Berkshire Hospital.
c) Prudential’s office building.
d) The Oracle shopping centre.
e) Excess university land with planning permission for residential development.
f) My house.
Question 17

What method(s) of valuation would you normally expect to use for the following properties:

<table>
<thead>
<tr>
<th></th>
<th>Main</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime Office Building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Licenced Restaurant</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Town Hall</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Potential Development Site</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Valuation Accuracy & Uncertainty

Essay Questions

Question 1

“Real estate advisors and valuers will have to become more adept at valuing uncertain cash flows and master the increasingly complex valuation process.”

With reference to the Lease Code and changes in lease structures, to what extent do you agree with the view expressed above?

Question 2

Discuss the extent to which the causes and consequences of valuation uncertainty become more significant in a market downturn.

Question 3

‘It is commonly believed by real estate researchers that the use of valuations to measure the investment performance of property portfolios will underestimate the amount of risk, lag what is actually happening in the market and, potentially, mis-measure returns.’

Discuss the reasons for these beliefs.

Question 4

It has been argued that carrying out a property valuation is like trying to hit a moving target that is heavily camouflaged.
To what extent can this be considered an apt metaphor to explain valuation uncertainty?

**International Valuation**

*Workshop Questions*

**Question 1**

What index are rents linked to in French leases?

**Question 2**

What index are rents linked to in German leases?

**Question 3**

In a US valuation report there may be four methods of valuation. What are they?

**Question 4**

How are appraisers’ fees calculated in the US?

**Question 5**

To what professional body do US appraisers typically belong?
Question 6
A turnover rent is known as what in the US?

Question 7
How long is a DCF typically for in the US?

Question 8
What is a 20 year govt bond called in the US?

Question 9
CAM stands for?

Question 10
HVAC stands for?

Question 11
Who provides surveys of market discount rates etc in the US?

Question 12
What kind of value are German appraisers often directed to assess?

Question 13
How do German valuers often split the value of the freehold interest?

Question 14
What is the most common method of valuation in Singapore?

Question 15
List three reasons that a comparison method of valuation may be appropriate in HK compared to US?

Question 16
What does IVSC stand for?

Question 17
What does TEGOVA stand for?

Question 18
Who produces the Red Book?

Question 19
Who produces the White Book?

Question 20
Who produces the Blue Book?

Question 21
What does IAS stand for?

Question 22
What does EMLV stand for?

Question 23
What does VAR stand for?

Question 24
Name two circumstances, when should a chartered surveyor refuse a valuation instruction?
Question 25

What is the Basel 2 framework about?

Short Answer Questions

Question 1

What is the difference between IVS and the Red Book?

Question 2

What are the main purposes of the Red Book?

Question 3

Critically evaluate whether UK-based appraisers should undertake valuation instructions outside their domestic market.

Essay Questions

Question 1

In July 2003, John Edge, Chairman of the International Valuation Standards Committee (IVSC) said, “The International Valuation Standards have an important role to play in the effective functioning of global markets. Wide and easy access to our standards will encourage global acceptance of the standards and will improve uniformity of practice by professional valuers throughout the world.”

Critically review the key factors that have driven the development of the International Valuation Standards and discuss potential barriers to ‘uniformity of practice’.

Question 2

Practice Statement 1.5 (Knowledge and Skills) of the Red Book states that Members must have sufficient current local, national and international knowledge of the particular market, and the skills and understanding necessary to undertake the valuation competently.
Given the above, discuss the extent to which it is appropriate for UK-based real estate professionals to value/appraise assets throughout Europe.
LEASE PRICING

Lease start

Question 1

A property has just been let on a 15-year FRI lease with 5-year upward-only rent reviews. It was let with a two-year rent-free period at a headline rent of £50,000 per annum. It is expected that at the first rent review the MR will exceed the headline rent.

Calculate the effective rent for the property.

*Use two methods of devaluing the incentive; one which ignores the time value of money and another that takes it into account (assuming a discount rate of 8%).*

Question 2

A London office block has been let on a 15-year lease with five-year upward-only rent reviews at a ‘headline’ rent of £300,000 per annum. A rent-free period of two and a half years was granted, six months of which is a normal fitting-out period which has not yet started.

Assuming a discount rate of 9%, calculate the real or ‘effective’ rent for this property:

(a) Calculate the effective rent that is being paid under this arrangement assuming:
   i. A write-off period of 5 years and
   ii. A write-off period of 15 years (i.e. the length of the lease)

(b) Work out the growth rate that would be required:
   i. For the effective rent in (a)i. to reach the headline rent by year 5 and
   ii. The growth rate required for the effective rent in (a)ii. to reach the headline rent by year 15
Question 3 – Capital contribution

A property has just been let on a 15-year FRI lease with 5-year upward-only rent reviews. It was let at a headline rent is £20,000 per annum. The landlord has paid the tenant’s fitting out costs of £30,000. It is anticipated that MR will only exceed the headline rent at the second review in the tenth year of the lease.

Calculate the effective rent for the property.

*Use two methods of devaluing the incentive; one which ignores the time value of money and another that takes it into account (assuming a discount rate of 8%).*

Question 4 – Capital contribution

A landlord offers a tenant £100,000 to induce occupation of industrial premises under a new 15-year lease with five-year rent reviews at a rent of £300,000 per annum. Current yields for this type of property are in the region of 10%.

Calculate the effective rent.

Question 5 – Stepped rent

A shop has just been let on a 15-year lease with five-year rent reviews at a rent of £200,000 in year one, £225,000 in year two, £250,000 in year three, £275,000 in year four and £300,000 in year five. After year five the rent reverts to the market level.

Assuming an ARY of 9%, calculate the effective rent of this property.
Lease end

Question 1

Platinum Petcare Ltd is the tenant of a shop in a prime position held on a 15-year internal repairing (IR) lease granted 11 years ago at a current rent of £24,000 p.a. Six years ago the tenant obtained consent for improvements costing £60,000. The current MR on FRI terms is £50,000 per annum, £5,000 of which can be attributed to the improvements made by the tenant. The rateable value of the premises is £50,000.

Assuming a typical rent review pattern in any new lease, a freehold yield of 6% and building cost inflation at 10% per annum:

**a)** Estimate the rent which should be charged if a new 15 year IR lease is granted to the present tenant when the current lease expires.

**b)** Value the current interests of the landlord and tenant assuming:

i) The landlord will get permission for own occupation at the end of the lease

ii) The tenant will continue in occupation

Question 2

14 years ago Teresa Greene took a 15-year lease of a shop on FRI terms that she intended to use as an herbal remedy boutique. Before taking possession and as a condition of the lease, Ms Greene agreed to pay for and install a new shop front. The shop then had a frontage of six metres and a depth of 18 metres. The lease contains a user clause ‘that the premises can only be used as an herbal remedy boutique’. Four years into the lease Ms Greene, at her own cost but with the permission of the landlord who approved the plans, extended the shop at the side by three metres for the total depth.

Comparable retail premises with wide user clauses have recently let for Zone A rents in the region of £100/sqm assuming six metre zones. The rateable value is £5,500. Current building costs are estimated to be £500/sqm.
Ms Greene has asked for your advice on the following points.

a) What action should she take to obtain a new lease?

b) What rent should she pay if granted a new lease?

c) What compensation should she receive if the landlord obtains possession of the premises for his own use?

d) The value of dilapidations is likely to be in the region of £3,000. Will this be payable if possession is obtained for redevelopment?

Question 3

A single story shop in Taunton with a large yard area at the rear is let on a 15 year FRI lease eight years ago with rent reviews every five years. There is a standard rent review clause except that the lease is silent as to improvements. The current rent is £22,000 per annum. The tenant improved the property six years ago with the landlord’s consent at a cost of £10,000 and at the time the improvements added £3,000 per annum to the rental value of the property. Of the current rent payable, 10% is attributable to the improvements. It is estimated that the open market rental value is £26,000 per annum.

a) What is the value of the landlord’s interest assuming the tenant wishes to remain in possession?

You may assume an all risks yield of 9% but make all other assumptions clear.

b) Using example valuations to illustrate your answer where appropriate, describe how the following statutes might affect the capital value of business property investments.

i) Landlord and Tenant Act 1954 Part 2

ii) Landlord and Tenant Act 1927

iii) Landlord and Tenant Act 1954 as amended by the Law of Property Act 1969
Question 4

a) Briefly discuss the possible effects that the following might have on the capital value of interests in business premises:

i) Compensation for the loss of security of tenure under the Landlord and Tenant Act 1954.


b) A shop was let 13 years ago on a 20 year FRI lease with five year rent reviews and the current contract rent is £525,000 per annum. The current market rent for the property is £650,000 per annum. The tenant carried out substantial improvements to the property two years ago with the consent of the landlord and these are estimated to add a further £80,000 per annum to the market rent of the premises stated above.

Assuming the tenant wishes to renew the lease and assuming an all risks yield of 8% for rack-rented freehold investments in properties of this type, value the freehold interest.

Explain your answer at each stage and state any assumptions.
Surrender & renewal

Question 1

The tenant of a large workshop is considering the purchase of new plant and machinery. It is estimated that this will cost £180,000. However the current 20 year FRI lease, which provides for 5 yearly upward-only rent reviews, has only 3 years left to run and the tenant wishes to have greater security of tenure before committing to his expansion plans. The passing rent is £80,000 per annum and the estimated FRV is £110,000 pa. Recent comparable evidence of freehold transactions suggests a yield of around 12% for a property of this type.

You have been instructed by the landlord to advise on the level of rent that would be acceptable if the current lease is surrendered and a new 20-year lease on similar terms is granted.

You must include valuations from both the landlord’s and the tenant’s perspectives. Your report must also include a recommended course of action to the landlord, stating the reasons for your advice and making all assumptions clear.

Question 2

Toddler City, a soft-play centre in Frome, bought (the assignment of) a lease of retail premises when they started trading 3 years ago. Business has been very good and the tenant wishes to surrender the remainder of the current lease in return for the grant of a new, longer one. The current lease has six years to run with no review and the rent passing is £20,000 per annum. The estimated market rent is £27,000 per annum and comparable evidence suggests that shops in this part of Frome are yielding a 10% return to freehold investors at the present time. The landlord would be willing to grant a new, longer lease so long as the rent is reviewed to market value after three years and then five yearly thereafter.

a) You have been instructed to act for the tenant in their negotiations with the landlord’s agent as to the level of rent that would be acceptable for the first three years of the new lease.

b) Negotiations are going round in circles and the landlord’s agent has now suggested that his client would rather pay the tenant a premium in return for the surrender of the existing lease and the grant of a new one at full rental value with five year rent reviews.

Advise the tenant on the minimum level of this premium.

c) Outline the legal implications that should be taken into account when negotiating the surrender of an existing lease in return for a new one.
Question 3

Office premises in the centre of Yate are currently let on a 15 year lease with four years remaining. The lease makes provision for upward-only rent reviews and full repairing and insuring terms. The current rent is £12,000 per annum and the estimated market rent is £15,000 per annum. The tenant wishes to make improvements to the premises but will only do so if the landlord agrees to accept a surrender of the current lease and grant a new one for 15 years. The tenant is prepared to accept the same terms as the original lease except that the rent must be reviewed to 60% of the market rent at each review. The improvements will cost £20,000 but should add £3,500 per annum to the value of the property.

Assuming a freehold yield of 8% and making all further assumptions clear, calculate the rent that should be reserved for the first five years of the new lease.

Turnover Rents

Exam Style Questions

Question 1

Unit 2 (400 square metres Net Internal Area) is let to metre retail unit let to a major supermarket chain. Given the prevailing economic climate and the proximity of a competitor, the supermarket chain were quite cautious and took a five year lease. However, the store has traded very successfully. As stated, the unit was let on a five year full repairing and insuring year lease from 1 July 2008. It is let with provision for a turnover related payment in the lease. The current base rent passing is £120,000 per annum. In addition, the lease stipulates that the tenant pay 4% of their turnover above a threshold of £4,000,000 million per annum. Turnover figures for the last four years are provided below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008-2009</td>
<td>£4,320,123</td>
</tr>
<tr>
<td>2009-2010</td>
<td>£4,516,152</td>
</tr>
<tr>
<td>2010-2011</td>
<td>£4,720,000*</td>
</tr>
</tbody>
</table>

*(interim estimate based on 11 months sales)

Growth of turnover for this store has averaged 4.5% in nominal terms and this is not expected to change significantly.
Recent investment and letting activity indicates that the Market Rent is £150,000 and that this type of investment (with no turnover provisions and with unexpired terms in excess of 10 years) is trading at equivalent yields in the region of 5.00%. The agency team have indicated that they have other supermarket clients seeking similar suitable premises but there are currently none available that offer the same combination of location and space. Discussions with colleagues suggest that a discount rate of 10% should be applied to turnover related income.

Using the information outlined above and making clear your assumptions, provide your estimate of the Market Value of the freehold interest in Unit 2.

The date of valuation is 1st June 2011.

Question 2

Nos. 18-20 Cathedral Street are let is a US furniture retailer on a 15 year lease on full repairing and insuring terms with upward only rent reviews every five years from 1 July 2007. However, they are let with provision for a turnover related payment in the lease for the first five years only. The current base rent passing is £375,000 per annum. In addition, the lease stipulates that the tenant pay 5% of their turnover above a threshold of £1 million per annum. Turnover figures for the last two years are provided below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-2008</td>
<td>£2,421,000</td>
</tr>
<tr>
<td>2008-2009</td>
<td>£2,354,000</td>
</tr>
</tbody>
</table>

Although the store is trading successfully and well above expectations, your research department estimates that turnover will drop by approximately 2% per annum over the next three years. The Market Rent is estimated at £425,000. The Rateable Value is £405,000.

The best transaction evidence is from the auction market. Three shops in similar ‘cathedral cities’ have been sold in the last three months. The first was let to a strong covenant with 12 years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of 7.5%. The second (sold at the same auction) was let to a strong covenant with two years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%. The third (sold last month) was also let to a strong covenant with three years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%.

Currently, investors have a target rate of return of 9% for ‘safe’ investments. For more risky investments, target rates of return of 11% are typical.

Provide an estimate of the Market Value of the freehold interest in Nos. 18-20 Cathedral Street.
Question 3

No. 10 is a 1500 square metre retail unit let to a major supermarket operator. Residential on the upper floors have been sold on long leases and have no value to the freeholder. Initially, this was a pioneering ‘concept’ store bringing convenience goods retailing back into town centres. However, following the success of the store, many more have opened up across the UK. You should be aware that, with a successful track record, the tenant’s policy is to avoid turnover rents in this type of store.

The property was let on a 10 year full repairing and insuring year lease from 1 June 1998 with a five year upward only rent review. It is let with provision for a turnover related payment in the lease. The current base rent passing is £375,000 per annum. In addition, the lease stipulates that the tenant pay 5% of their turnover above a threshold of £10 million per annum. (This threshold is changed at rent review and the current figure of £10 million pounds was agreed at the rent review last June). Turnover figures for the last four years are provided below.

<table>
<thead>
<tr>
<th>Year</th>
<th>Turnover</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-2001</td>
<td>£9,920,000</td>
</tr>
<tr>
<td>2001-2002</td>
<td>£10,416,000</td>
</tr>
<tr>
<td>2002-2003</td>
<td>£10,937,000</td>
</tr>
<tr>
<td>2003-2004</td>
<td>£11,464,000*</td>
</tr>
</tbody>
</table>

*(interim estimate based on 11 months sales)*

Growth of turnover for this store has in the past averaged 5% in nominal terms.

Recent investment and letting activity indicates that the MRV is £430,000 and that this type of investment (with no turnover provisions and with unexpired terms in excess of 10 years) is trading at yields in the region of 5.25%. Given that the store has been trading so successfully, competitors have been attempting to find suitable premises in the High Street. However, there are currently no suitable premises offering the same combination of location and space.

Discussions with colleagues suggest that a discount rate of 13% should be applied to turnover related income.

Using the information outlined above and making clear your assumptions, provide your estimate of the Market Value of the freehold interest in No. 10 High Street.
Short Answer Questions

Question 1

Briefly discuss the problems that turnover rents pose for valuers.

Surrender and renewal

Question 1

A shop situated in the main shopping area of a provincial town is held on a 20-year internal repairing lease with three years unexpired. The current contract rent is £55,000 per annum. The tenant wishes to surrender the lease and obtain a new one in order to carry out improvements costing £40,000. The current market rent for the premises in their present state is £60,000 per annum on the basis of five-year upwards-only rent reviews but the proposed improvements will increase this to £70,000 per annum. The freeholder is agreeable to the surrender and the proposed improvements provided the new lease is on FRI terms and the rent is reviewed upwards-only every five years.

Capitalisation rates for freehold interests of this type of property investments are around 8%.

a) Calculate the rent acceptable to both parties for the first five years of the new lease.

b) As an alternative the tenant is prepared to purchase the freehold interest in the premises. Advise the tenant on the price that should be offered.
Lease Incentives

Question 1

(a) Landlords frequently offer incentives in order to encourage potential tenants to sign up to a new lease. Discuss how these incentives might affect the search for and analysis of comparable evidence.

(b) Three neighbouring office premises; 15, 17 and 19 Commercial Road in Bournemouth; have recently been the subject of transactions.

15 Commercial Road has a net internal area of 2,100 square metres and has been recently let on a 15-year FRI lease with five-yearly upward-only rent reviews and with a two-year rent-free period at a headline rent of £500,000 per annum. It is expected that the effective market rent will not exceed the headline rent until the second review.

17 Commercial Road has a net internal area of 1,000 square metres and has also been recently let on a 15-year FRI lease with five-yearly upward-only rent reviews. The headline rent is £220,000 per annum. The landlord has paid the tenant’s fitting out costs of £100,000. It is anticipated that effective market rent will exceed the headline rent at the first review in the lease.

19 Commercial Road has a net internal area of 1,500 square metres and has just been sold for £5,000,000. It is let on a lease for 15 years with five-yearly upwards-only rent reviews on full repairing and insuring terms at a current rent passing of £250,000 per annum. This lease has 8 years unexpired.

Calculate the effective rental values for (i) 15 and (ii) 17 Commercial Road using two methods of devaluing the incentive; one which ignores the time value of money and another that takes it into account.

iii) Taking a view from that evidence, determine the effective rental value and equivalent yield of 19 Commercial Road.
Stepped Rents

Tutorial Questions

Question 1

You are letting a high street shop in a major provincial city. The current tenant has served a s26 notice to terminate the lease. Subsequent marketing has not generated a great deal of interest. A tenant’s agent has offered you three alternative rents for a five year lease.

Offer 1:

<table>
<thead>
<tr>
<th>Yr</th>
<th>Rent</th>
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<tbody>
<tr>
<td>1</td>
<td>£150,000</td>
</tr>
<tr>
<td>2</td>
<td>£200,000</td>
</tr>
<tr>
<td>3</td>
<td>£250,000</td>
</tr>
<tr>
<td>4</td>
<td>£300,000</td>
</tr>
<tr>
<td>5</td>
<td>£400,000</td>
</tr>
</tbody>
</table>

Offer 2: £200,000 in Year 1 with an annual increase of 10% of the previous year’s rent

Offer 3: £250,000 fixed for the term of the lease

Please advise which option offers the landlord the best financial package.

They have a 10% target rate of return.
Question 2

Which would you prefer? The rent will be payable by from a large corporate.

Offer 1: The right to receive £100,000 for five years receivable annually in arrears

Offer 2:

<table>
<thead>
<tr>
<th>Yr</th>
<th>Rent</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>£60,000</td>
</tr>
<tr>
<td>2</td>
<td>£80,000</td>
</tr>
<tr>
<td>3</td>
<td>£100,000</td>
</tr>
<tr>
<td>4</td>
<td>£120,000</td>
</tr>
<tr>
<td>5</td>
<td>£140,000</td>
</tr>
</tbody>
</table>

Question 3

A client (tenant) looking for office space has been offered a choice between

a) A 10 year lease on FRI terms with five yearly UORR at £100,000 p.a.
b) A 10 year lease on FRI terms with the rent fixed at £105,000 p.a.

In the current market, similar properties are trading at yields of 6%. You estimate that the target rate of return for this type of investment is 10%?

a) What is the implied rate of rental growth?
b) How does the 10 year fixed rent compare with the adjustment indicated by applying constant rent theory?
c) Can you do a capital valuation of the second option using a short cut DCF approach?
Exam-Style Questions

Question 1
Thames Plaza was completed in 2001 and is located on a large business park at the edge of town near a motorway junction. The development comprises 3,000 square metres (net internal area) over three floors of equal size. The building is currently vacant.

You have just received an offer from a business support services company who are very keen to take a lease, on the basis of a 10 year full repairing and insuring lease with a stepped rental for the first five years (receivable annually in arrears) with fixed percentage increases of 2.5% per annum starting at £720,000. In five years there will be a review to Market Rent fixed for the remainder of the lease.

The letting market has been relatively subdued over the last six months. Local letting agents estimate that similar properties are taking six months to let with an incentive of a rent free period of 12 to 18 months (depending on the length of the lease). Details of the outcomes of recent transactions are outlined below.

In comparable schemes nearby, recent lettings indicate that properties on 10 year leases on full repairing and insuring terms with five yearly upward only rent review clauses have recently have been achieving (net effective) rents in the region of £250 per square metre.

Recent investment activity suggests that comparable properties let on the basis of five yearly upward only rent reviews and with unexpired lease terms of 10 years or more have been trading at all risks yields in the region of 5%. The Rateable Value of Thames Plaza is £680,000.

Your client normally has a target rate of return of 7% for this type of office investment.

Calculate the Market Value of the asset on the basis of the proposed lease terms.

Valuation date is June 2007.
Question 2

RealLogis owns four large distribution properties in the area where the M1 and M6 join. You have been instructed to provide estimates of the current Market Value of one of the assets, ‘Asset 3’:

<table>
<thead>
<tr>
<th>Location:</th>
<th>DRIFT Logistics Park, Daventry</th>
</tr>
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<tbody>
<tr>
<td>Building:</td>
<td>10,000 square metre distribution unit completed in April 1998.</td>
</tr>
<tr>
<td>Tenant:</td>
<td>Strong covenant</td>
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<tr>
<td>Rent passing:</td>
<td>Rental payment for the year from June 2007 to June 2008 had just been calculated at £574,310.</td>
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<tr>
<td>Rateable Value:</td>
<td>£450,000</td>
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Currently modern distribution assets in this area let to strong covenants with unexpired lease terms in excess of seven years have been selling at yields in the region of 5.5%.

Local agents estimate that high quality, modern distribution space is currently letting at £60 per square metre. However, available properties are taking on average six months to let. A one year rent free period is standard for properties let on leases for 10 years or longer.

RealLogis has a target rate of return of 9%.

Estimate the Market Value of the freehold interest in Asset 3.

*Valuation date is June 2007.*
Abnormal Rent Review

Tutorial Questions

Question 1

The five year UORR rent review is common but not universal. It is commonly accepted that Ts benefit from having longer than average rent review periods. What are the man costs and benefits?

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Question 2

Assuming that no growth in rents is expected or that rents are expected to fall, does a landlord lose out by granting a longer than average rent review period? Explain…

Question 3

If rent review periods are shorter than average, what are the potential gains and costs to the L?

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<th>Benefits</th>
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Exam-Style Questions

Question 1

Number 2 Broad Street, Reading was let 35 years ago on a 42 year FRI lease with provision for rent review every 7 years. The final rent review is now due. The current rent passing is £100,000 per annum.

Recent transaction activity suggests that similar properties (with standard 15 year FRI leases with five yearly UORR) are trading at all risk yields in the region of 6.5% and that the Open Market Rental Value is £175,000. Assume an equated yield of 10%.

The landlord requires advice on the level of rent that they should be seeking at the imminent rent review.

Provide a valuation of the freehold interest in Number 2.

Question 2

Number 7 Cornmarket, Oxford was let to Radio Rentals on a 63 year FRI lease in 1970s with provision for upwardly only rent reviews every 21 years. The current rent passing set in the 1990s is £250,000 per annum. There are 16 years until the next rent review and the lease will terminate in 37 years.

Recent transaction activity suggests that similar properties (with standard 15 year FRI leases with five yearly UORR) are trading at all risk yields in the region of 6.5% and that the Market Rent is £275,000. Assume an equated yield of 8%

Provide a valuation of the freehold interest in Unit 7.

Question 3

No. 4 Cathedral Street is let to a national confectionary chain on a 70 year lease on full repairing and insuring terms with upward only rent reviews every 14 years from 1 July 1958. The current rent passing is £200,000. Comparable evidence suggests that, if the property was let on the basis of five yearly rent reviews, the Market Rent would be in the region of £250,000. The Rateable Value is £190,000.

The best transaction evidence is from the auction market. Three shops in similar ‘cathedral cities’ have been sold in the last three months. The first was let to a strong covenant with 12 years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of 7.5%. The second (sold at the same auction) was let to a strong covenant with two years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%. The
third (sold last month) was also let to a strong covenant with three years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%.

Currently, investors have a target rate of return of 9% for ‘safe’ investments. For more risky investments, target rates of return of 11% are typical.

Provide an estimate of the Market Value of the freehold interest in No. 4 Cathedral Street.

The date of valuation is 30th June 2009.
ASSET VALUATION QUESTIONS

Question 1

A single storey freehold factory in owner-occupation has 2,000 square metres of gross internal area (GIA).

You have obtained information that similar premises of 3,000 square metres GIA have recently let on a 15 year FRI lease at a rent of £65,000 per annum subject to the payment of a premium of £15,000 on entry. The site of the subject property could be redeveloped as a factory of 2,500 square metres within one year, giving an estimated annual rent of £40 per square metre on FRI terms. Costs, including building, contingencies, financing and fees are considered to be £250 per square metre. Investment yields for this type of property average 10%.

**Value the property for inclusion in company accounts.**

Question 2

The following comments are extracted from the notes found in three separate company reports and accounts for last year with regard to the treatment of each of the company’s fixed assets of land and buildings.

**British Library**

The three freehold premises located in Yorkshire, and Essex which are used for office accommodation have been valued using existing use value at £27 million. The freehold interest in the new library, reading room and book depository at St Pancreas, London has been valued using a depreciated replacement cost basis at £390 million.

**House of Fraser plc**

The valuation of the freehold and long leasehold retail property portfolio has been on the basis of existing use value at £89 million.

**Capital Shopping Centres plc**

Completed investment properties (10 shopping centres in UK) are valued at £3,100 million on an open market basis at the end of each year.

**Give a reasoned explanation of the differing bases of valuation used in each company accounts and suggest the methodology which has been used to arrive at the opinion of value.**
Question 3

A property is a large four-storey warehouse building situated in the East Midlands. It is owner-occupied and comprises 2,400 square metres of gross internal area (GIA).

You have obtained the following comparable information:

i. The tenant of a similar warehouse with a 2,000 square metres GIA has recently surrendered the remaining two years of an FRI lease at a rent of £100,000 per annum and has taken a 10 year FRI lease at a rent of £134,000 per annum with a five year rent review. Yields average 11%.

ii. The site could be redeveloped to include a large single storey distribution warehouse of 3,000 square metres. The development cost, including building, contingencies, finance and fees would be £300 per square metre.

Value the following property for inclusion in the balance sheet of the company accounts and make recommendations to the directors of the company for any additional information you feel should be reported in the accounts.

Explain all of your assumptions.
Valuing added Services

Short Answer Questions

Question 1
Since they buy in bulk from a major telephone operator, the large, national landlord earns a profit of £10,000 per annum providing telephony services to the tenants of one of their multi-let office block. Should this be reflected in the valuation of the building?

○ Yes
○ No
○ It depends

Question 2
The landlord earns a rent of £10,000 per annum for permitting a mobile phone mast on their multi-let office block. Should this be reflected in the valuation of the building?

○ Yes
○ No
○ It depends

Question 3
The landlord earns a rent of £10,000 per annum for rent from advertising boards at the side of their office block. Should this be reflected in the valuation of the building?

○ Yes
○ No
○ It depends

Question 4
The landlord earns a profit of £10,000 per annum providing FM services to the tenants of their multi-let office block. Should this be reflected in the valuation of the building?

○ Yes
○ No

Question 5
The landlord earns a profit of £10,000 per annum providing FM services to the tenants of their multi-let office block and a further £10,000 for provision of FM services to tenants in neighbouring office blocks. Should both revenues be reflected in the valuation of the building?

○ Yes
○ No
Question 6

The landlord’s building has a Market Rent of £500 per sq. m. if let on 15 year FRI leases with five yearly upwardly only rent reviews. A tenant has agreed to pay £550 per sq. m if the rent includes the cost of telephony including broadband provision (estimated cost to landlord is £25 per sq. m.). What is your rent passing in the valuation?

Exam Style Questions

Question 1

Your client is a major developer and is the process of completing, with a view to immediate disposal, a substantial warehouse development in Oxford. They are seeking your opinion of the Market Value.

You have recently had a number of instructions from serviced storage operators currently expanding rapidly throughout the European Union. You know that they have identified Oxford as a priority to establish a market presence.

Your analysis of recent transactions data suggests that the Market Value of the completed premises is £5 million.

Your director dealing with serviced storage operators has stated that, according to their business model, which has taken account of their estimated future revenues and costs, serviced storage operators should comfortably be able to afford to pay £7.5 million and still make a normal profit.

(a) Given your knowledge of the above, what is your estimate of Market Value?

(b) The self-storage business is very keen to establish a presence in the Oxford market and there is currently a shortage of suitable premises. What would you recommend that they bid in order to secure the building?
Contaminated Land & Sustainability

Short Answer Questions

Question 1

Briefly discuss the extent to which the historic (but treated) contamination would affect an estimate of Market Value.

Exam Style Questions

Question 1

The subject property is let to Zeneca PLC for the distribution and manufacture of pharmaceutical goods. It was let seven years ago on FRI basis on a 10 year term with five yearly UORR at £250,000 per annum. The current rent passing is £250,000 (NIA 3000 sq.m.).

Following contamination by a previous occupant (currently in liquidation) and the current occupier (Zeneca), a remediation notice has been served by the local authority. You are aware that the expected costs of remediation are;

1. £500,000 to reduce contamination below current ICRCL levels.
2. £1,000,000 to render the site suitable for any use.

The lease contains no mention of liability for contamination.

Market activity suggests that comparable properties (uncontaminated) are letting at £60 per sq. m. and being sold at yields at 8%.

i. **Provide a valuation of the freehold interest assuming no contamination.**

ii. **Provide a list of the information required for you to estimate the effects of contamination on the valuation of the asset.**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>5.</td>
</tr>
<tr>
<td>2.</td>
<td>6.</td>
</tr>
<tr>
<td>3.</td>
<td>7.</td>
</tr>
<tr>
<td>4.</td>
<td>8.</td>
</tr>
</tbody>
</table>
Essay Questions

Question 1

“…it seems that valuers are not yet interested in issues of sustainability because they traditionally tend to respond to market need rather than drive it”. (Lutzkendorf and Lorenz, 2005, 231)

Discuss this statement and assess the extent to which the emergence of environmental certification of commercial property assets may have significant implications for the valuation profession.

Question 2

“The valuation of contaminated land can be among the most challenging appraisal assignments……the resulting appraisal may end up simply providing a false sense of security to an investor that doesn’t know any better.” (Weber, 1997; 14)

Discuss.
Valuing Short Leases & Leases with Break Clauses

Workshop Questions

Question 1

A large shop in an off-prime position in the centre of Bristol is let on a lease that has two years left to run at a rent of £500,000 pa. The market rent is estimated to be £300,000 p.a. due to Cribbs Causeway having a marked effect on the rents in this area. Rack rented yields for this type of property are estimated to be 5%. Assume investors are seeking a target rate of return for this sort of investment 9%.

Value the freehold interest using:

(a) ARY method
(b) DCF method

Assuming:

i. no void
ii. a void of one year

Question 2

A small modern office building has just been let to a local firm of solicitors for 10 years with a 5 year upwards-only rent review and a break clause in the tenant’s favour after 3 years. The rent passing is £40,000 p.a. for floor-space of 500 square metres NIA. The rent review clause stipulates that rent will be estimated assuming a lease for 10 years on the original lease terms.

The following three recent lettings to local tenants with moderate covenant strength provide rental evidence. The third comparable above has just been sold as an investment, showing an investment yield of 7%.
Exam Style Questions

Question 1

Green Plaza comprises 20,000 square metres (net internal area) of office space. It was let to Cocis (a major US information and communication technology company) from 1 January 2002 on a 15 year lease on full repairing and insuring terms with five yearly upward only rent reviews.

The tenant has the option to break at the first rent review with a six month rent penalty. The current rent passing is £6,000,000 per annum. In the draft 2005 rating list, the Rateable Value of the property is £4,000,000.

There has been little recent investment and letting activity. Discussions with the agency and investment teams suggests that the (effective) Market Rent for prime office space is £200 per square metre and that the all risks yield for comparable rack rented properties is in the region of 6%. Currently, vacant properties are taking approximately one year to let and rent free periods of two years were given in the only two major lettings in the last three years.

Cocis had an option to take additional space in a nearby unit earlier this year. However, they did not exercise the option. Initially, Cocis had intended to move most of their European staff to this single Thames Valley location. Recently, their corporate strategy has changed towards maintaining a significant local presence in all their major European markets. They are actually occupying only 40% of Green Plaza and have been trying without success to sublet the remaining space on short term leases for the last two years.

<table>
<thead>
<tr>
<th>NIA (sq m)</th>
<th>Lease Length and rent reviews</th>
<th>Rent (£/sq m p.a.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>480</td>
<td>10 yrs, 5 yr rent review</td>
</tr>
<tr>
<td>2</td>
<td>520</td>
<td>5 year term</td>
</tr>
<tr>
<td>3</td>
<td>550</td>
<td>15 yrs, 5 yrs rent review</td>
</tr>
</tbody>
</table>

Value the property making realistic assumptions about the appropriate yields.
Question 2

Thames Plaza was completed in 2001 and is located on a large business park at the edge of town near a motorway junction. The development comprises 3,000 square metres (net internal area) over three floors of equal size. The building is currently vacant. However, you have just received an offer from a business support services company who are very keen to take a lease. The offer is made on the basis of a 10 year full repairing and insuring lease at a rent of £800,000 with a five yearly upward only rent review and with a tenant-only option to determine the lease at the rent review. A penalty of six months rent is payable by the tenant if the option is exercised and the landlord will grant a rent free period of six months if the option is not exercised.

The letting market has been relatively subdued over the last six months. Local letting agents estimate that similar properties are taking six months to let with an incentive of a rent free period of 12 to 18 months (depending on the length of the lease). Details of the outcomes of recent transactions are outlined below.

In comparable schemes nearby, recent lettings indicate that properties on 10 year leases on full repairing and insuring terms with five yearly upward only rent review clauses have recently have been achieving (net effective) rents in the region of £250 per square metre.

Recent investment activity suggests that comparable properties let on the basis of five yearly upward only rent reviews and with unexpired lease terms of 10 years or more have been trading at all risks yields in the region of 5%. The Rateable Value of Thames Plaza is £680,000.

Using the information outlined above and making clear your assumptions, provide an estimate of the Market Value of Green Plaza.

The date of valuation is 30th June 2005

Calculate the Market Value of the asset on the basis of the proposed lease terms.

The date of valuation is 30th June 2007
Question 3

You have been asked to value the following office property. It is located on a site in a prestigious business park within approximately three miles of Reading town centre with good access to motorways. It is a high quality development let to HTC (UK) Ltd and is three years old.

It was let on a 15 year lease three years ago on an FRI lease with five yearly upward only rent reviews. There are no unusually onerous user, repairing clauses etc. It is 1,000 sq. m. (NIA) and the current rent passing is £210,000 per annum is considered to be close to the Market Rent. Transaction evidence indicates that similar properties have been selling at prices suggesting an appropriate capitalisation rate of 6%. This suggests a Market Value in the region of £3,500,000 (gross of costs).

Outlining your rationale

(i) Provide a valuation of the freehold interest assuming that the tenant has the option to determine the lease with six months notice at the next rent review (in two years). Your solicitors have advised that the break clause can be exercised. The managing agents have tentatively approached HTC who have refused to provide any indication of their intentions.

(ii) Provide a valuation of the freehold interest assuming that the tenant has the option to determine the lease subject to the terms above and payment of a penalty equivalent to six months rent.

(iii) Can you provide a valuation of the freehold interest assuming that the initial lease was for five years and subject to the 1954 Act. What advantages/disadvantages would this lease structure offer relative to a break clause?

(iv) Can you provide a valuation of the freehold interest assuming that the initial lease is for five years but is ‘contracted out’. What advantages/disadvantages would this lease structure offer relative to a five year lease within the 1954 Act?

(v) Can you rank the four options according to how they would favour the landlord, e.g. iv = most favourable

<p>| | |</p>
<table>
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<tbody>
<tr>
<td>i</td>
<td></td>
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<tr>
<td>ii</td>
<td></td>
</tr>
<tr>
<td>iii</td>
<td></td>
</tr>
<tr>
<td>iv</td>
<td></td>
</tr>
</tbody>
</table>
Short Answer Questions

Question 1
Discuss the extent to which the increased diversity of lease structures has produced problems for valuers.

Question 2
‘The use of the standard income approach to appraisal using yields derived from comparables is not appropriate for non-standard lease structures’
Discuss.

Question 3
Discuss the difficulties of valuing the freehold interest in a property let on a lease which includes a break clause in favour of the tenant.
Vacant Property

Exam Style Questions

Question 1

New House was recently developed by your client and is in a town centre location in the same town close to the railway station. It comprises 5,000 squares (net internal area) of high quality space. It was completed last year and currently remains empty. In the draft 2005 rating list, the Rateable Value of the property is £1,000,000.

There has been little recent investment and letting activity. Discussions with the agency and investment teams suggests that the (effective) Market Rent for prime office space is £200 per square metre and that the all risks yield for comparable rack rented properties is in the region of 6%.

Currently, vacant properties are taking approximately one year to let and rent free periods of two years were given in the only two major lettings in the last three years.

Using the information outlined above and making clear your assumptions, provide an estimate of the Market Value of New House.

Assume a date of valuation of 1 July 2005. Your client’s target rate of return is 8%

Question 2

RealLogis owns four large distribution properties in the area where the M1 and M6 join. You have been instructed to provide estimates of the current Market Value of one of the assets; ‘Asset 2’.

Currently modern distribution assets in this area let to strong covenants with unexpired lease terms in excess of seven years have been selling at yields in the region of 5.5%.

Local agents estimate that high quality, modern distribution space is currently letting at £60 per square metre. However, available properties are taking on average six months to let. A one year rent free period is standard for properties let on leases for 10 years or longer.
Question 3

No. 13 High Street was let to a national children’s clothing chain on a 15 year lease on full repairing and insuring terms with upward only rent reviews every five years from 1 July 2004. However, the tenant has gone into liquidation and the liquidator has very recently disclaimed the lease. The Market Rent is estimated to be £200,000. The Rateable Value is £175,000.

Following the collapse of a number of retailers, there are a number of vacant premises in the High Street. Discussions with local letting agents suggest that premises will take 6-9 months to let and that a rent-free period of one year will be required as an incentive.

The best transaction evidence is from the auction market. Three shops in similar ‘cathedral cities’ have been sold in the last three months. The first was let to a strong covenant with 12 years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of 7.5%. The second (sold at the same auction) was let to a strong covenant with two years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%. The third (sold last month) was also let to a strong covenant with three years unexpired on a full repairing
and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%.

**Briefly outlining your assumptions; provide an estimate of the Market Value of the freehold interest in No. 13 High Street.**

_The date of valuation is 30th June 2009. Currently, investors have a target rate of return of 9% for ‘safe’ investments. For more risky investments, target rates of return of 11% are typical._

**Question 4**

Unit 3 has had a number of short-term tenants but it has been vacant for the last four months. It has the same dimensions as Unit 1. Agents are confident that they can let it within six months to a strong covenant on good lease terms but feel that a rent-free period of one year will be required. Its Rateable Value is £98,000 per annum.

This includes an area of 4 metres by 5 metres at the rear of the shop which is used for storage. Recent transaction evidence indicates that similar properties are letting at £2,500 per square metre and selling at equivalent yields of 6%

**Using the information outlined above and making clear your assumptions, provide your estimate of the Market Value of the freehold interest in Unit 3.**

_Assume a date of valuation of 1 July 2011._

**Tutorial Style Questions**

**Question 1**

You have been asked to value a newly completed warehouse. It is 100,000 square feet. Market evidence suggests that the Market Rent is £10 psf. Recent investment transactions suggest similar buildings with 10-15 year unexpired lease terms let on FRI UORR basis are selling at yields of 7.5%. Agents suggest that it could take one year to let and will require a lease incentive of one year rent-free. The Rateable Value is £1,000,000.
Question 2

You have been asked to value this terrace of industrial/warehouse units;

<table>
<thead>
<tr>
<th>Unit</th>
<th>Tenant</th>
<th>NIA</th>
<th>Unexpired term (yrs)</th>
<th>Next rent review (yrs)</th>
<th>Rent passing</th>
<th>Market Rent</th>
<th>UORR</th>
<th>FRI</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Vacant</td>
<td>10,000</td>
<td></td>
<td></td>
<td>£87,500</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Levis UK</td>
<td>10,000</td>
<td>12</td>
<td>2</td>
<td>£80,000</td>
<td>£87,500</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Dominos Pizza</td>
<td>10,000</td>
<td>7</td>
<td>3</td>
<td>£84,500</td>
<td>£87,500</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Tiles4U</td>
<td>10,000</td>
<td>4</td>
<td>4</td>
<td>£78,000</td>
<td>£87,500</td>
<td>Yes</td>
<td>Yes</td>
<td>Rent review remains unsettled. About to go to Independent Expert. New rent will be back-dated.</td>
</tr>
</tbody>
</table>

Outgoings

-£43,000

Net Income

£199,500

The terrace is 20 years old. In that time, at least one of the units has been vacant. Unit 1 has now been vacant for two years. Last year, services charges covering maintenance, lighting, landscaping etc of common parts worked out at a £5,000 per unit. The Uniform Business Rates payable last year per unit was £38,000. Sales of similar industrial terraces (similar in terms of age, location, tenant profile, voids etc) suggest that an appropriate Net Initial Yield for this type of asset is 9% and that the Equivalent Yield is 9.75%.

1. Value the asset on a simple NIY basis.
2. Value the asset on a unit-by-unit basis using an equivalent yield approach.
3. Would your approach to the valuation have changed if the comparables all had long leases i.e. the yields were based on much better quality leases?
Over-rented freehold investments

Question 1

You have been instructed by one of your investment clients to value the freehold interest in a 1970s office building in the centre of Bristol. Despite a significant upturn in the fortunes of the office market in Bristol in recent years, you feel that this particular property is substantially over-rented. The building comprises 4,640 square metres net internal area (NIA) and is currently let at £431 per square metre.

The 20 year FRI lease commenced nine years ago and the rent is reviewable every five years on upward-only terms. Recently your client purchased a similar rack-rented freehold property investment comprising 3,718 square metres NIA let at a market rent of £269 per square metre on a 10 year FRI lease. The price your client paid was £12,500,000 and the target rate of return was 11%.

Prepare a DCF valuation of the property.

Make all assumptions clear.

Question 2

An office building was let in seven years ago to an international firm of accountants. The lease was for 15 years with 5 yearly upwards only rent reviews to market rent. The original rent was £850,000 per annum on FRI terms and it remained unchanged at the last rent review because the market rent had fallen since the initial letting. It is now £800,000 per annum FRI.

Assuming that similar properties let at market rent to strong tenants sell for 6% investment yields and referring to current medium-dated gilt yields of 4.75% and a 3% property risk premium:

a) Assess the risk of this property as an investment explaining the factors which influence your assessment.

b) Value the property using an ARY valuation method noting any assumptions you make.

c) Value the property using a DCF method noting any assumptions you make.

d) Compare the two valuations in (b) and (c) briefly explaining their advantages and disadvantages.
Question 3

No. 7 High Street is let to a mobile phone operator on a 15 year lease on full repairing and insuring terms with upward only rent reviews every five years from 1 January 2007. The current rent passing is £213,000 and the Market Rent is estimated to be £180,000. The Rateable Value is £190,000.

The best transaction evidence is from the auction market. Three shops in similar ‘cathedral cities’ have been sold in the last three months. The first was let to a strong covenant with 12 years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of 7.5%. The second (sold at the same auction) was let to a strong covenant with two years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%. The third (sold last month) was also let to a strong covenant with three years unexpired on a full repairing and insuring lease with upward only rent reviews every five years. Its sale price indicated an equivalent yield of approximately 10.25%.

Currently, investors have a target rate of return of 9% for ‘safe’ investments. For more risky investments, target rates of return of 11% are typical.

Briefly outlining your assumptions; provide an estimate of the Market Value of the freehold interest in No. 7 High Street.
The Highways Agency has issued a Compulsory Purchase Order for the construction of a by-pass for the town of Bartown. Phases 1 and 2 of the by-pass will be constructed at the same time and Notices to Treat have been issued with entry imminent. A plan is provided below:
Discuss the principles underlying the following two claims (you are not required to consider the quantum of the claims):

(a) **Bulls Head Public House** – Roger Melly is the owner occupier (in continuous occupation since 1968). He wants advice on what he can claim now and in the future from the Highways Agency in terms of compensation. He is particularly upset at the loss of views from the beer garden.

(b) **Smalls Garage** – Mr Fixit (aged 59) is the sole proprietor of this small independent garage which he has been running since 1990. The Rateable Value in the 2005 Rating List is currently £55,000. The entire garage is to be acquired under the scheme and compensation for loss of the land has been agreed on the basis of Market Value. Furthermore existing use value as a garage has been agreed. Mr Fixit would like to know if he is entitled to claim any other money from the Highways Agency as he would like to open a new garage a mile away. However he is worried about the poorer location of the proposed new site.

**Question 2**

A local authority is carrying out a town centre retail development for which land is being compulsorily acquired. The scheme will take approximately two years to complete.

Xenon Bikes is the tenant of a shop held on a 20-year lease that began eight years ago. The two-story shop has a single-storey rear extension and rear yard with access to a rear service road from which goods are delivered. The rear extension and rear yard are due to be acquired. When complete the new scheme will allow for service access via a covered service way from nearby unloading bays. The contract rent for the shop is £50,000 per annum and the current market rent in the absence of the scheme is £60,000 per annum, of which £55,000 per annum can be attributed to the retained part of the shop. However disruption caused during construction reduces the estimated market rent of the retained part to £48,000 per annum. When the scheme is complete the rent for the retained part is estimated to increase to £58,000 per annum.

(a) **Estimate the amount of compensation payable to the tenant, Xenon Bikes, for the land taken, severance and injurious affection. You may assume a leasehold all-risks yield of 10% and you may adopt a single rate without tax.**

(b) **Discuss any other heads of claim under which the tenant might be eligible for compensation.**
Question 3

Lower Lea Valley, Olympic and Legacy Compulsory Purchase Order 2005

The London Development Agency (LDA) has issued a Compulsory Purchase Order (CPO) for the 838-acre site for the 2012 London Olympics. It will also ensure the regeneration of the Lower Lea Valley alongside the Olympic, Legacy and Stratford City developments. The majority of those affected will have to relocate by summer 2007. The CPO has yet to be confirmed and the LDA is hopeful that many of the transfers can be agreed before this happens. An extract from the CPO is shown below (slightly amended for the purposes of this exercise):

<table>
<thead>
<tr>
<th>Description and Situation of the Land</th>
<th>Qualifying persons under section 12(2)(a) of the Acquisition of Land Act 1981</th>
</tr>
</thead>
<tbody>
<tr>
<td>Owners or reputed owners</td>
<td>Tenants or reputed tenants (other than lessees)</td>
</tr>
<tr>
<td>Warehouse known as Hoo Hing Oriental Foods and forecourt, situated at Unit C Eastway Commercial Centre</td>
<td>Hoo Hing Limited</td>
</tr>
</tbody>
</table>

An extract from the Valuation Office’s Website is shown below:

<table>
<thead>
<tr>
<th>Address In Rating List</th>
<th>Unit C, Eastway Commercial Centre, Eastway, London, E9 5JT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheme Reference: 44858</td>
<td>Property Description: Warehouse &amp; Premises</td>
</tr>
<tr>
<td>Line</td>
<td>Floor</td>
</tr>
<tr>
<td>-----</td>
<td>------</td>
</tr>
<tr>
<td>1</td>
<td>Ground</td>
</tr>
<tr>
<td>2</td>
<td>Ground</td>
</tr>
<tr>
<td>Total Area</td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
</tr>
<tr>
<td>Spaces</td>
<td>Area (m²)</td>
</tr>
<tr>
<td>Car Parking</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>660</td>
</tr>
<tr>
<td>Total Value</td>
<td></td>
</tr>
<tr>
<td>Adopted Rateable Value</td>
<td></td>
</tr>
</tbody>
</table>
You have been approached by Mr Wong, the proprietor of Hoo Hing Limited, who is the owner occupier of a distribution warehouse located within the CPO area. He has been approached by the London Development Agency and invited to commence negotiations regarding the purchase of his property.

**You are to advise Mr Wong on the level of compensation he should seek**

*You have confirmed instructions in writing with Mr Wong in accordance with the RICS Red Book. You have also ensured you are acting in accordance with the latest edition of the RICS Rules of Conduct.*

**Assumptions made for this exercise**

1. The above Rateable Value has been agreed with the Valuation Office and is considered to represent the true rental value at the antecedent valuation date.
2. The site area is approximately 2,000 sq. m.
3. Rental values in the Eastway Commercial Centre have remained unchanged since the antecedent valuation date. However just outside of the CPO area rental values for similar properties have risen by 50% in this period. More generally industrial rents for similar properties in north-east London have only increased by approximately 15%.
4. All-Risks Yields for secondary industrial property in north-east London are currently around 9%.
5. Enquiries to Hackney’s Planning Department have revealed no outstanding planning applications nor have there been any planning applications in the past 10 years.
6. The Local Plan allocates the land for industrial use.
7. The CPO allocates the site for Residential: ‘for the building of apartments for the use of Olympic competitors.’
8. Residential development land in north-east London is currently selling for approximately £8,500,000 per hectare. Residential development land is currently selling for £13,000,000 per hectare just outside the boundary of the CPO.

<table>
<thead>
<tr>
<th>a)</th>
<th>Is Hoo Hing Limited entitled to Compulsory Purchase Compensation?</th>
</tr>
</thead>
<tbody>
<tr>
<td>b)</td>
<td>What is the interest to be valued?</td>
</tr>
<tr>
<td>c)</td>
<td>What is the date of Valuation?</td>
</tr>
<tr>
<td>d)</td>
<td>Is compensation to be made on the basis of Market Value (Rule 2) or equivalent reinstatement cost (Rule 5)?</td>
</tr>
<tr>
<td>e)</td>
<td>What valuations need to be undertaken in order to assess the level of compensation?</td>
</tr>
</tbody>
</table>
PROPERT Y INVESTMENT APPRAISAL

NPV

Question 1

A shop has just been let on a 5-year lease at a net rent of £100,000 per annum. The freehold interest in this shop is for sale for £1,500,000. You have a client who may be interested in purchasing this investment opportunity and he wishes to know whether the asking price is reasonable given a target rate of return of 9%. Recent investment transactions suggest an initial yield of 6.25%. You estimate that retail rents in this location will grow at an average of 3% per annum over the period of the lease.

Advise your client.

Acquisition and management costs may be ignored.

Question 2

An office property investment is for sale at £2,000,000. It has just been let on a ten year lease at a net rent of £140,000 per annum subject to a rent review in the fifth year. You estimate that in this location office rents will rise at an average of 2% per annum over the term of the lease.

After contacting known potential investors, calculate the Net Present Value (NPV) of this investment assuming a target rate of return of 10% and an initial yield of 7%.

Question 3

One of your investment clients is thinking of purchasing the freehold interest in an office refurbishment opportunity. The asking price is £1,200,000 and the property is ready for refurbishment upon expiry of the current lease in seven years’ time. The current net rent is £100,000 per annum and the final rent review is in two years’ time. Your client plans to hold the property until lease expiry, refurbish and then sell.
Question 4
A freehold office investment with a net internal area of 4,000 square metres is advertised for sale at £7,000,000. The rent is currently under review and 10 years remain on the lease with a rent review in five years’ time. A comparable property measuring 5,000 square metres net internal area was recently let at £750,000 per annum and subsequently sold for £9,375,000. You estimate rental growth to be 3% per annum.

Advise your client whether the investment opportunity offers an acceptable return when compared to the client’s target rate of return of 11%.

Recap Questions

Question 1
An investor is offered the right to buy a high street retail asset. The building has just been let on a 15 year full repairing and insuring lease with upward only rent reviews every five years at a rent of £100,000 payable annually in arrears. The asking price is £2,000,000.

a) The investor has asked you to advise them how much their maximum bid could be before deduction of costs and fees (i.e. ignore costs and fees). They have a five year holding period. They estimate that rental growth in the location will be 2.5% per annum, depreciation is estimated to be minimal and that the exit yield will be 5%. Their target rate of return is 7%.
b) What do you think are the main factors affecting the choice of target rate of return?

**Question 2**

Look at the example on page 15 of this document. Do you understand where the numbers come from? How have they been calculated?

**Question 3**

Now use a similar approach to do an investment appraisal of this investment opportunity. You have been offered the opportunity to buy the freehold of a factory unit. The factory is currently occupied by Adidas who are manufacturing sportswear there. They occupy the premises on a 20 year lease granted eight year ago when the building was completed. Adidas are now paying a rent of £100 per sq. m.

Given the following information would you recommend that a purchase take place?

<table>
<thead>
<tr>
<th>Offer Price</th>
<th>£15,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tenant</td>
<td>ADIDAS</td>
</tr>
<tr>
<td>Lease</td>
<td>20 Years</td>
</tr>
<tr>
<td>Unexpired Term</td>
<td>12 Years</td>
</tr>
<tr>
<td>Rent Review</td>
<td>5 Yearly UORR</td>
</tr>
<tr>
<td>Size</td>
<td>10,000 sqm</td>
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<tr>
<td>Rent Passing</td>
<td>£1,000,000</td>
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<tr>
<td>Target Rate of Return</td>
<td>9%</td>
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<tr>
<td>Rental Growth</td>
<td>6% p.a.</td>
</tr>
<tr>
<td>Depreciation</td>
<td>2% p.a.</td>
</tr>
<tr>
<td>Transaction Fees</td>
<td></td>
</tr>
<tr>
<td>Buying</td>
<td>5.75% of capital value</td>
</tr>
<tr>
<td>Selling</td>
<td>1.5% of capital value</td>
</tr>
<tr>
<td>Holding Period</td>
<td>7 Years</td>
</tr>
<tr>
<td>Selling Price</td>
<td>12.5 times the Market Rent @ projected date of sale.</td>
</tr>
</tbody>
</table>
Calculate the Net Present Value and Internal Rate of Return assuming that the property is purchased at the asking price?

You should try to use Excel to perform your calculation, although make sure that you are able to show explicitly the present values of the net cash flows.

Think carefully about how much you expect to spend and when and how much you expect to receive and when if you acquire this investment.
Development Appraisal

Development Appraisal Inputs

**Question 1**
In order of importance, what do you think will be the FIVE most important assumptions in a development viability appraisal used to estimate a land bid?

1
2
3
4
5

**Question 2**
Can you list as many of the variables as you can that will often be required as planning obligations in order to secure permission for a residential development?

1
2
3
4
5
6
7
8
9
10
Question 3

When you see a price for residential construction costs per square metre, what exactly is included?

<table>
<thead>
<tr>
<th>Cost</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utility infrastructure</td>
<td>☐</td>
<td>☐</td>
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<tr>
<td>Garages</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Estate roads (adopted)</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Parking spaces</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Hard and soft landscaping</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Pavements</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Gardens</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Playgrounds</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

Development Appraisal Input Calculations - Revisited

Multiple Choice

Question 1

How much does €1,000 placed in a deposit account grow to in three years, if the rate of interest payable is 5% per annum?

○ €1150
○ €1050
○ €1175
○ €1058
○ None of the above
Question 2
You estimate that costs of construction are €2,000,000 now but you are not carrying them out for another four years. If you estimate that building cost inflation will be 5% p.a., what will they cost in four years time?

- €2,400,000
- €2,431,013
- €2,423,239
- €2,426,543
- None of the above

Question 3
Calculate the value of the right to receive £100,000 receivable in five years time assuming a discount rate of 8%.

- £146,930
- £399,270
- £68,060
- €63,010
- None of the above

Question 4
What is the quarterly equivalent of an annual interest rate of 10%?

- 2.50%
- 2.56%
- 2.31%
- 2.22%
- None of the above

Question 5
What is the monthly equivalent of an annual interest rate of 15%?

- 1.25%
- 1.15%
- 1.17%
- 0.8%
- None of the above
Question 6
What is the value of the right to receive £100,000 annually in arrears in perpetuity assuming a discount rate of 5%?

- £2,000,000
- £5,000
- £5,000,000
- £500,000
- None of the above

Question 7
The IRR is the discount rate at which:

- The NPV is solved.
- The NPV is negative.
- The NPV is neutral
- The NPV is positive.
- None of the above

Question 8
In order to calculate the IRR of a potential development opportunity, you estimate two NPVs. At 10% the NPV is £4,100,580 and at 20% the NPV is £890,120 (positive). What is the IRR?

- 32.6%
- 10.2%
- 18.9%
- 20.6%
- None of the above

Question 9
You have planning permission to build an office development. Its Gross Lettable Area will be 3500 square metres. Assuming a net to gross ratio of 80% and a Market Rent of £300 per square metre, the Market Rent of the office is currently

- £840,000
- £1,050,000
- £900,000
- £1,200,000
- None of the above
Question 10

You are just about to complete an office development. It is pre-let on a 15 year lease with UORR every five years. The rent is £100,000. What is the Market Value of the property (net of transaction costs)? Assume a yield/capitalisation rate of 6% and transaction costs of 5.75%.

- £600,000
- £1,576,044
- £1,666,667
- £1,570,833
- None of the above
Forecasting

Question 1

Here is a very simple land value estimate for a development scheme.

<table>
<thead>
<tr>
<th>Period (Quarter)</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land costs</td>
<td>£0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other Development Costs</td>
<td>£2,000,000</td>
<td>£2,000,000</td>
<td>-£2,000,000</td>
<td>-£2,000,000</td>
<td>-£2,000,000</td>
<td>-£2,000,000</td>
<td></td>
</tr>
<tr>
<td>Development Revenues</td>
<td></td>
<td>£10,000,000</td>
<td>£10,000,000</td>
<td>£10,000,000</td>
<td>£10,000,000</td>
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<td></td>
</tr>
<tr>
<td>Net Cash Flow</td>
<td>£0</td>
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<td>£2,000,000</td>
<td>£8,000,000</td>
<td>£8,000,000</td>
<td>£8,000,000</td>
<td>£8,000,000</td>
</tr>
<tr>
<td>NPV @ 5% (per quarter)</td>
<td>£22,011,432</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land value (gross of costs)</td>
<td>£22,011,432</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a) Estimate the value of the site assuming that costs of development appraisal grow at 1.5% per quarter and that development revenues are expected to grow at 2.5% per quarter.

b) What is the effect on the valuation of the land of including forecasts? How would this be affected by the cost/revenue ratio (in the example, the ratio is 30%)? How would it be affected by the ratio between expected revenue inflation and cost inflation?

c) Do you think that most development appraisals include forecasts? Yes/No Do Investment Value models include forecasts of cost and revenue growth? Yes/No

d) Let’s say that you have two sites (A and B) that currently generate similar revenues per hectare and require similar development costs per hectare. Site A is in a Conservation Area and there are no other competing sites. Site B is in an area with lots of similar sites. Should the two sites have same value?

e) Can you think of any difficulties of using forecasts?
Traditional Residual

Exam Style Questions

Question 1
A developer has offered the opportunity to bid for a former industrial site. They have been provided with the following information.

- The site has currently a large manufacturing unit plus carparking on a one acre plot (0.4 hectares).
- There is planning permission to demolish the factory and construct for 10 three-bedroom houses.
- Similar new houses are currently selling for £325,000 each.
- It is expected that each house will cost £65,000 to build.
- The site is contaminated and it is expected that remediation and site preparation costs will be £300,000.
- It is estimated that professional fees will be 10% of total construction costs (i.e. including remediation).
- The developer has a borrowing facility with a major bank at 8% per annum.
- Agent’s fees are 1.5% of sale price.
- Allow for contingencies at 5% of total costs (excluding profit).
- The developer requires a profit of 15% of Gross Development Value.
- The total development period is estimated at 12 months.

Use a traditional residual approach to estimate the land value.

Use answer sheet overleaf.
## Answer Sheet

<table>
<thead>
<tr>
<th>Description</th>
<th>Amount</th>
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<tbody>
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<td>GDV</td>
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<tr>
<td>GDC</td>
<td></td>
</tr>
<tr>
<td>Construction costs</td>
<td>£ _________</td>
</tr>
<tr>
<td>Site preparation</td>
<td>£ _________</td>
</tr>
<tr>
<td>Professional fees</td>
<td>£ _________</td>
</tr>
<tr>
<td>S106</td>
<td>£ _________</td>
</tr>
<tr>
<td>Finance costs</td>
<td>£ _________</td>
</tr>
<tr>
<td>Sale fees</td>
<td>£ _________</td>
</tr>
<tr>
<td>Required profit</td>
<td>£ _________</td>
</tr>
<tr>
<td>Contingency</td>
<td>£ _________</td>
</tr>
<tr>
<td>Total GDC (inc. profit)</td>
<td>£ _________</td>
</tr>
<tr>
<td>Surplus available for land on</td>
<td>£ _________</td>
</tr>
<tr>
<td>completion</td>
<td></td>
</tr>
<tr>
<td>PV of surplus @ 8%</td>
<td>£ _________</td>
</tr>
<tr>
<td>Land value (gross of acquisition</td>
<td>£ _________</td>
</tr>
<tr>
<td>costs)</td>
<td></td>
</tr>
<tr>
<td>Land value (net of acquisition</td>
<td>£ _________</td>
</tr>
<tr>
<td>costs)</td>
<td></td>
</tr>
</tbody>
</table>
Question 2

A developer wishes to estimate the development value of a site located in Central Edinburgh. The site has outline planning permission for 800 square metres (GIA) of standard shops with 6,750 square metres (GIA) of offices above. After consideration of various designs and layouts, an optimum scheme has been finalised and the developer is confident full planning permission will be granted in six months time. From his knowledge of the area and the scheme proposed, the developer considers that the following is realistic:

- The Valuation Surveyor estimates the current rental values to be:
  
  o Shops: £250 per sqm (90% efficient)
  o Offices: £200 per sqm (85% efficient)

  It is considered likely to take up to nine months to let the shops and offices.

- Current construction costs estimated by the Quantity Surveyor are:
  
  o Shops: £500 per sqm
  o Offices: £850 per sqm
  o Ancillary costs: £300,000 (for access and environmental improvements)
  o Professional fees are 10% of (a)-(c)
  o Contingencies are 4% of (a)-(d)

  Building works should commence upon receipt of full planning permission (anticipated to be in six months’ time) and take two years.

Prepare a residual valuation of the site.

You may assume an all risks yield of 7.5%, developer’s profit requirement of 20% on costs and an interest rate of 8.5% per annum. Make other assumptions as you deem appropriate.
Question 3

A property development company is proposing to undertake the speculative development of an office building on a recently acquired town centre site. The purchase price was £1.6m and the previous owner had obtained outline planning consent for a four-storey building on the site some two years previously but had not pursued this proposal. A local commercial letting agent has indicated that demand for office space in the town is high and leases have recently been negotiated at rental levels of £220 per square metre per annum. The agent is not aware of any other new office development proposals in the town. Recent investment transactions show capitalisation rates around 8%. The Developer has also employed local practices of Architects and Quantity Surveyors. On the basis of their knowledge, the Architect has drawn up a design that provides a building with a gross internal area of 4,200 square metres. Analysis of the design shows that the efficiency ratio will be 90%. The Developer’s agent reports that, amongst other expressions of interest, they have received firm enquiries from a number of tenants about leasing space in the development.

The Quantity Surveyor has indicated that they anticipate building costs for good quality speculative offices to be between £1,075 per square metre. In addition external works are expected to cost approximately £250,000 and a separate contract has already been let for site clearance and the demolition of some small buildings on the site at a price of £100,000. The Project Manager has drawn up an outline procurement programme that allows 6 months for design and 15 months for construction. The Developer intends to borrow the cost of the development from a bank. The bank has funded a number of successful projects carried out by the Developer over the last ten years. Current interest rates on project loans of this nature range between 7% and 9% per annum.

a) Using a residual approach and making assumptions where necessary, calculate developer's profit.

b) Describe and illustrate (but don’t calculate) how you would conduct a scenario analysis to investigate impact of changes in rent, building cost, interest rate and void period on profit.

c) Suggest ways that you might enhance the deterministic analysis described in (b) above.
Question 4

A developer wishes to estimate the development value of a site located in Central Edinburgh. The site has outline planning permission for 800 square metres (GIA) of standard shops, with 6,750 square metres (GIA) of offices above. After consideration of various designs and layouts, an optimum scheme has been finalised and the developer is confident full planning permission will be granted in six months’ time. From his knowledge of the area and the scheme proposed, the developer considers that the following is realistic:

- Building works should commence upon receipt of full planning permission and take 24 months

- Current construction costs – estimated by the Quantity Surveyor – are:
  - Shops: £500 per square metre
  - Offices: £850 per square metre
  - Ancillary costs: £300,000 (for access and environmental improvements)

- The Valuation Surveyor estimates the current rental values to be:
  - Shops: £250 per square metre
  - Offices: £200 per square metre

And considers it likely to take up to nine months to let the shops and offices

Prepare a residual valuation of the site. You may assume an all risks yield of 7.5%, developer’s profit requirement of 20% on costs and a short term rate of interest of 8.5% per annum. Make other assumptions as you deem appropriate.
Question 5

A developer has offered the opportunity to bid for a vacant site in the town centre of a large provincial city. They have been provided with the following information.

II. It is a 2000 square metre site used as temporary car parking.
III. There is planning permission to construct for 6000 (gross external area) square metres of office space.

For commercial space, there is a distinction between the Gross External Area (what you build) and the Net Internal Area (what you can let). You can’t charge rent for all space (corridors, toilets, atriums). In this case, assume a net to gross ratio of 80%.

IV. Similar office space is currently letting at £300 per square metre.
V. Modern offices developments let to high quality tenants have been selling at yields of 6%.

For commercial space, Market Value is often simply rent divided by a yield (which can also be expressed as an income multiplier). In order to get the GDV, you need to work out the Market Rent \((300\times6000\times0.8)\) and divide it by 6%. You are now essentially valuing the proposed office. It is valued like an ordinary annuity \((1/i\times\text{income} – \text{you did this last term and, if you don’t know what it is, then you need to go back and find out, er, please). When you have done this, you then need to account for transaction costs (5.8%) by dividing the Market Value (gross of purchaser’s costs) by \(1+0.058\) to get the Market Value (net of purchaser’s costs).

- Construction costs are currently £1000 per square metre. It is estimated that professional fees will be 10% of total construction costs.
- The developer has a borrowing facility with a major bank at 8% per annum.
- The developer requires a profit of 15% of Gross Development Value.
- Contingency should be 5% of construction and professional fees.
- The total development period is estimated at 18 months.
- Land acquisition costs are estimated at 5.8% of land value.

Given the above information and stating any other assumptions use either a cash flow or a discounted cash flow approach to estimate a bid for the plot.
Cashflow Residual Valuation

Multiple Choice Questions

Question 1

GPV is:

- Gross Probable Value
- Gross Possible Value
- Guess of Present Value
- Gross Potential Value
- Gross Present Value

Question 2

In order to calculate the IRR of a potential investment, you estimate two NPVs.

At 10% NPV is £251.32 and at 20% NPV is -£26.62.

What is the IRR?

- 12.31%
- 15.2%
- 18.9%
- 22.1%

Question 3

In order to calculate the IRR of a potential investment, you estimate two NPVs.

At 10% NPV is £410.58 and at 20% NPV is £89.12 (positive).

What is the IRR? (You should be able to guess)

- 23.6%
- 10.2%
- 18.9%
- Not enough information.

Question 4

In a property context, the depreciation of a building can be measured by:

- Decrease in utility of building to current user
- Decrease in value of building
- Decrease in value of building relative to new buildings
- A survey of the condition of the building
Question 5

Fill in the blanks below:

<table>
<thead>
<tr>
<th>Period</th>
<th>Purchase Price</th>
<th>Purchase Income</th>
<th>Sale Price</th>
<th>Sale Income</th>
<th>Net Cash Flow</th>
<th>PV factor @ 10%</th>
<th>PV of cash flow</th>
</tr>
</thead>
<tbody>
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<td>0</td>
<td>£1,000,000</td>
<td>-</td>
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<td>-</td>
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<td></td>
<td>£714,060</td>
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</tbody>
</table>

NPV -£127,447
GPV*                 
IRR 6.75%

*Don’t know what GPV is? It is the same as the NPV ignoring the initial investment. In this context, it is the amount that the investor can pay assuming that they want a 10% return and that the cash flow projection is accurate.
Question 6

Fill in the blanks below:

<table>
<thead>
<tr>
<th>Period</th>
<th>Purchase</th>
<th>Income</th>
<th>Sale</th>
<th>Net Cash Flow</th>
<th>PV factor @ 8%</th>
<th>PV of cash flow</th>
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</thead>
<tbody>
<tr>
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</table>

NPV @10%: -£40,518
NPV @ 8%: £43,559
IRR:

Question 7

In a cash flow to assess the worth of a property, the future expected sale price is a function of:

- Forecasted rent at sale divided by forecasted capitalisation rate
- Forecasted rent at sale multiplied by forecasted income multiplier
- Forecasted rent at sale divided by forecasted yield
- All of the above
- None of the above
Tutorial Style Questions

Question 1

The Simple Example that we’ll be using. Here is a NPV/IRR estimate for a very simplified development scheme. Here are the real estate “text book” DCF and cash flow approaches to estimating the NPV of the development.

a)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>0</th>
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<th>2</th>
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<tr>
<td>Costs</td>
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<td>-£1,000,000</td>
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</tr>
<tr>
<td>NCF</td>
<td>-£10,000,000</td>
<td>-£1,000,000</td>
<td>-£1,000,000</td>
<td>£4,000,000</td>
<td>£4,000,000</td>
<td>£4,000,000</td>
<td>£4,000,000</td>
</tr>
<tr>
<td>PV @ 2.5%</td>
<td>1.00</td>
<td>0.98</td>
<td>0.95</td>
<td>0.93</td>
<td>0.91</td>
<td>0.88</td>
<td>0.86</td>
</tr>
<tr>
<td>Present Value</td>
<td>-£10,000,000</td>
<td>-£975,610</td>
<td>-£951,814</td>
<td>£3,714,398</td>
<td>£3,623,803</td>
<td>£3,535,417</td>
<td>£3,449,187</td>
</tr>
<tr>
<td>NPV</td>
<td>£2,395,381</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IRR</td>
<td>7.06%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
b) Can you make sure that you understand how all the numbers are calculated? For example, the interest payments in the second cash flow and the PV of surplus.

b) Going back to previous discussions, is this a realistic representation of the actual cash flows from this kind of development?
**Question 2**

A small housing development company (the housing is normal sized – it’s the company that’s small) is interested in buying a plot of land on which there is planning permission to build two houses. Below is their expected cash flow for the development. Fill in the blanks. Costs of land acquisition are 5.75% of land price.

a)

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXPENDITURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>£-25,000</td>
<td>£-25,000</td>
<td>£-25,000</td>
<td>£-25,000</td>
</tr>
<tr>
<td>Demolition</td>
<td>£-20,000</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
</tr>
<tr>
<td>Prof. fees</td>
<td>£-2,250</td>
<td>£-1,250</td>
<td>£-1,250</td>
<td>£-1,250</td>
</tr>
<tr>
<td>Sale fees</td>
<td>£0</td>
<td>£0</td>
<td>£-4,500</td>
<td>£-4,500</td>
</tr>
<tr>
<td>Contingency</td>
<td>£-2,363</td>
<td>£-1,313</td>
<td>£-1,538</td>
<td>£-1,538</td>
</tr>
<tr>
<td>Profit</td>
<td></td>
<td></td>
<td></td>
<td>£-120,000</td>
</tr>
<tr>
<td><strong>RECIEPTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>£0</td>
<td>£0</td>
<td>£300,000</td>
<td>£300,000</td>
</tr>
<tr>
<td>Net Cash flow</td>
<td>£-49,613</td>
<td>£-27,563</td>
<td>£267,713</td>
<td>£147,713</td>
</tr>
<tr>
<td>PV</td>
<td>£-48,444</td>
<td>£-26,280</td>
<td></td>
<td>£134,284</td>
</tr>
<tr>
<td>NPV</td>
<td></td>
<td></td>
<td>£308,803</td>
<td></td>
</tr>
<tr>
<td>Amount available for land (gross of costs)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**What is the amount available for land net of acquisition costs? …………...**
### What is the amount available for land net of acquisition costs?

<table>
<thead>
<tr>
<th>Quarter</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>EXPENDITURE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td>-£25,000</td>
<td>-£25,000</td>
<td>-£25,000</td>
<td>-£25,000</td>
</tr>
<tr>
<td>Demolition</td>
<td>-£20,000</td>
<td>-£0</td>
<td>-£0</td>
<td>-£0</td>
</tr>
<tr>
<td>Prof. fees</td>
<td>-£2,250</td>
<td>-£1,250</td>
<td>-£1,250</td>
<td>-£1,250</td>
</tr>
<tr>
<td>Sale fees</td>
<td>-£0</td>
<td>-£4,500</td>
<td>-£4,500</td>
<td>-£4,500</td>
</tr>
<tr>
<td>Contingency</td>
<td>-£2,363</td>
<td>-£1,313</td>
<td>-£1,538</td>
<td>-£1,538</td>
</tr>
<tr>
<td>Profit</td>
<td>-£120,000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>RECEIPTS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sales</td>
<td>-£0</td>
<td>-£0</td>
<td>£300,000</td>
<td>£300,000</td>
</tr>
<tr>
<td>Net Cash flow</td>
<td>-£49,613</td>
<td>-£27,563</td>
<td>£267,713</td>
<td>£147,713</td>
</tr>
<tr>
<td>Capital O/S</td>
<td>-£49,613</td>
<td>-£78,371</td>
<td>£187,451</td>
<td>£339,684</td>
</tr>
<tr>
<td>Interest</td>
<td>-£1,196</td>
<td>-£1,890</td>
<td>£4,5200</td>
<td></td>
</tr>
<tr>
<td>Surplus available for land purchase at end of development</td>
<td>£339,684</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**What is its present value assuming a discount rate of 10%?**
Exam Style Questions

Question 1

A developer has been offered the opportunity to bid for the opportunity to redevelop a vacant office building in a central location of university town in the south-east of England. They have just been offered the site for £10,000,000. You have been asked to estimate the value of the site given the following facts and estimates.

- It is a 1.2 hectare site. There is planning permission to construct a 10,000 square metre (gross internal area) office development.

- The total development period is expected to be 18 months with the office let and sold at the end of the sixth quarter.

- Construction costs for offices are currently £800 per square metre. Construction is expected to take one year. Construction is expected to commence at the end of the first quarter with completion of the building at the end of the fifth quarter. Assume that payments to consultants and contractors are paid quarterly in arrears.

- Demolition and site preparation costs are estimated at £300,000. This is expected to be carried out by the end of the first quarter.

- Landscaping and car parking costs are estimated at £500,000. Expenditure will be incurred in equal payments in the fifth and sixth quarters.

- Assume a contingency of 5% of construction costs including demolition, site preparation, landscaping and car-parking costs.

- It is estimated that professional fees will be 10% of total construction costs including demolition, site preparation, landscaping and car-parking.

- The developer has a borrowing facility with a major bank at 8% per annum.

- S106 costs are £500,000. £250,000 is payable upon commencement of construction and £250,000 payable upon completion of construction.

- The developer requires a profit of 15% of Gross Development Value.

- Similar properties are currently letting for £250 per square metre and are selling for Net Initial Yields of 6.5%. Assume purchaser’s costs at 5.7625%.

- It is estimated that the Net Internal Area will be 80% of the gross internal area.

- Letting fees are 10% of Market Rent. Sale fees are 1.5% of GDV.

Given the above information and stating any other assumptions, use a discounted cash flow approach to appraise the site and assess whether the offer price is acceptable.
Question 2

Your client owns the freehold interest in a development site in the centre of a small market town which has planning permission for a three-storey mixed-use retail and office property. Each floor will measure 10x30m GIA and the two upper storeys will be used for offices and have a usable floor space of 250m$^2$ on each floor after entrance halls, lifts, lobbies, toilets, etc have been excluded. The ground floor will be developed as a large retail unit having a usable area of 7m internal frontage by 20m depth sales space with additional storage accommodation of 20m$^2$ behind the sales space. At present there are a few derelict buildings on the site which will have to be demolished but the site is fully serviced and ripe for development once it has been cleared.

Rental values for offices are around £200/m$^2$ of usable space, overall values for retail are £400/m$^2$ on the ground floor sales and £150/m$^2$ for the storage. Yields are currently 6% for this kind of development. Costs of construction are estimated to be around £900/m$^2$ of GIA, excluding any contingencies and site clearance, and development finance is available at 8% per annum. The construction period is estimated to be 9 months and the required profit margin is 17% of GDV.

Making any further assumptions you deem appropriate calculate the market value of the site using a cash-flow approach.
Question 3

You have been asked to estimate the GPV (i.e. Investment Value) of a proposed acquisition of a City of London office asset located in a high quality location.

<table>
<thead>
<tr>
<th>Asset</th>
<th>30,000 sq ft office block (GIA – 24000 sq ft, NIA) constructed in 1950s. Refurbished in 1980s. The asset now requires substantial refurbishment.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lease and Tenant Details</td>
<td>Let on 15 year FRI lease with five yearly rent upward-only reviews to insurance company with three years unexpired.</td>
</tr>
<tr>
<td>Rent Paid</td>
<td>£1,000,000 payable annually in arrears (let’s say the first payment is due in one year)</td>
</tr>
<tr>
<td>Market Rent</td>
<td>£720,000  (rents have fallen since the rent review was agreed)</td>
</tr>
<tr>
<td>Holding Period</td>
<td>Five years – the building is sold at the end of the fifth year. It is intended to refurbish the building, hold for one year and sell it.</td>
</tr>
<tr>
<td>Current Refurbishment Costs</td>
<td>Estimated at £60 psf. (Payable on completion of refurbishment at the end of the fourth year)</td>
</tr>
<tr>
<td>Projected Exit Yield</td>
<td>Assuming high specification with strong tenant – 5%. Use $(1/i)*rent to estimate sale price or rent/i. Essentially this means that the building is expected to be worth 20 times its rent at sale.</td>
</tr>
<tr>
<td>Refurbishment Period</td>
<td>12 months.</td>
</tr>
<tr>
<td>Rental Growth</td>
<td>Prime rents forecasted to grow at an average of 3.5% p.a. Current prime rent is £50 psf.</td>
</tr>
<tr>
<td>Projected Cost Inflation</td>
<td>1% p.a.</td>
</tr>
<tr>
<td>New Lease</td>
<td>Assume new letting to high quality tenant on completion of refurbishment.</td>
</tr>
<tr>
<td>Target Rate of Return</td>
<td>15%</td>
</tr>
</tbody>
</table>

a) Given the above information and stating any other assumptions, use an annual discounted cash flow approach to appraise the investment value of the planned refurbishment project

b) What additional detail could/should be added to make this exercise more realistic?
Question 4

Your client has purchased an office development site for the sum of £8m excluding stamp duty and acquisition costs and intends to develop three self-contained two-storey blocks; one of gross internal area 3,000 square metres, the other two having 2,500 square metres each. Costs of construction are £1,200 per square metre of gross internal area, the efficiency ratio is 80% and it is estimated that construction will take 18 months. The rental value is estimated to be £300 per square metre (net internal area) and investment yields have recently fallen to 6.5%.

Making any further assumptions regarding other costs of construction, finance, development periods and phasing of lettings and sales, construct quarterly cash flows and determine the Net Present Value assuming a target rate of return of 20% per annum.

Question 5

A developer is considering the acquisition of a vacant plot of land that has full planning permission for an office unit with a gross internal area of 2,000 square metres and an efficiency ratio of 90%. The landowner is seeking £850,000 for the site that is located in an established business area and the developer estimates that the building can be let at £175 per square metre per annum and sold to an investor at an investment yield of 7%. In order to meet market demand the unit will be built to a good specification and it is estimated that construction will cost £1,000 per square metre inclusive of site clearance, landscaping and ancillary facilities such as parking. Following a lead-in period of 3 months, the building will take 12 months to construct and the developer believes the unit can be let and sold on completion with a short void period of three months.

Assuming the development will be 100% debt financed at an interest rate of 2% per quarter, construct a quarterly cash-flow in order to advise the developer of the feasibility of this project on the basis of:

(i) profit as a percentage of cost;
(ii) profit as a percentage of GDV;
(iii) income yield;
(iv) rental cover

You may assume that the land is purchased at the start of the development period, building costs, professional fees and contingency funds are evenly spread over quarters two to five, and the development value is received at the end of the seventh quarter.
Question 6

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Office Floor Area (m²)</td>
<td>2000</td>
</tr>
<tr>
<td>Efficiency Ratio</td>
<td>90%</td>
</tr>
<tr>
<td>Site Preparation</td>
<td>£250,000</td>
</tr>
<tr>
<td>Construction Costs (£/m²)</td>
<td>1000</td>
</tr>
<tr>
<td>Professional Fees (% construction costs)</td>
<td>11%</td>
</tr>
<tr>
<td>Contingencies (% site prep costs, construction costs &amp; professional fees)</td>
<td>5%</td>
</tr>
<tr>
<td>Disposal Fees (% GDV)</td>
<td>5.75%</td>
</tr>
<tr>
<td>Estimated Rental Value (£/m²)</td>
<td>220</td>
</tr>
<tr>
<td>Yield</td>
<td>6.50%</td>
</tr>
<tr>
<td>Purchaser’s Costs</td>
<td>5.75%</td>
</tr>
<tr>
<td>Land Price</td>
<td>£1,500,000</td>
</tr>
<tr>
<td>Development Period</td>
<td>1.5</td>
</tr>
<tr>
<td>Letting Fee (% estimated rental value)</td>
<td>10%</td>
</tr>
</tbody>
</table>

1. Using the information above, construct quarterly cash-flows assuming:
   a) An even spread of construction costs over Q2-Q6 and site prep costs in Q1
   b) An s-curve spread of building costs over Q2-Q6 and site prep costs in Q1
   c) 5% per annum growth in costs and values
   d) 6 month void after completion

2. Calculate NPV of (b) using a discount rate of 7.5% per quarter
Question 7

You work for a medium-sized development company that specialises in business and science park development opportunities. You have recently become aware of a cleared site on the outskirts of Reading that has outline planning consent for a low-rise high specification office building with a gross internal area of 2,500 square metres and an efficiency ratio of 85%. Commercial real estate agents in the town estimate that on letting the premises could achieve an effective rent (i.e. net of all incentives) of £210 per square metre. Once let if the premises were to be sold the same agents estimate a yield of 6.75% could be achieved. Construction costs are estimated to be in the region of £1,250 per square metre inclusive of all external works and a building period of 15 months is considered appropriate. The landowner is seeking £1,000,000 for the site.

Produce a quarterly cash-flow to calculate:

(a) Net present value assuming a target rate of return of 15% per annum.

(b) Profit as a percentage of cost assuming, at this early stage the scheme is 100% debt-financed at an interest rate of 7.5% per annum.

*Make all other assumptions as appropriate.*

Question 8

There is a development of a small commercial building. The net development value is estimated to be £750,000 and the developer would like to show a profit of £150,000. The cost of construction is estimated to be £250,000, professional fees £25,000 (the majority of which will be incurred early on in the development), marketing £10,000, agent’s sale fee £10,000, legal fees of £20,000, a contingency fund of £10,000 and interest on money borrowed is charged at 2% per quarter. It is estimated that the project will take 15 months to complete.

a) Prepare a cash-flow to help value the development site.

   *You should state and explain all assumptions in your calculations.*

b) Assuming your client has been able to acquire the development site for £250,000 plus associated fees of £7,000, adapt your cash-flow to provide an assessment of profit.

   *You should state and explain all assumptions in your calculations.*
Question 9

A developer is considering the acquisition of a vacant plot of land that has full planning permission for an office unit with a gross internal area of 2,000 square metres and an efficiency ratio of 90%. The landowner is seeking £850,000 for the site that is located in an established business area and the developer estimates that the building can be let at £175 per square metre per annum and sold to an investor at an investment yield of 7%. In order to meet market demand the unit will be built to a good specification and it is estimated that construction will cost £1,000 per square metre inclusive of site clearance, landscaping and ancillary facilities such as parking. Following a lead-in period of 3 months, the building will take 12 months to construct and the developer believes the unit can be let and sold on completion with a short void period of three months. Assume the development will be 100% debt financed at an interest rate of 2% per quarter.

Construct a quarterly cash-flow in order to advise the developer of the feasibility of this project on the basis of:

a) profit as a percentage of cost
b) profit as a percentage of GDV
c) development yield
d) rental cover

You may assume that the land is purchased at the start of the development period, building costs, professional fees and contingency funds are evenly spread over quarters two to five and the development value is received at the end of the seventh quarter.

Question 10

Your client owns the freehold interest in a commercial development site in the centre of a provincial city which has planning permission for a six-storey mixed use retail and office buildings. Each floor will have a gross internal area of 20 metres by 30 metres. The five upper storeys will be used for offices and will have a net internal area of 500 square metres on each floor. The ground floor will be developed as two large retail units, each having a net internal area of seven metres internal frontage by twenty metres depth sales space with additional storage accommodation of twenty square metres behind the sales space of each unit. At present there are several derelict buildings on the site which will have to be demolished but the site is fully serviced and ripe for development once it has been cleared. You estimate that the development will take 18 months.

Rental values for offices are estimated to be £220 per square metre. Rental values for retail space are around £440 per square metre for ground floor sales on an overall basis (i.e. not zoned) and £150 per square metre for the storage. Capitalisation rates/all risks yields are currently 7% for this kind of mixed development. Costs of construction are estimated to be around £900 per square metre of gross internal area, excluding any contingencies and site clearance, and development finance is available at around 6.5% above the current Bank of England base rate.

Making any further assumptions you deem appropriate, work out the market value of the site using a quarterly cash flow assuming a discount rate / target rate of return of 10% per annum.
Question 11

Your client is negotiating the purchase of a freehold site which has detailed planning permission for a large shopping centre to provide 50,000 square meters (gross internal area) of retail units comprising three major stores and 40 shops. The following information has been established:

- The overall efficiency ratio is 85%.
- The development period is 24 months (six months pre-build period plus 21 months building period). Your client is confident of an investment sale on completion in 24 months’ time.
- Building costs are estimated to be £850 per square metre and approximately follow an s-curve pattern of distribution.
- A contingency allowance has been set at 5% of building costs.
- Professional fees are 10% of total construction cost with 50% to be paid at commencement of the project, 25% on completion and 25% six months after completion.
- Debt finance is available at 12.5% per annum and, at this stage the project is assumed to be 100% debt-financed.
- Overall the net rent is anticipated to equate to £150 per square metre (net internal area)
- The investment yield is estimated to be 8%.
- Purchaser’s costs are 5.75% of gross development value.

a) Assuming a developer’s profit margin of 17% of net development value and making any further assumptions you deem necessary, construct a quarterly discounted cash-flow to advise your client as to the maximum amount that should be bid for the purchase of the site.

b) Identify, rank and comment upon what you consider to be the five principal sources of risk to the return that the developer seeks.
Development Finance - Introduction

**Short Answer Questions**

What is LTV an acronym for?
What is LTC an acronym for?
What is LIBOR an acronym for?
What is bps an acronym for?
What is MOFF an acronym for?
What is a balloon payment?
What does amortisation mean?
What is senior debt?
What is mezzanine debt?
What is the difference between “junior debt” and “mezzanine debt”?

Usually in a real estate development, the developer is required to put in some of their own capital (in the form of land and/or in the form of cash), what is the word used to describe their investment?

In the real estate development process, sometimes the lender may have some “equity participation”. What do you think this means?
Development Finance

Tutorial Style Questions

Loan types

Here are three typical loan structures...

For all three, £1,000,000 is borrowed. The interest rate charged by the bank is 10% per annum. We’ll ignore arrangement fees – although they are a standard cost of borrowing.

<table>
<thead>
<tr>
<th></th>
<th>Amortised</th>
<th>Interest Only</th>
<th>&quot;Development&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Repayments</td>
<td>Repayments</td>
<td>Repayments</td>
</tr>
<tr>
<td>0</td>
<td>-£1,000,000</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1</td>
<td>£263,797</td>
<td>£100,000</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>£263,797</td>
<td>£100,000</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>£263,797</td>
<td>£100,000</td>
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<tr>
<td>4</td>
<td>£263,797</td>
<td>£100,000</td>
<td>4</td>
</tr>
<tr>
<td>5</td>
<td>£263,797</td>
<td>£1,100,000</td>
<td>5</td>
</tr>
</tbody>
</table>

NPV @ 10% £0        NPV @ 10% £0        NPV @ 10% £0

**Amortised** - If you remember the corporate finance lectures (and I don’t expect you to), then this involves repayment of capital and interest in a single, fixed payment over the loan period. This has been a fairly common loan structure for commercial property assets and it’s pretty standard in residential repayment mortgages.

**Interest only** – Obviously, this is payment of interest only during the loan with the repayment of capital at the end. This has also been a fairly common loan structure for commercial property assets and it’s pretty standard in residential interest only mortgages.

**“Rolled up”** interest is probably the most common type of loan in commercial real estate development (Why?). In essence, for non-phased schemes the borrower pays back everything (all interest and capital) at the end of the loan period/development in a single payment. The cost of capital is the same for all of the loan structures shown – 10%
Question 1

a) For the ‘rolled up’ interest loan, your task is to show how much the bank is owed at the end of each period with the final amount owed being £1,610,510.

*The quick way to calculate the final repayment to the bank is to grow £1,000,000 by 10% per annum.*

b) Discussion point: I suspect that lenders charge different rates for the different types of loan. Why?

Question 2

‘The Interest Problem’

Hamer (a purely fictional character) thinks that he needs to spend £1000 (excluding interest) to replace his wardrobe (the clothes, not the actual furniture). He wants to borrow some money to gear up on his £500-£600 equity. Since no financial institution will lend to him, his friends have formed a syndicate and agreed to lend him 50% of the TWC (Total Wardrobe Cost) including interest.

They will lend him the loan at a 20% interest rate per annum. The loan (capital and interest) is repayable in a year’s time.

a)
i. Assuming no interest, how much will the syndicate lend to Hamer?
ii. Assuming interest at 20% etc, how much will the syndicate lend to Hamer?

b) What is the interest problem?
**Question 3 – Simple Loan**

Firstly, let’s assume a simple loan with no interest. The bank’s criteria is that they will only lend 50% of Gross Development Cost (lenders tend to adopt simple rules like this). Note that the lender wants their money back before the developer receives any profit.

<table>
<thead>
<tr>
<th></th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Simple Loan</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>No interest</strong></td>
<td></td>
<td></td>
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</table>

1) How much of their own money (equity) is the developer putting into the scheme?

2) Why does the lender make the developer put their money into the scheme first?

3) Look at the relative proportions of cash invested compared to cash received by the developer for the two options – all-equity and 50% geared. Does this give you an intuitive feel for why the returns are so much higher after gearing?
**Question 4 – Adding Mezzanine Finance**

Now we make it more realistic by introducing interest into cash flow. This is assumed to be “rolled up” and repaid after principal but before equity. The effect of interest payments are to increase the cost of the scheme and, assuming that the LTC ratio is fixed, changes the amount borrowed and the required level of equity investment.

The only way to work out the required equity (and implicitly the amount borrowed) is trial and error. Essentially, the spreadsheet is set up assuming a loan in Period 0 and interest payments etc are estimated based on this assumed loan. If the assumed loan does not produce an LTC ratio of 50%, the amount of this loan is then changed until it produces an LTC ratio of 50% (Goalseek can eliminate the need for manual trial and error).

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<td>£0</td>
</tr>
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## Question 3 – Mezzanine Loan

Let’s say the developer doesn’t want to put in £4 million or they haven’t got it. They could go to another (often specialist) lender who is prepared to lend some more money – usually at a higher interest rate and/or with equity participation. For simplicity, once again we assume no interest.

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<tbody>
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<td>£1,000,000</td>
<td>£1,000,000</td>
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<tr>
<td><strong>Costs</strong></td>
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</tr>
<tr>
<td><strong>Revenues</strong></td>
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<td></td>
</tr>
<tr>
<td><strong>NCF</strong></td>
<td>£10,000,000</td>
<td>£1,000,000</td>
<td>£1,000,000</td>
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<td>£4,000,000</td>
<td>£4,000,000</td>
<td>£4,000,000</td>
</tr>
<tr>
<td><strong>Senior debt</strong></td>
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<tr>
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<tr>
<td><strong>Equity cash flow</strong></td>
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<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£2,000,000</td>
<td>£4,000,000</td>
</tr>
</tbody>
</table>

**Total borrowed** £10,000,000

**Total Costs** £16,000,000

**LTC ratio** 62.50%

---

1. How much of their own money are the developers now putting at risk?
2. Why is the mezzanine finance paid at the beginning and repaid after the senior debt?
3. How has the developer’s cash-on-cash position changed?
I have kept the mezzanine loan pretty simple. It is just a straightforward £2,000,000 loan with ‘rolled up’ interest. It is repayable after senior debt has been repaid and before equity is received.

### Table of Calculations

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<tbody>
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<td>£5,686,599</td>
<td>£1,000,000</td>
<td>£1,000,000</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
</tr>
<tr>
<td><strong>Mezzanine Loan</strong></td>
<td>£2,000,000</td>
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<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
</tr>
<tr>
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<td>£1,000,000</td>
<td>£1,000,000</td>
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<td>£5,000,000</td>
<td>£5,000,000</td>
<td>£5,000,000</td>
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<tr>
<td><strong>NCF</strong></td>
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<td>£4,000,000</td>
<td>£4,000,000</td>
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<tr>
<td><strong>Cumulative sen debt</strong></td>
<td>£5,686,599</td>
<td>£6,828,764</td>
<td>£7,999,483</td>
<td>£4,199,471</td>
<td>£304,457</td>
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<td>£0</td>
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<td><strong>Cumulative mezz debt</strong></td>
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<td>£2,315,250</td>
<td>£2,431,013</td>
<td>£2,552,563</td>
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**Can you follow the calculations and the logic?**
Here is a ‘stripped down’ and simplified version of a development cash flow appraisal for a site in central London (think of a multi-storey development of high value apartments). The development period is five years.

The developer’s target (internal) rate of return from an all-equity funded development (i.e. developer provides all funding from company sources) is 20% per annum.

It is important to appreciate that the profit/return to the developer is included in the 20% internal rate of return. It is not added as a lump sum into the cash flow. In addition, finance is ignored. If the project meets the target rate of return, then the company will examine different sources of financing. As we have been stating in the module, including profit as a lump sum and discounting at the finance rate are peculiar (albeit, we think, standard) assumptions to real estate development appraisals. Mainstream project appraisal theory suggests that you should simply pick your target rate (this is a lot easier to say than to do with any rigour) and discount the net cash flow to see if the NPV is zero or above.

### a) No Debt

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<td>Revenues</td>
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<td>-£3,000,000</td>
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<tr>
<td>NPV @ 20%</td>
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### a) Can you work out the NPV at 20%
b) Senior Debt

Lending brokers advise them feel that they could help the developer to obtain funding from a large institutional lender at an annual interest rate of 10% on the following terms. The lender will fund 50% of cash flow deficits in any given period. In terms of lending, this is called a *pari passu* arrangement, both parties put their money in at the same time. However, if the development cash flow is positive, funds are first used to repay the loan. Interest is ‘rolled up’ i.e. it accumulates and interest is paid on the accumulating interest until it can be repaid from the proceeds of the development. To be clear, repayment of principal and interest is from the proceeds of the sale of the development.

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b) What is the NPV of the developer’s equity cash flow in the development assuming a target rate of return of 27% per annum?
c) **Mezzanine Debt**

The lending broker also advises that they could help the developer to secure mezzanine funding on a similar *pari passu* arrangement. A mezzanine lender will lend a further 25% of any cash flow deficit (i.e., they will lend £5,000,000 of the land cost, £2,500,000 in Period 1, etc.). They will charge a 15% annual interest payment. Similarly, this interest is ‘rolled up’ and repaid at the end of the development.

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<td>-£3,000,000</td>
<td>£83,600,000</td>
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<tr>
<td>Interest</td>
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</tr>
<tr>
<td>Closing Balance</td>
<td></td>
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</tr>
<tr>
<td>Loan and interest repayment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net cash flow (after debt)</td>
<td></td>
<td></td>
<td></td>
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</table>

c) What is the NPV of this net cash flow (after debt) assuming a target rate of return of 40%?
### Mezzanine Profit Share…

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<tr>
<th>Years</th>
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<th>2</th>
<th>3</th>
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<th>5</th>
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<tr>
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<td>-£3,000,000</td>
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</tr>
<tr>
<td>Revenues</td>
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<tr>
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<tr>
<td>Senior Loan</td>
<td>£10,000,000</td>
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<td>£1,500,000</td>
<td>£0</td>
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<tr>
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<td>£0</td>
<td>-£1,000,000</td>
<td>-£1,600,000</td>
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<td>-£2,251,000</td>
<td>-£2,626,100</td>
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<td>-£19,100,000</td>
<td>-£22,510,000</td>
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<tr>
<td>Loan and interest repayment</td>
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<td>£0</td>
<td>£0</td>
<td>£0</td>
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<tr>
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<td>£750,000</td>
<td>£750,000</td>
<td>£0</td>
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<tr>
<td>Interest</td>
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<td>-£750,000</td>
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<tr>
<td>Equity IRR</td>
<td>36.99%</td>
<td>Required surplus</td>
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<td>30%</td>
<td>Required surplus</td>
<td>£29,662,863</td>
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d) The mezzanine funder also has some equity participation and requires a 25% split of any cash surplus above a 30% IRR. How much should they be expecting to get?
## Completed example

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<tr>
<th>Years</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Land</strong></td>
<td>-£20,000,000</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Costs</strong></td>
<td></td>
<td>-£10,000,000</td>
<td>-£3,000,000</td>
<td>-£3,000,000</td>
<td>-£3,000,000</td>
<td>-£3,000,000</td>
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<tr>
<td><strong>Revenues</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>£86,600,000</td>
</tr>
<tr>
<td><strong>Net Cash Flow (before debt)</strong></td>
<td>-£20,000,000</td>
<td>-£10,000,000</td>
<td>-£3,000,000</td>
<td>-£3,000,000</td>
<td>-£3,000,000</td>
<td>£83,600,000</td>
</tr>
<tr>
<td><strong>Senior Loan</strong></td>
<td>£10,000,000</td>
<td>£5,000,000</td>
<td>£1,500,000</td>
<td>£1,500,000</td>
<td>£1,500,000</td>
<td>0</td>
</tr>
<tr>
<td><strong>Interest</strong></td>
<td>£0</td>
<td>-£1,000,000</td>
<td>-£1,600,000</td>
<td>-£1,910,000</td>
<td>-£2,251,000</td>
<td>-£2,626,100</td>
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<tr>
<td><strong>Closing Balance</strong></td>
<td>-£10,000,000</td>
<td>-£16,000,000</td>
<td>-£19,100,000</td>
<td>-£22,510,000</td>
<td>-£26,261,000</td>
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<tr>
<td><strong>Loan and interest repayment</strong></td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>£0</td>
<td>-£28,887,100</td>
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<tr>
<td><strong>Mezzanine Loan</strong></td>
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<tr>
<td><strong>Net cash flow (after debt and equity payments)</strong></td>
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<td>-£750,000</td>
<td>-£750,000</td>
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<tr>
<td><strong>Developer's Equity IRR</strong></td>
<td>37.87%</td>
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</tbody>
</table>
Essay Style Questions – Development

Question 1
Critically discuss the barriers to effective risk control in real estate development.

Question 2
‘Whilst modelling development viability has become central to the UK planning system, there seems to be little appreciation of the weaknesses of the techniques and the inherent uncertainties in the outputs of development appraisal.’

Critically evaluate current approaches to development appraisal and assess the extent to which they can provide a rigorous and robust basis for planning decisions.

Question 3
Discuss the extent to which the growth of environmentalism has affected the real estate development process.