INVESTMENT APPRAISAL

Questions 33 to 57 cover Investment appraisal, the subject of Part D of the BPP Study Text for Paper F9.

33 MCQ bank – Investment decisions — 36 mins

The following information relates to questions 33.1 and 33.2.

NW Co is considering investing $46,000 in a new delivery lorry that will last for four years, after which time it will be sold for $7,000. Depreciation is charged on a straight-line basis. Forecast operating profits/(losses) to be generated by the machine are as follows.

Year	$
1	16,500
2	23,500
3	13,500
4	(1,500)

33.1 What is the return on capital employed (ROCE) for the lorry (using the average investment method)?

A 70%
B 28%
C 49%
D 36% **(2 marks)**

33.2 Assuming operational cash flows arise evenly over the year, what is the payback period for this investment (to the nearest month)?

A 1 year 7 months
B 2 years 7 months
C 1 year 5 months
D 3 years 2 months **(2 marks)**

33.3 Which of the following are benefits of the return on capital employed method of investment appraisal?

1 It considers the whole project

2 It is cash flow based

3 It is a percentage which, being meaningful to non-finance professionals, helps communicate the benefits of investment decisions.

A 1, 2 and 3
B 1 and 3 only
C 1, and 2 only
D 2 and 3 only **(2 marks)**

33.4 SW Co has a barrel of chemicals in its warehouse that it purchased for a project a while ago at a cost of $1,000. It would cost $400 for a professional disposal company to collect the barrel and dispose of it safely. However, the chemicals could be used in a potential project which is currently being assessed.

What is the relevant cost of using the chemicals in a new project proposal?

A $1,000 cost
B $400 benefit
C $400 cost
D Zero **(2 marks)**

33.5 A new project being considered by BLW Co would require 1,000 hours of skilled labour. The current workforce is already fully employed but more workers can be hired in at a cost of $20 per hour. The current workers are paid $15 per hour on a project that earns a contribution of $10 per hour.

What is the relevant cost of labour to be included in the project appraisal?

A $10,000
B $15,000
C $20,000
D $25,000 **(2 marks)**

33.6 LW Co has a half empty factory on which it pays $5,000 pa. If it takes on a new project, it will have to move to a new bigger factory costing $17,000 pa and it could rent the old factory out for $3,000 pa until the end of the current lease.

What is the rental cost to be included in the project appraisal?

A $14,000
B $17,000
C $9,000
D $19,000 **(2 marks)**

33.7 Which of the following is a drawback of the payback period method of investment appraisal?

A It is cash flow based
B It considers the time value of money
C It doesn't measure the potential impact on shareholder wealth
D It is profit based **(2 marks)**

33.8 Which stage is missing or in the wrong order from the investment decision making process below?

1 Origination of ideas
2 Financial analysis
3 Acceptance, implementation, monitoring and review

A Project screening should follow after stage 1
B Project screening should follow after stage 2
C Raising finance should be before stage 1
D Implementation should follow stage 1 **(2 marks)**

33.9 EE Co is considering investing in a new 40-year project which will require an initial investment of $50,000 (with zero scrap value) and has a payback period of 20 years.

What is the return on capital employed (using the average investment method)?

A 2.5%
B 10%
C 7.5%
D 5% **(2 marks)**

33.10 An accountant is paid $30,000 per annum and spends two weeks one month working on appraising project Alpha.

Why should the accountant NOT charge half his salary to the project?

A Because his salary is sunk
B Because his salary is not incremental
C Because his salary is not a cash flow
D Because his salary is an opportunity cost **(2 marks)**

(Total = 20 marks)

34 MCQ bank – Investment appraisal using DCF **36 mins**

34.1 An investor has a cost of capital of 10%. He is due to receive a 5 year annuity starting in 3 year's time of $7,000 per annum.

What amount lump sum would you need to offer today to make him indifferent between the annuity and your offer?

A $26,537
B $19,936
C $16,667
D $21,924 **(2 marks)**

34.2 A newspaper reader has won first prize in a national competition and they have a choice as to how they take the prize:

1 They can take $90,000 per annum indefinitely starting in 3 years' time (and bequeath this right to their children and so on); or

2 They can take a lump sum of $910,000 in 1 year's time

Assuming a cost of capital of 10%, which would you advise and why?

A Statement 1 because $90,000 pa indefinitely is an infinite amount of money compared to a one-off payment.

B Statement 1 because it is worth more in present value terms.

C Statement 2 because it is worth more in present value terms.

D Statement 2 because the lump sum has the flexibility to be invested and earn a larger return than $90,000 pa **(2 marks)**

The following information relates to questions 34.3 and 34.4.

JCW Co is appraising an opportunity to invest in some new machinery that has the following cash flows.

Initial investment	$40,000
Net cash inflows for 5 years in advance	$12,000 per annum
Decommissioning costs after 5 years	$15,000

34.3 At a cost of capital of 10% what is the net present value of this project (to the nearest $100)?

A Negative $3,800
B Positive $14,800
C Positive $700
D Negative $11,275 **(2 marks)**

34.4 What is the internal rate of return of the project (to the nearest whole %)?

A 12
B 10
C 14
D 9 **(2 marks)**

34.5 Four mutually exclusive projects have been appraised using net present value (NPV), internal rate of return (IRR), return on capital employed (ROCE) and payback period (PP).

Which should be chosen?

	NPV	IRR	ROCE	PP
A Project A	$1m	40%	34%	4 years
B Project B	$1.1m	24%	35%	2.5 years
C Project C	$0.9m	18%	25%	3 years
D Project D	$1.5m	12%	18%	7 years

(2 marks)

34.6 Which of the following are advantages of the internal rate of return (IRR) approach to investment appraisal?

1 Clear decision rule
2 Takes into account the time value of money
3 Assumes funds are re-invested at the IRR
4 Considers the whole project

A 1, 2 and 4 only
B 2, 3 and 4 only
C 2 and 4 only
D 1, 2 and 3 only **(2 marks)**

34.7 A project has an initial outflow followed by years of inflows.

What would be the effect on net present value and the internal rate of return of an increase in the cost of capital?

	NPV	*IRR*
A	Decrease	Decrease
B	Increase	Decrease
C	Decrease	No change
D	Increase	No change

(2 marks)

34.8 A lease agreement has a net present value of $26,496 at a rate of 8%. The lease involves an immediate down payment of $10,000 followed by four equal annual payments.

What is the amount of the annual payment?

A $11,020
B $4,981
C $11,513
D $14,039 **(2 marks)**

34.9 Which of the following statements about net present value (NPV) and internal rate of return (IRR) are accurate?

A Two NPV calculations are needed to estimate the IRR using linear interpolation.

B The graphical approach to IRR is only an estimate; linear interpolation using the formula is required for a precise answer.

C The IRR is unique.

D An IRR graph with NPV on the 'Y' axis and discount rate on the 'X' axis will have a negative slope.

(2 marks)

34.10 Peter plans to buy a holiday villa in five years time for cash. He estimates the cost will be $1.5m. He plans to set aside the same amount of funds each year for 5 years starting immediately earning a rate of 10% interest per annum compound.

To the nearest $100, how much does he need to set aside each year?

A $223,400
B $245,600
C $359,800
D $395,600 **(2 marks)**

(Total = 20 marks)

35 MCQ bank – Allowing for tax and inflation 36 mins

35.1 SW Co has a 31 December year end and pays corporation tax at a rate of 30%, 12 months after the end of the year to which the cash flows relate. It can claim tax allowable depreciation at a rate of 25% reducing balance. It pays $1m for a machine on 31 December 20X4. SW Co's cost of capital is 10%.

What is the present value on 31 December 20X4 of the benefit of the first portion of tax allowable depreciation?

A $250,000
B $227,250
C $68,175
D $75,000 **(2 marks)**

35.2 A company receives a perpetuity of $20,000 per annum in arrears, and pays 30% corporation tax 12 months after the end of the year to which the cash flows relate.

At a cost of capital of 10%, what is the after tax present value?

A $140,000
B $145,454
C $144,000
D $127,274 **(2 marks)**

35.3 A project has the following projected cash inflows.

Year 1	100,000
Year 2	125,000
Year 3	105,000

Working capital is required to be in place at the start of each year equal to 10% of the cash inflow for that year. The cost of capital is 10%.

What is the present value of the working capital?

A $ Nil
B $(30,036)
C $(2,735)
D $33,000 **(2 marks)**

35.4 AW Co needs to have $100,000 working capital in place immediately for the start of a 2 year project. The amount will stay constant in real terms. Inflation is running at 10% per annum, and AW Co's money cost of capital is 12%.

What is the present value of the cash flows relating to working capital?

A $(21,060)
B $(20,300)
C $(108,730)
D $(4,090) **(2 marks)**

35.5 NCW Co is considering investing $10,000 immediately in a 1 year project with the following cash flows.

Income	$100,000
Expenses	$35,000

The cash flows will arise at the end of the year. The above are stated in current terms. Income is subject to 10% inflation, expenses will not vary. The real cost of capital is 8% and general inflation is 2%.

Using the money cost of capital to the nearest whole %, what is the net present value of the project?

A $68,175
B $60,190
C $58,175
D $78,175 **(2 marks)**

35.6 AM Co will receive a perpetuity starting in 2 years' time of $10,000 per annum, increasing by the rate of inflation (which is 2%).

What is the present value of this perpetuity assuming a money cost of capital of 10.2%?

A $90,910
B $125,000
C $115,740
D $74,403 **(2 marks)**

35.7 FW Co is expecting a net of tax receipt of $10,000 (in real terms) in 1 year's time.

If FW Co expects inflation to increase, what impact will this have on the present value of that receipt?

A Nil
B Reduce
C Increase
D Cannot say **(2 marks)**

35.8 Shadowline Co has a money cost of capital of 10%. If inflation is 4%, what is Shadowline Co's real cost of capital?

A 6%
B 5.8%
C 14%
D 14.4% **(2 marks)**

35.9 Juicy Co is considering investing in a new industrial juicer for use on a new contract. It will cost $150,000 and will last 2 years. Juicy Co pays corporation tax at 30% (as the cash flows occur) and, due to the health benefits of juicing, the machine attracts 100% tax allowable depreciation immediately.

Given a cost of capital of 10%, what is the minimum value of the pre-tax contract revenue receivable in 2 years to recover the net cost of the juicer?

A $150,000
B $105,000
C $127,050
D $181,500 **(2 marks)**

35.10 Which of the following are true about the 'inflation' figure that is included in the money cost of capital?

A It is historic and specific to the business.
B It is historic general inflation suffered by the investors.
C It is expected and specific to the business.
D It is expected general inflation suffered by the investors. **(2 marks)**

(Total = 20 marks)