Answer ALL questions.

1 During a period of economic contraction, two investors are affected as follows.

(a) The value of the house belonging to investor A falls at a rate of 10% per annum for 2 years. In each year the percentage is calculated on the value at the start of the year.

If the value of the house is £240,000 at the start of the period, calculate the value of the house after 2 years.

(3)

(b) Investor A is interested to know the effect on a £240,000 house of a reduction in value of 10% each year for 20 years.

Using the compound interest formula, calculate the value of the house after 20 years.

(3)

(c) The value of a unit trust purchased by investor B falls from £32 per unit to £26 per unit in 1½ years.

(i) Calculate the reduction in value as a percentage per annum based on simple interest.

(3)

(ii) Calculate the reduction in value as a percentage per annum based on compound interest.

(4)

(Total for Question 1 = 13 marks)

2 Chou bought 35,000 units in a unit trust and sold them later for £17.50 each, the total amount received being £9,100 more than she bought them for.

(a) Calculate the original amount Chou paid per unit.

(2)

Chou also purchased units in a unit trust with an offer price of £120 per unit, and sold the units after 5 years for £135 per unit.

(b) Express the increase in price of the units as a percentage increase per annum based on simple interest.

(3)

Chou purchased 80,000 2¼% preference shares with a nominal value of £25 per share for £23.53 each.

(c) Calculate the:

(i) total cost of the shares

(2)

(ii) dividend received each year.

(2)

£100 of 2% Government Stock can be bought for £92. Interest is paid half yearly. A bank invested £207,000 in the stock and held the stock for 3½ years.

(d) Calculate the:

(i) nominal value of the stock bought by the bank

(2)

(ii) total interest received over this period.

(2)

(Total for Question 2 = 13 marks)

3 An industrial product may be manufactured using two methods of production. Using Method A, fixed costs are £5,970,000 per period and variable costs are £102 per unit. Using Method B, fixed costs are £7,500,000 per period and variable costs are £85 per unit.

(a) Calculate the level of output per period for which the total costs are the same.

(4)

(b) Calculate the total cost per period for Method B at this level of output.

(2)

(c) State and explain which method should be chosen for production and sales of 120,000 units per period.

(1)

Method A is chosen for production, and a selling price is set for break even of 75,000 units per period.

(d) Calculate the:

(i) selling price

(3)

(ii) profit for production and sales of 100,000 units per period.

(2)

(Total for Question 3 = 12 marks)

4 The following information relates to a retailer's business at the end of the first year of trading.

	£
Annual sales	2,370,000
Annual purchases	1,096,000
Sales returns	155,000
Purchases returns	62,000
Opening stock value	120,000
Closing stock value	132,000
Overhead expenses	398,000

Calculate the:

(a) net sales

(2)

(b) net purchases

(2)

(c) net profit

(3)

(d) average number of days that items remain in stock

(4)

(e) rate of stockturn per annum.

(2)

(Total for Question 4 = 13 marks)

5 Almander calculates the expected average rate of return (ARR) of investment project X as 28%, using the formula:

$$\text{ARR} = \frac{\text{Average revenue return per annum net of repair and maintenance costs}}{\text{Initial cost of the project}}$$

He uses estimated figures as follows:

Initial cost of the project	£950,000
Average cost of repairs and maintenance per annum	£70,000
Life of the project	5 years

He further estimates that the gross revenue return before deducting the cost of repairs and maintenance will be £375,000 for each of the first 4 years.

(a) Using Almander's formula, calculate the estimated figures for the:

(i) average revenue return per annum net of repair and maintenance costs

(2)

(ii) gross revenue return for year 5 (before deducting the cost of repairs and maintenance).

(4)

Birgit estimates the net present value of investment project Y at two discount rates, with the following results:

Discount rate 8%	Net present value = £66,000
Discount rate 11%	Net present value = £12,000

(b) Use Birgit's figures to calculate the internal rate of return for investment project Y.

(3)

(c) Given that the investor requires investment project Y to earn at least 11.5% per annum, advise the investor, with reasons, whether to proceed with the investment.

(2)

(Total for Question 5 = 11 marks)

6 (a) In each of the following two bankruptcies, A and B, calculate the rate in the pound paid to unsecured creditors and the amount owed to an unsecured creditor who is paid £7,500.

(i) Bankruptcy A: An unsecured creditor who is owed £22,500 is paid £6,750.

(4)

(ii) Bankruptcy B: The total liabilities are £184,000 of which £125,000 is owed to secured creditors. The total assets available for creditors after winding up expenses total £148,600.

(6)

(b) In Bankruptcy C, an unsecured creditor who was owed £22,000 received £3,520. The company owed a total of £87,000 to unsecured creditors and £45,000 to secured creditors.

Calculate the total assets available for creditors after winding up expenses.

(3)

(Total for Question 6 = 13 marks)

7 A factory machine costs £500,000 and is expected to have a life of 5 years.

A calculation is made of depreciation using the diminishing balance method.
On this basis it is expected to be worth 65% of its original value after one year.

(a) State the rate of depreciation.

(1)

(b) Prepare a depreciation schedule, based on the diminishing balance method for the 5 years, that shows for each year:

(i) the annual depreciation

(ii) the accumulated depreciation at the end of the year

(iii) the book value at the end of the year.

(4)

A calculation of depreciation is then made based on the equal instalment method, with a residual value of £50,000 at the end of the 5-year period.

(c) Calculate the annual depreciation.

(2)

(d) Prepare a depreciation schedule, based on the equal instalment method for the 5 years, that shows for each year:

(i) the accumulated depreciation at the end of the year

(ii) the book value at the end of the year.

(3)

(e) State which method shows the highest book value at the end of year 1, and by how much.

(2)

(Total for Question 7 = 12 marks)

8 Company X sold 85,000 units of item A in 2010 and 95,200 units in 2011.

(a) Calculate the quantity relative for item A for 2011 with 2010 as the base year.

(2)

Company X sold item B at £2.40 in 2010, and at an increased price in 2011. The price relative for item B for year 2011 with a base year of 2010 was 1.025

(b) Calculate the selling price for item B in 2011.

(2)

The following table shows the prices and sales for both items in 2010 and 2011. Some figures have been omitted.

Item A	2010		2011	
	Price (£)	Sales (units)	Price (£)	Sales (units)
	2.80	85,000	2.66	95,200

Item B	2010		2011	
	Price (£)	Sales (units)	Price (£)	Sales (units)
	2.40	?	?	?

The quantity relative for sales (units) of item B for 2011 with 2010 as the base year was 1.2

(c) Explain the quantity relative for item B as a percentage change from 2010 to 2011. State the percentage increase or decrease and what has changed.

(3)

(d) Calculate the:

(i) price relative for item A for 2011 with 2010 as the base year

(2)

(ii) index for total value of sales for item A for 2011 with 2010 as the base year

(2)

(iii) index for total value of sales for item B for 2011 with 2010 as the base year.

(2)

(Total for Question 8 = 13 marks)

TOTAL FOR PAPER = 100 MARKS

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