MANUFACTURING ENGINEERING TRIPOS PART I

Friday 23 April 2010 9 to 12

PAPER 5

Module 3P8: FINANCIAL AND MANAGEMENT ACCOUNTING
(Sections A and B)

Module 3P9: INDUSTRIAL ECONOMICS, STRATEGY AND GOVERNANCE
(Sections C and D)

Answer not more than ***four*** *questions,* ***one*** *from each of sections* ***A, B, C*** *and* ***D****.*

Answers to sections ***A, B, C*** *and* ***D*** *must appear in four separate booklets.*

All questions carry the same number of marks.

The ***approximate*** *percentage of marks allocated to each part of a question is indicated in the right margin.*

There are no attachments.

STATIONERY REQUIREMENTS	SPECIAL REQUIREMENTS
8 page answer booklet x4	Engineering Data Book
Rough work pad	CUED approved calculator allowed

You may not start to read the questions printed on the subsequent pages of this question paper until instructed that you may do so by the Invigilator

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SECTION A

*Answer **one** question from this section.*

1 (a) Following the preparation of the draft financial statements of Probert Co., it was discovered that the depreciation charge for the year to 31 October 2009 had been calculated at a rate of 20% per annum using the reducing balance method, although the accounting policy is to provide for depreciation on the straight line basis at a rate of 20% per annum. At the balance sheet date the draft accounts reported accumulated depreciation on non-current assets of £1,475,400 and a net book value of £2,562,500. What is the correct depreciation charge for the year to 31 October 2009? [5%]

(b) You are preparing the financial statements of Trevor Co. for the year to 30 November 2009. On 12 October 2009 a breakdown in a customer's machine damaged the entire output of a production run. The customer claimed that the breakdown was due to a fault in a component supplied by Trevor, and sought £750,000 in compensation for the lost production. Trevor accepted that the component was faulty and proposed to replace it at a cost of £45,000. The customer has commenced legal proceedings, and Trevor's legal advisor's view is that if the case goes to court, Trevor's proposal to replace the component at a cost of £45,000 is likely to be agreed by the court. What should be reported in Trevor's financial statements for the year to 30 November 2009? [10%]

(c) The income statement of Minshall Group reports a retained profit of £689,424, after the following charges:

	£
Interest	84,441
Taxation	227,553
Minority interest	47,338
Ordinary dividend (10 pence per share)	65,000

To the nearest pence, what figure should be reported on the income statement for earnings per share? [8%]

(d) During the last financial year, Garnsey Co. acquired 44% of the issued share capital of Heffernan Co. Under the terms of the acquisition, the finance director of Garnsey was appointed to the board of directors of Heffernan. How should Garnsey account for its interest in Heffernan in the consolidated financial statements? [7%]

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(e) You are a self employed business consultant, providing general business and financial advice to individuals. One of your clients has been asked to consider investing in Morgan Ltd., a private company owned by one of his friends. Your client is particularly interested in the ability of Morgan Ltd. to generate cash. Morgan Ltd.'s draft financial statements have been prepared and you have extracted the following information:

Balance Sheet at 31 May	2009		2008	
	£	£	£	£
Fixed assets		1,540,720		1,486,200
Current assets				
Stock	162,832		180,560	
Debtors	241,580		195,890	
Cash at bank	158,964	563,376	–	376,450
Creditors: falling due within one year:				
Creditors	136,907		128,569	
Interest	7,420		6,800	
Tax	28,650		23,400	
Loans	30,000		19,000	
Bank overdraft	–	202,977	53,082	230,851
Net current assets		360,399		145,599
Creditors: falling due in more than one year:				
Long term loans		270,000		141,000
		1,631,119		1,490,799
Financed by:				
Ordinary shares of £5 each		1,200,000		1,200,000
Profit and loss account		431,119		290,799
		1,631,119		1,490,799

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Information from the Profit and Loss Account for the year to 31 May 2009:

Depreciation charge	£127,480
(N.B. there were no disposals of fixed assets in the year)	
Tax charge	£45,600
Interest charge	£17,800

(i) Prepare the Cash Flow Statement for Morgan Ltd. for the year to 31 May 2009. [50%]

(ii) Highlight the major issues revealed by the cash flow statement and briefly suggest what further information your client should obtain before deciding whether, or not, to invest in Morgan Ltd. [20%]

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2 (a) During the last financial year, a building owned by Hutchings Co. has increased in value. The directors wish to recognise this increase. In which part(s) of the financial statements will the increase be reported? [5%]

(b) The income statement of Shaw Co. for the year to 30 November 2009 reported a profit for the year of £1,856,954. This was after the following charges:

Depreciation charge	£165,700
Taxation charge	£572,855
Interest charge	£211,744

During the year to 30 November 2009, the net value of inventory and receivables less payables had reduced by £27,965. In the company's cash flow statement for the year to 30 November 2009, what figure will be reported as 'Cash generated by operating activities'? [10%]

(c) At 31 May 2008 the balance sheet of Parlikad Co. included a balance of £75,720 for deferred tax. At 31 May 2009 the net book value of the company's fixed assets was £1,728,500 while their tax written down value was £1,407,200. The tax rate at 31 May 2009 is 23%. What should be reported in the income statement for the year to 31 May 2009 for deferred tax? (You may ignore discounting.) [10%]

(d) Cantab Co. has ordinary shares in issue with a nominal value of £1·00. The dividend payout ratio is 20% and the gross dividend yield is 4%. The earnings per share is £0·60. What is the price/earnings ratio of the company? [5%]

(e) You are a non-executive director of Gregory plc. The company agreed to acquire 30% of the ordinary share capital of Shaw Ltd. at a cost of £290,000 on 1 December 2009. The goodwill arising on the acquisition is to be amortised over five years.

Under the terms of the acquisition, Gregory will treat Shaw as an associated undertaking, and as such, the Managing Director of Gregory has become a director of Shaw. You have been asked to advise the directors of Gregory on the effect of the acquisition on the financial statements.

For the purpose of the acquisition, the balance sheet of Shaw at 1 December 2009 has been agreed as follows:

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	£000
Fixed assets	890
Net current assets	140
Long-term liabilities	(280)
	750
Ordinary shares of £1 each	500
Share premium	125
Retained profit	225
	750

Gregory's year end is 30 November. It is estimated that in the year to 30 November 2010, Shaw will report a retained profit of £80,000, and that there will be no other changes to the capital and reserves of the company.

(i) Calculate the goodwill arising on the acquisition of the shares in Shaw. [10%]

(ii) Calculate the unamortised value of the goodwill at 30 November 2010. [10%]

(iii) Calculate how the net assets and capital and reserves reported on the Balance Sheet will be affected by the need to include the investment in:

1. Gregory's financial statements for the year to 30 November 2010; and
2. the consolidated financial statements for the year to 30 November 2010. [30%]

(iv) Describe how the accounting treatment would differ if the investment gave rise to control. [20%]

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SECTION B

*Answer **one** question from this section.*

3 (a) Amongst the products manufactured by Finkel Co. are two products which require material A. Data relating to the products are:

Product:	Bing	Dong
Selling price (per unit)	£35	£47
Variable costs (per unit)	£21	£32
Share of fixed costs (per unit)	£8	£9
Profit (per unit)	£6	£6
Material A usage (per unit)	3·5 kg	5.0 kg
Maximum sales demand (units)	10,000	7,000

In the next period, the supply of material A will be limited to 35,000 kg. What volume of each product should be manufactured in order to maximise short term profit? [10%]

(b) The financial statements of Clampo Co. report an operating profit of £6·38 million, a tax charge of £1·46 million and capital employed of £23·85 million. The finance director estimates that the replacement value of the net assets is £31·7 million and that the company's cost of capital is 15%. What is the Economic Value Added of Clampo Co. for the period? [10%]

(c) The operating profit for the year to 30 November 2009 of a division of Mform Co. is £586,900, and the tax charge for the year is £95,600. The net assets of the division have a book value of £2,569,800 and an economic value of £3,180,000. The division's cost of capital is 14%. What is the division's residual income? [5%]

(d) Barlow Manufacturing Ltd. produces a range of products at seven separate sites. Each site produces a maximum of four products. The directors have decided to introduce Activity Based Costing (ABC) and have asked each site manager to obtain and analyse the relevant data for their site. Product costs are currently calculated using absorption costing, with overheads being absorbed on a machine hour basis. As part of the process of introducing ABC, the directors wish to assess the profitability of individual products, with the possibility that the product range may be reduced. You are the Manager of the Harcamlow site and you have obtained the following data:

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Product	A	B	C
	£	£	£
Selling price per unit	300	530	435
Direct material per unit	55	67	98
Direct labour per unit	41	54	57
Overheads per unit	117·20	293.00	117·20
Total cost per unit	213·20	414.00	272·20
Budgeted production volume	600 units	400 units	200 units
Machine hours per unit	0·6	1·5	0·6
Production runs in period	32	40	25
Number of sales orders	19	5	15
Number of deliveries of material	8	2	16

The budgeted overheads of the site for the period are:

Machine running costs	£78,560
Set up costs	£82,900
Material handling costs	£49,500

Machine hours are limited to 1,140 hours per period.

(i) Calculate the cost of each product using ABC. [45%]

(ii) Recommend which product(s) should no longer be manufactured and justify your recommendation. [15%]

(iii) Discuss what other factors should be considered before a final decision is made. [15%]

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4 (a) During the month just completed, Bumble Co. experienced an unforeseen increase in demand for its products. This meant that additional untrained labour was recruited and a new supplier of a specialised material had to be found at short notice. What is the most likely effect of these decisions on the labour efficiency variance and the materials price variance for the month? [5%]

(b) The Northern division of Platts Co. currently earns a return on investment of 15·5%, based on capital employed of £2,680,000. The divisional management team have decided to implement a project which will require an investment of £320,000. The project is expected to generate a profit of £53,000 per annum. The Northern division's cost of capital is 13%. What will be the residual income of the division after the project is implemented? [10%]

(c) In the last four-week operating period, the 11 staff in the customer services section of Gam Co. resolved 2,850 customer queries. The standard time for resolving a query is $^{1}/_{2}$ hour. The staff work a 35 hour week, of which five hours are required for administration and training. The standard cost per query is £11·38. What is the labour efficiency variance for the last four-week operating period? [10%]

(d) Moultrie Ltd. is currently considering the launch of a new product. A market survey was recently commissioned to assess the likely demand for the product and this showed that the product has an expected life of four years. The survey cost £30,000 and this is due for payment in four months' time. On the basis of the survey information as well as internal management accounting information relating to costs, the assistant accountant prepared the following profit forecasts for the product.

Year	1	2	3	4
	£000	£000	£000	£000
Sales	180	200	160	120
Cost of sales	(115)	(140)	(110)	(85)
Gross profit	65	60	50	35
Variable overheads	(27)	(30)	(24)	(18)
Fixed overheads	(25)	(25)	(25)	(25)
Market survey written off	(30)	–	–	–
Net profit/(loss)	(17)	5	1	(8)

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These profit forecasts were viewed with disappointment by the directors and there was a general feeling that the new product should not be launched. The Chief Executive pointed out that the product achieved profits in only two years of its four-year life and that over the four-year period as a whole, a net loss was expected. However, before a meeting that had been arranged to decide formally the future of the product, the following additional information became available:

1. The new product will require the use of an existing machine. This has a written down value of £80,000 but could be sold for £70,000 immediately if the new product is not launched. If the product is launched, this machine will be sold at the end of the four-year period for £10,000.

2. Additional working capital of £20,000 will be required immediately and will be needed over the four-year period. It will be released at the end of the period.

3. The fixed overheads include a figure of £15,000 per year for depreciation of the machine and £5,000 per year for the re-allocation of existing overheads of the business.

The company has a cost of capital of 10%. Ignore taxation.

(i) Calculate the incremental cash flows arising from a decision to launch the product. [30%]

(ii) Calculate the net present value and the approximate internal rate of return of the product. [20%]

(iii) State, with reasons, whether or not the product should be launched. [10%]

(iv) Outline the strengths and weaknesses of the internal rate of return method as a basis for investment appraisal. [15%]

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SECTION C

*Answer **one** question from this section.*

5 Two profit-maximising firms operate in the same market producing an identical product. The market price for this product is given by the following demand curve:

$$P = 1500 - 0{\cdot}2X$$

where P is the price per unit and X is the total monthly demand.

The monthly cost functions for producing this product for Firm 1 and Firm 2 are given by the following expressions:

$$TC_1 = 40{,}000 + 200\, X_1 + X_1^2$$

$$TC_2 = 80{,}000 + 400\, X_2 + 0{\cdot}8\, X_2^2$$

where X_1 and X_2 are the monthly outputs of Firm 1 and Firm 2 respectively.

(a) Making the assumptions of the Cournot duopoly model, find the equilibrium price, output and profits of each firm. [35%]

(b) If the government imposes a maximum price of 1,000 per unit for this product, what will be the profits and outputs of each firm? [15%]

(c) If a black market develops for this product in these circumstances, what is the likely black market price? [10%]

(d) If, without government regulation, Firm 1 acquires Firm 2, what will be the total profit of Firm 1 after the acquisition has taken place? [15%]

(e) Discuss the assumptions you have made in your answers and the economic implications of the outcomes. [25%]

6 (a) Discuss the potential benefits and drawbacks of multiplant activity. [25%]

(b) ‘Barriers to entry are key determinants of the competitive state of an industry’. Discuss the principal sources of barriers to entry and critically evaluate this statement. [75%]

SECTION D

*Answer **one** question from this section.*

7 ‘An active market for corporate control is the only way to ensure that modern management acts in a manner that is consistent with shareholder interests’. Discuss [100%]

8 Why are the Consumer Adoption Curve and the Product Life Cycle models powerful marketing concepts? Explain the models, their advantages and limitations, and the links between them. Finally, explain how an organisation’s pricing, promotion and distribution strategies may change over the life of a product. [100%]

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