

MANUFACTURING ENGINEERING TRIPOS PART IIA

Thursday 2 May 2013

9 to 12

PAPER 5

Module 3P8: FINANCIAL AND MANAGEMENT ACCOUNTING

Module 3P9: INDUSTRIAL ECONOMICS, STRATEGY AND GOVERNANCE

*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.*

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

All questions carry the same number of marks.

There are no attachments

STATIONERY REQUIREMENTS

8 page answer booklet x 4

Rough work paper

SPECIAL REQUIREMENTS

Engineering Data Book

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

SECTION A

Answer *one* question from this section

1 (a) An entrepreneurial start-up, NEWCO, has set up the following books of accounts. Which ones are shown under the wrong heading?

<u>ASSETS</u>	<u>LIABILITIES</u>	
Cash in Hand	Money Owing to bank	
Creditors	Debtors	
Premises	Goods in Stock	
Computers		
Machinery		
Loan from C Shaw		[5%]

(b) JONAS retail has had its premises revalued in the last financial year and found they have increased in value from £2,270,000 to £3,010,000. How should this be reported in the financial statements? Provide justification for your answer. [10%]

(c) An inexperienced investor has approached you and asked which ratios he should use to select a long term investment using information from listed company annual reports. List the appropriate ratios and suggest, with justification, the best five for his purpose. [15%]

(d) The bursar of St Michael's College Oxbridge prepares the annual accounts using UK GAAP standards. He has asked you as the accounting manager to provide a briefing note to help explain to the Governing Body the treatment of depreciation in the accounts and how this relates to the long term financial stability of the college. List the major points you would put in the briefing note. [15%]

(e) The following balances have been extracted from the books of BOX Ltd as at 31st March 2012:

	Debit £'000	Credit £'000
Advertising	5	
Bank	10	
Creditors		15
Debtors	115	
Furniture and fittings		
At Cost	20	
Accumulated depreciation at 1/4/2011		9
Directors Fees	6	
Profit and Loss Account at 1/4/2011		9
Purchases	137	
Rent and rates	15	
Sales		283
Share Capital (issues and fully paid)		70
Stock (at 1/4/2011)	16	
Telephone and stationery	3	
Travelling expenses	2	
Vehicles:		
At Cost	40	
Accumulated depreciation (at 1/4/2011)		10
Wages and salaries	27	
	396	396

Additional Information:

Stock at 31st March 2012 was valued at £14,000. Furniture and fittings, and the vehicles, are depreciated at a rate of 20% and 30% respectively on cost. Corporation tax owing at 31st March 2012 is estimated to be £24,000. A dividend of 40p per share is proposed. The company's authorised share capital is £100,000 of £1 ordinary shares.

- (i) Prepare BOX Ltd's profit and loss account for the year to 31st March 2012 and a balance sheet at that date. [50%]
- (ii) Why would the business not necessarily be worth its balance sheet value as at 31st March 2012? [5%]

- 2 (a) (i) A new tech start-up, PHOENIX Ltd, is seeking additional funding and has approached you for advice on whether to seek further loan funding or to issue some shares. List the issues to be taken into account and the advantages and disadvantages of share vs. loan funding. [5%]

(ii) The company decides to go for a public offering of one million 50p Ordinary shares. The shares are successfully launched and the company receives £0.77 for each share. How should this be recorded on the balance sheet? [5%]

(b) Pete Trader has been running a small business selling military memorabilia through E-bay. He buys goods at car boot sales and sells them at a 50% mark-up. His books give the following information: On 1 August 2011 he held stocks of £15,721 which had increased to £23,320 by the end of July 2012, having had sales for the year of £33,800. Create a trading account for this period that shows:

Cost of goods sold;
Value of purchases through the year;
Profit. [10%]

(c) Explain briefly what is meant by each of the following terms.

- (i) Going concern.
(ii) Realisation concept.
(iii) Prudence concept. [10%]

(d) The fixed assets of WOMBAT Ltd had a net book value of £120,000 greater than the tax written off value and a balance brought forward in the Deferred Tax Account of £36,700 at 30 April 2011. If the corporate tax charge on the reported profit for that year is £83,090 based on a tax rate of 26%, what is the total charge for taxation in the P&L account? [10%]

(e) The Board of Directors of TOOLSHOP Ltd have been concerned over the last year to improve their cash position. Their balance sheets for 31 March 2012 and 31 March 2011 were as follows:

	2011		2012	
	£'000	£'000	£'000	£'000
<i>Fixed Assets</i>				
Plant & Machinery at cost		300		300
Less: Depreciation		80		100
		<u>220</u>		<u>200</u>
<i>Investments at Cost</i>		-		100
<i>Current Assets</i>				
Stock	160		190	
Debtors	220		110	
Bank	0		10	
	<u>380</u>		<u>310</u>	
<i>Less: Current Liabilities</i>				
Creditors	200		160	
Bank overdraft	20		-	
	<u>220</u>		<u>160</u>	
		<u>160</u>		<u>150</u>
		<u>380</u>		<u>450</u>
<i>Capital and Reserves</i>				
Ordinary share capital		300		300
Share premium account		50		50
Profit and loss account		30		40
		<u>380</u>		<u>390</u>
<i>Shareholders funds</i>				
Loans				
Debentures		0		60
		<u>380</u>		<u>450</u>

Additional Information

There were no purchases or sales of plant and machinery during the year.

- (i) Prepare TOOLSHOP's Cash Flow Statement for the year to 31st March 2012. [45%]
- (ii) Prepare a set of notes for the directors outlining whether they have achieved an improvement their cash position and what steps they might take to improve it in the future. [15%]

SECTION B

Answer *one* question from this section.

3 (a) Fred Dribble runs a small contract machining business with 5 employees. It is currently running below capacity and Fred wants to make it less financially vulnerable to variation in demand. He has started by drawing up a list of fixed and variable costs:

<u>Fixed</u>	<u>Variable</u>
Rent	Labour salaries
Depreciation	Material
Pensions	Scrap sales
Tax	Electricity
	Training

What corrections would you make to Fred's list and what actions would you recommend to make the business more robust to variable demand? [10%]

(b) A University spin-out company has been set up to make and sell a cheap single board computer designed to appeal to teenagers and introduce them to basic computer programming. The philanthropic aim of the venture is to attract students to science and technology subjects and in the longer term to produce more potential software engineers. They have asked you to advise them on the pricing of the device. Outline possible pricing strategies and recommend an approach. [10%]

(c) SUPERCHEM Ltd produces two DIY products, 'Dryfil' and 'Superstik'. 5 kg of raw material is used to produce 3.5 kg of Dryfil and 1.5 kg of Superstik. The relationship between the raw material and product output is fixed by the process and cannot be changed.

The results for the month of November 2012 were:

	£	£
Costs:		
5,500 kg of raw materials	11,000	
Labour	5,200	
Monthly fixed cost	7,500	
Total costs for the month		23,700
Sales:		
Dryfil at £8/kg	30,800	
Superfix at £3/kg	4,950	
Total sales revenue		35,750
Profit for the month		12,050

(i) Calculate the monthly profit for each of the products Dryfil and Superstik. [5%]

(ii) If 200 kg of Dryfil was left in stock at the end of the month calculate the cost of this to be included in the monthly accounts [5%]

(iii) SUPERCHEM has received an order for an additional 700 kg of Dryfil. What is the minimum price they need to charge to ensure no loss on the order? [5%]

(d) Ed Grundy has run into cashflow problems with his small organic dairy business. He goes to Ruth Archer who tells him he should get some advice on how to prepare a budget for his business. Write a short list of types of budgets and ways of setting them with a recommendation of what Ed should do. [15%]

(e) SPECTRASCOPE Ltd is a manufacturer of laboratory instrumentation for photonics research. The company has been working on an extension to its product range. The Directors are now considering whether this new product should be manufactured and sold. The following information is available, to help evaluate the viability of the new product.

1. Additional fixed costs are expected to be £230,000 per year.
2. R&D and design costs of £150,000 have been incurred and all of them have been paid. These costs are to be written off in equal instalments against the profits generated over the new product's expected production life of four years.
3. Sales are expected to be 200 units in the first year, 250 in the second year and 300 in each succeeding year. The target selling price will be,

£2,100 in the first year,
£2,400 in the second year,
£2,700 thereafter.
4. Variable costs are estimated to be £800 for each unit.
5. Additional working capital of £80,000 will be required immediately to support the manufacture of the new product. This will be released at the end of the production.
6. Existing equipment that originally cost £450,000 and which has a written down value of £150,000 will be used to manufacture the new product. If the product is not manufactured, the equipment will be sold immediately for £130,000 as it cannot be used for any other purpose. If, however, the product is manufactured, the equipment will be sold at the end of 4 years for £30,000.

The company uses the net present value (NPV) method and discounted payback method to evaluate new investment opportunities. When applying these methods, the company uses a cost of capital of 10% and adopts a maximum discounted payback of 2 years ignoring taxation.

- (i) Calculate the incremental cash flows arising from a decision to produce the new product. [25%]
- (ii) Calculate the NPV and discounted payback period of the product. [15%]
- (iii) Evaluate the sensitivity of the project to sales, costs and investment. Advise the Board whether they should go ahead and any special management measures they should put in place. [10%]

4 (a) TRYUMPH Ltd has invested in a new machining facility at a cost of £2,500,000. It has a predicted net cash flow of:

Year	Net Cash Flow £ 000
1	800 (excluding initial costs)
2	850
3	830
4	1200
5	700

The company's required rate of return is 15%. What is the net present value of the project? [10%]

(b) THORNCHOCS plc is a manufacturer and retailer of chocolates. The Board of Directors have become interested in whether they should adopt a Balanced Scorecard approach to monitoring the performance of the business. Write a set of proposals for suitable measures for a Balanced Scorecard approach and indicate any limitations of this approach. [15%]

(c) In a bar at WEATHERSPAM they produce an exotic fruit smoothie cocktail using a machine blender. The standard processing time is 0.6 hours for every 25 glasses at a £40 variable overhead per hour. During one hot summer week there were 42 hours of processing at a total cost for the week of £1,880 and 1900 glasses were produced.

(i) Calculate the machine's expenditure and efficiency variances.

(ii) The blender has been replaced by a more efficient one that is 20% faster. What variance would this give rise to and what would be its value? [15%]

(d) MANXMAN MACHINERY Ltd, in their financial year 2010/11, made an operating profit of £3,897,000 and had net assets at the year end of £15,720,000. In that year they leased a machine at a cost of £130,000 pa that would have cost £375,000 to purchase. The directors estimate that there is no significant difference between the book value and economic value of the asset. The company's cost of capital is 14%. What is the company's economic value added (EVA) for that financial year? [10%]

(e) SQUASH Ltd has recently introduced an ABC system. The following details relate to the month of March 2012. Four cost pools have been identified: parts (£10,000), maintenance (£18,000), stores (£10,000) and administration (£2,000). The cost drivers identified were number of employees (40), maintenance hours (600), number of material requisitions (20) and total number of parts (500). During the month, 50 units of Product X3 were produced, which required 100 parts and 200 maintenance hours; 6 material requisitions were made and 10 employees worked on the unit.

(i) Calculate the overhead cost for Product X3 using absorption over labour costs and by using the ABC system. Comment on how SQUASH's adoption of ABC might help their management decision making. [30%]

(ii) Discuss the advantages and disadvantages of using activity based costing in place of traditional absorption costing. Comment on the circumstances in which activity based cost management would be beneficial to a firm. [20%]

SECTION C

Answer *one* question from this section.

5 The market shares for the Western European market for new cars and light vans in 2004 are given in the table below.

Western European new cars and light vans ('000s) 2004

Firm	Sales	%	Firm	Sales	%	Firm	Sales	%
VW/Audi	2,078	13	Toyota	725	5	Volvo	237	2
Renault	1,752	11	BMW	682	4	Honda	206	1
Ford	1,434	9	Nissan	452	3	Kia	173	1
Peugeot	1,291	8	SEAT	375	2	Mitsubishi	155	1
Citroen	1,067	7	Hyundai	311	2	Alfa	148	1
Opel	1,043	7	Suzuki	252	2	Daewoo	135	1
Fiat	953	6	Mazda	240	2	Other	676	4
Mercedes	819	5	Skoda	240	2	Total	15,444	100

(a) Is the market under concentrated, moderately concentrated or highly concentrated according to the accepted criteria for the Herfindal-Hirschmann Index (HHI)? [30%]

(b) If Peugeot and Citroen planned to merge, would the merger be allowed under the accepted criteria for the HHI? [30%]

(c) An alternative measure for evaluating markets is the Gini coefficient. Describe, using a diagram, how the Gini coefficient is derived, and comment on the information it provides. [Do not attempt to calculate the Gini coefficient for this market] What criteria should authorities consider when evaluating mergers? [40%]

6 (a) A simple model of markets is based on price mechanism. This states that prices provide the main method through which scarce resources are allocated between competing uses in virtually all modern economies.

(i) Using a diagram show the relationship between the price of a good and the quantity that consumers are willing and able to buy. Describe the factors that will affect the demand for a good. [10%]

(ii) With reference to your diagram in (i) explain the effect on demand which a fall in price will produce. [10%]

(iii) List possible causes for an increase in demand for a good, in the absence of a change in its price [10%]

(iv) With reference to your diagram in (i) define Price Elasticity of Demand. Explain what characterizes inelastic demand, and suggest goods that might exhibit Price inelasticity. What are possible reasons for the price inelastic behaviour for the goods you have suggested? [10%]

(b) Market equilibrium is said to occur when markets clear – i.e. a price exists at which the quantity demanded exactly equals the quantity that suppliers are willing and able to supply. The concept of a Perfectly Competitive Market is developed from models of market equilibrium. List the assumptions on which the concept of a Perfectly Competitive Market is based. [20%]

(c) ‘The single most important decision in evaluating a business is pricing power. If you’ve got the power to raise prices without losing business to a competitor, you’ve got a very good business. And if you have to have a prayer session before raising the price by 10 per cent, then you’ve got a terrible business.’

Warren Buffett (A successful and respected US investor) February 2011

What advice would you give an industrialist seeking to develop ‘a very good business’ (in Mr Buffett’s assessment), and how does your advice relate to the concept of Perfectly Competitive Markets? [40%]

SECTION D

Answer **one** question from this section.

7 (a) Describe the possible role of a product manager and how this role might vary in different types of firm. [30%]

(b) Describe the product lifecycle concept, its potential application and its limitations. [30%]

(c) You have been appointed as product manager in a high-technology business. The product range that you have inherited includes three classes of products; 'entry level', 'mid-range' and 'premium'. Some basic sales and competitive data are provided in Table 1 and Fig 1. Using appropriate strategy concepts, make recommendations for the firm's future product development strategy. [40%]

	Entry level			Mid range			Premium		
	Average Price	No. p.a	Est. margin	Average Price	No. p.a	Est. margin	Average Price	No. p.a	Est. margin
Precision Co.	£10,000	60	30%	£25,000	100	45%	£150,000	6	60%
Competitor 1	£6,000	100	40%	£20,000	80	40%	£130,000	3	50%
Competitor 2	£7,500	150	50%	£18,000	150	35%	£100,000	2	60%
Competitor 3	£12,000	30	40%	£25,000	80	50%	£200,000	15	60%
Competitor 4	£10,000	30	60%	£24,000	60	50%	£100,000	2	60%

Table 1: Competitive information

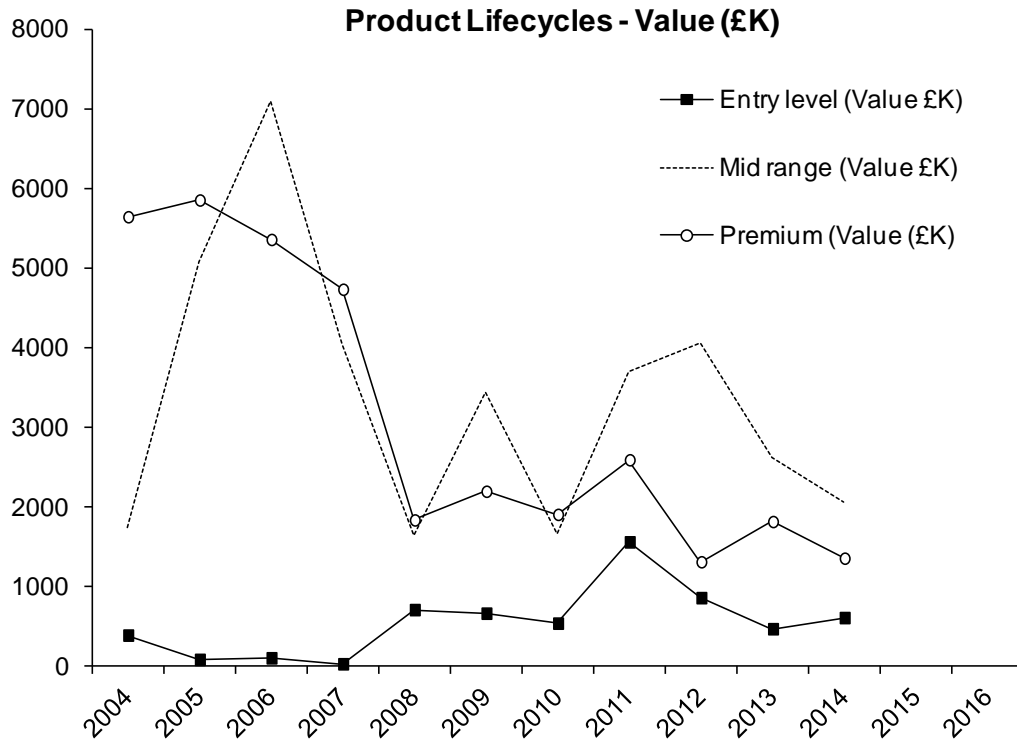


Fig 1: product lifecycle information

- 8 (a) List Porter's five forces and discuss the way in which they influence the strength of industry competition. [30%]
- (b) Discuss the factors that affect the relative magnitude of these forces. [50%]
- (c) Discuss how the relative magnitude of the forces might vary over an industry life cycle. [20%]

END OF PAPER