

MET2
MANUFACTURING ENGINEERING TRIPOS PART IIA

Friday 28 April 2017 9 to 12

Paper 5

Module 3P8: FINANCIAL AND MANAGEMENT ACCOUNTING

Module 3P9: INDUSTRIAL ECONOMICS, STRATEGY AND GOVERNANCE

*Answer **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.*

*Write your candidate number **not** your name on the cover sheet.*

STATIONERY REQUIREMENTS

8 page answer booklet x 4

Rough work pad

SPECIAL REQUIREMENTS TO BE SUPPLIED FOR THIS EXAM

CUED approved calculator allowed

Engineering Data Book

10 minutes reading time is allowed for this paper.

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

SECTION A

Answer **one** question from this section.

1 Arun has prepared a trial balance for his business as at 30 April 2013 which is presented below:

	Dr (£)	Cr (£)
Capital account – 1 May 2012		30,000
Finance costs	300	
Bank		7,400
Administrative expenses	65,800	
Distribution expenses	31,200	
Plant and machinery – at cost	72,000	
Plant and machinery – accumulated depreciation at 1 May 2012		25,000
Trade receivables	20,000	
Allowance for receivables – 1 May 2012		3,150
Revenue		230,000
Inventory – 1 May 2012	18,750	
Cash drawings by Arun	18,000	
Trade payables		17,500
Purchases	90,000	
6% Loan – repayable 31 July 2015		3,000
	<u>316,050</u>	<u>316,050</u>

The following notes are relevant to the preparation of the financial statements for the business for the year ended 30 April 2013:

- (i) Arun took goods which cost £5,000 for personal use during the year, but this has not been recorded.
- (ii) It has been determined that trade receivables of £600 are irrecoverable. In addition, it was decided that the allowance for receivables should be reduced by £500.
- (iii) Depreciation on plant and machinery is charged at 15% per annum on a reducing balance basis. Depreciation is charged to cost of sales.
- (iv) The loan was taken out on 1 August 2012 and interest has not yet been paid or accrued.
- (v) Closing inventory had been valued at £17,500. It was subsequently discovered that some items of inventory which had cost £5,000 had a net realisable value of £3,750.

(vi) At 30 April 2013, a prepayment for insurance paid in of £400 had not yet been accounted for. Insurance is classified as an administrative expense.

(vii) At 30 April 2013, an accrual for freight and delivery expenses amounting to £350 had not yet been accounted for. Freight and delivery expenses are classified as distribution expenses.

- (a) Provide a profit and loss account for the year ending 30 April 2013. [40%]
- (b) Provide a detailed balance sheet as at 30 April 2013. [40%]
- (c) Discuss the reasons for charging depreciation in financial statements. Outline the reasons for choosing the reducing balance method compared to the straight-line method for depreciation. [20%]

2 The following financial statements and supporting information relate to Sankey, a limited liability entity.

Sankey's profit and loss account for the year ended 31 March 2016 is as follows

	£'000
Revenue	88,740
Cost of sales	(73,750)
Gross profit	14,990
Distribution costs	(1,200)
Administrative expenses	(610)
Operating Profit	13,180
Profit on disposal of plant and equipment	300
Investment income	320
Interest payable	(2,150)
Profit for the year	11,650

Sankey's Balance sheet as at 31 March 2016

	2016 £'000	2015 £'000
ASSETS		
<i>Non-current assets</i>		
Property, plant and equipment	73,000	70,500
<i>Current assets</i>		
Inventories	27,500	25,500
Trade receivables	37,500	33,000
Cash and equivalents	6,560	1,250
Total assets	144,560	130,250
EQUITIES AND LIABILITIES		
Equity share capital	11,610	10,000
Retained earnings	80,000	68,350
Total equity	91,610	78,350
<i>Non-current liabilities</i>		
10% Loan	23,500	20,000
<i>Current liabilities</i>		
Trade payables	29,450	31,900
Total equity and liabilities	144,560	130,250

Notes:

During the year ended 31 March 2016, Sankey disposed of some items of plant and equipment. The carrying amount of these items at the date of disposal was £800,000. The depreciation charge for the year was £500,000.

- (a) Based upon the available information, prepare a statement of cash flows using the indirect method for Sankey for the year ended 31 March 2016. [70%]
- (b) Discuss the objectives of the statement of cash flows. Explain the pros and cons of preparing the Sankey statement of cash flows using the indirect method compared to the direct method. [30%]

SECTION B

Answer **one** question from this section.

3 After securing an extension to an existing contract the directors of Anchor Co are reviewing the options relating to a machine that is a key part of the company's production process.

Option 1 – Replace the machine

The cost of the new machine would be £450,000, payable immediately. Maintenance costs will be payable at the end of each year of the project. The first maintenance payment for the new machine is £25,000 although this is expected to rise by 7.5% per year.

Option 2 – Overhaul the existing machine

The alternative to replacement is a complete overhaul of an existing machine, the cost of which would be £275,000, also payable immediately. This would be classified as capital expenditure. However, under this option, annual maintenance costs will be higher at £40,000 in year 1 with expected annual increases of 10.5%.

As the new machine is likely to reduce the variable cost, the contribution will be different depending on which machine is used. The contribution from each machine (excluding maintenance costs) is tabulated as follows, with the inflow of funds assumed to be at the end of the year.

Year	Year 1	Year 2	Year 3	Year 4	Year 5
Contribution with new machine (£'000)	150	170	190	210	220
Contribution with overhauled machine (£'000)	130	145	155	160	160

The finance manager is unsure about the cost of capital, but expects it is around 12%.

- (a) Calculate the net present value of each option. [30%]
- (b) Estimate the internal rate of return of each option. An Interest Table is provided in Fig. 1. [30%]

- (c) Interpret the results that you have obtained in parts (a) and (b) above, and recommend which alternative should be chosen. Your answer should include the advantages and disadvantages of using the net present value and internal rate of return approaches to investment appraisal. [40%]

Interest Rate Table

Interest rate p.a., r	Number of years, T	Present value of £1 receivable at the end of T years, $PV = \frac{1}{(1+r)^T}$
5%	1	0.9254
	2	0.9070
	3	0.8638
	4	0.8227
	5	0.7853
	6	0.7462
	7	0.7107
	8	0.6768
	9	0.6446
	10	0.6139
10%	1	0.9091
	2	0.8264
	3	0.7513
	4	0.6830
	5	0.6209
	6	0.5645
	7	0.5132
	8	0.4665
	9	0.4241
	10	0.3855
12%	1	0.8929
	2	0.7972
	3	0.7118
	4	0.6355
	5	0.5764
	6	0.5066
	7	0.4523
	8	0.4039
	9	0.3606
	10	0.3220
20%	1	0.8333
	2	0.6944
	3	0.5787
	4	0.4823
	5	0.4019
	6	0.3349
	7	0.2791
	8	0.2326
	9	0.1938
	10	0.1615

Fig. 1

4 Grasmere Co, produces three products, A, B and C, all made from the same material. Until now, it has used traditional absorption costing to allocate overheads to its products. The company is now considering an activity based costing system in the hope that it will improve profitability. Information for the three products for the last year is as follows:

	A	B	C
Production and sales volume (units)	15,000	12,000	18,000
Selling price per unit	£7.50	£12.00	£13.00
Raw material usage (kg) per unit	2	3	4
Direct labour hours per unit	0.1	0.15	0.2
Machine hours per unit	0.5	0.7	0.9
Number of production runs per annum	16	12	8
Number of purchase orders per annum	24	28	42
Number of deliveries to retailers per annum	48	30	62

The price of raw materials remained constant throughout the year at £1.20 per kg. Similarly, the direct labour cost for the whole workforce was £14.80 per hour. The annual overhead costs were as follows:

	£
Machine set-up costs	26,550
Machine running costs	66,400
Procurement costs	48,000
Delivery costs	54,320

- (a) Calculate the full cost per unit for products A, B and C under traditional absorption costing, using direct labour hours as the basis for apportionment. [20%]
- (b) Calculate the full cost per unit of each product using activity based costing. [40%]
- (c) Using your calculations from (a) and (b) above, explain how activity based costing may help the Grasmere Co improve the profitability of each product. [40%]

SECTION C

Answer **one** question from this section.

5 (a) Describe what is meant by *strategic planning* and discuss its importance. [50%]

(b) Discuss the advantages and disadvantages of a computer software company outsourcing its research and development. [50%]

6 (a) Explain the concept and importance of branding to a firm. [50%]

(b) Discuss the appropriateness of franchising as a distribution strategy for a firm. [50%]

SECTION D

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

7 Heavenly Bliss is a chain of hairdressers with fifteen sites. It has a simple quality and speed philosophy – quality haircuts for women who are short of time. The company aims to keep waiting times below fifteen minutes. The company operates a drop-in system and does not take appointments. All staff are multi-skilled and there are no specialists.

The salons offer a wide range of services from simple haircuts to more complex styles and treatments. In 50% of their stores Heavenly Bliss also offers beauty treatments, such as facials, in a separate salon on site. The company's main publicity comes from personal recommendations by satisfied customers, but they also occasionally advertise in high quality women's magazines.

After a recent period of expansion, the management team of Heavenly Bliss feel that their business model is not being applied consistently throughout the organisation and they have decided improvements need to be made. However, the management team do not know how to operationalise the company's philosophy across the business.

- (a) Using the concept of value chain, explain how Heavenly Bliss can adopt the quality and speed philosophy throughout its activities. [50%]
- (b) What are the benefits of and problems with value chain analysis for a company such as Heavenly Bliss? [50%]

8 The managing director of a small manufacturing company, specialising in industrial packaging tape, is worried that the cost-plus pricing method currently used is not necessarily the most appropriate. Provide a memorandum that:

(a) Explains the role and importance of pricing to the marketing effort for the company. [50%]

(b) Explains the differences between the competitor based method and market demand based method of pricing in the context of the company. [50%]

END OF PAPER

THIS PAGE IS BLANK