

Intermediate Level

Management Accounting –
Performance Management

8

IMPM

24 November 2004
Wednesday afternoon

INSTRUCTIONS TO CANDIDATES

Read this page before you look at the questions

You are allowed three hours to answer this question paper.
Answer the ONE question in Section A (this has 10 sub-questions). Answer the ONE question in Section B. Answer ONE question ONLY from Section C. Answer ONE question ONLY from Section D.

SECTION A – 20 MARKS

ANSWER ALL TEN SUB-QUESTIONS – 2 MARKS EACH

Question One

- 1.1** E has received a job enquiry from a prospective customer and wishes to provide a very competitive quotation in the hope that this job may lead to future orders.

One of the items needed for this job would be a material regularly used by E. The job requires 3,400 kgs of this material. E has 5,000 kgs of the material in stock that were bought for £2.40 per kg. The material is also used on other jobs which earn a contribution of £1.30 per kg of material. The material is readily available at a cost of £2.60 per kg.

The relevant cost of the material to be used for the quotation is

- A** £8,160.
 - B** £8,840.
 - C** £10,200.
 - D** £12,580.
-

- 1.2** F provides three different consultancy services using a high specification computer. The processing hours available on this computer are limited to 50 per week and incur variable processing costs of £40 per hour.

Data relating to the services provided by F are as follows:

Service	P1 £/service	P2 £/service	P3 £/service
Sales value	600	430	400
Variable processing costs	200	160	120
Variable consultant costs	180	40	80
Fixed costs	100	50	75
Profit	120	180	125

The rank order, derived from determining the most profitable use of the scarce processing hours is:

	P1	P2	P3
A	1 st	2 nd	3 rd
B	2 nd	1 st	3 rd
C	3 rd	1 st	2 nd
D	3 rd	2 nd	1 st

The following data are to be used to answer questions 1.3 and 1.4 below

G operates a standard absorption costing system. The fixed production overhead absorption rate is based on machine hours. Data for October was as follows:

	<i>Budget</i>	<i>Actual</i>
Number of units produced	5,000	4,800
Number of machine hours worked	10,000	10,300
Fixed overhead expenditure	£100,000	£96,400

1.3 The fixed overhead capacity variance for October was

- A** £3,600 F
 - B** £3,000 F
 - C** £4,000 A
 - D** £7,000 A
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1.4 The fixed overhead efficiency variance for October was

- A** £3,600 F
 - B** £3,000 F
 - C** £4,000 A
 - D** £7,000 A
-

1.5 J provides three different payroll services to businesses that cannot justify operating their own payroll departments. The following contribution and sales values have been determined for each of these services:

<i>Service</i>	<i>X</i>	<i>Y</i>	<i>Z</i>
Sales value per service (£)	100	200	100
Contribution per service (£)	40	70	25

If equal quantities of X, Y and Z are to be sold and fixed costs are £100,000 per month, the monthly sales value that would result in a profit of £40,000 is nearest to

- A** £311,000.
 - B** £336,000.
 - C** £415,000.
 - D** £420,000.
-

- 1.6** M is preparing its budgets for next year and has collected the following data concerning its vehicle running costs:

<i>Cost</i>	<i>Kilometres</i>
<i>£000</i>	<i>000</i>
100	400
96	380
148	640

If cost price levels and cost structures are expected to be unchanged, the budget cost allowance for 490,000 kilometres is nearest to

- A** £98,000.
B £113,000.
C £118,000.
D £122,000.
-

- 1.7** When deciding whether or not to further process a joint product after the separation point the information required is

- (i) the costs of the joint process;
- (ii) the costs of further processing;
- (iii) the quantity of losses expected from further processing and their sales value;
- (iv) the sales value prior to further processing;
- (v) the sales value after further processing;
- (vi) the quantity of losses that occurred during the joint process and their sales value.

- A** (i), (ii) and (vi) only.
B (ii), (iii), (iv) and (v) only.
C (ii), (iii), (iv) and (vi) only.
D All of the above.
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- 1.8** In a period when finished stock levels increase, the profit and closing stock valuations shown under marginal costing and absorption costing would be

<i>Profit</i>	<i>Closing stock valuations</i>
A Marginal higher than absorption costing	Marginal lower than absorption costing
B Marginal lower than absorption costing	Marginal higher than absorption costing
C Marginal higher than absorption costing	Marginal higher than absorption costing
D Marginal lower than absorption costing	Marginal lower than absorption costing

The following data are to be used to answer questions 1.9 and 1.10

P manufactures product PS3 by mixing together two raw materials, PF4 and SE5. An extract from the relevant section of the standard cost card for 1,000 litres of PS3 was as follows:

600 litres of PF4 @ £8.00 per litre	£4,800
500 litres of SE5 @ £6.00 per litre	£3,000

During October, the actual output was 123,500 litres using the following materials:

81,800 litres of PF4 costing £7.00 per litre
55,400 litres of SE5 costing £6.50 per litre

1.9 The material mix variance for October was

- A** £3,482 A
 - B** £9,269 A
 - C** £9,571 A
 - D** £13,928 A
-

1.10 The material yield variance for October was

- A** £3,482 A
 - B** £9,269 A
 - C** £9,571 A
 - D** £13,928 A
-

(Total = 20 marks)

End of Section A

SECTION B – 30 MARKS

ANSWER THIS QUESTION, showing supporting calculations where appropriate

Question Two

LMN produces a compound T5, which is used to manufacture tyres. The compound, which earns a contribution of £6 per tonne, is produced by mixing two materials, R1 and R2, in a common process. The process causes the production of a by-product Z, which can be sold without further processing for £5 per tonne. The process is inefficient and large losses occur. The losses can currently only be identified at the completion of the process.

Process details

In addition to the costs of materials R1 and R2, variable and fixed processing costs are incurred.

The expected inputs and outputs of the process are as follows:

Input:	equal quantities of R1 and R2
Outputs:	T5: 60% of weight of new input
	Z: 10% of weight of new input
	Loss: 30% of weight of new input

Data for October

Opening work in progress	200 tonnes of T5 fully complete in respect of materials, but only 30% converted. This stock was valued at £450.
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Inputs:	
Materials:	24,000 tonnes of R1 costing £60,480
	24,000 tonnes of R2 costing £24,000

Conversion costs:	Variable	£36,125
	Fixed	£39,015

Outputs	T5: 28,800 tonnes
	Z: 4,800 tonnes

Closing work in progress	200 tonnes of T5 fully complete in respect of materials, but only 80% converted.
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Note:

By-product Z is not considered to be a major source of income and consequently the revenue generated by its sale is credited to the process account.

Required:

- (a) Prepare the process account for LMN for the month of October using a First In, First Out (FIFO) basis of valuation. Show all your workings. (10 marks)
- (b) The production director of LMN has been investigating alternative production methods to reduce the loss that arises in the process. Two alternatives have been identified:
- (i) to change the mix of input materials R1 and R2, such that twice as much R1 is used compared to R2. Conversion costs would not be affected and trials have suggested that this would reduce the expected loss to 15% of the materials input during a period with no effect on the output of the by-product.
 - (ii) to introduce a quality control procedure that would enable any loss to be identified and the units rejected after 60% of the conversion costs had been incurred. It is expected that the quantity of the normal loss will remain at 30% of the input to the process. There would be no capital expenditure costs associated with this quality control procedure, but other costs would comprise £0.20 for every tonne of input materials processed together with a fixed cost of £1,000 per month. The quantity of the by-product produced and its continued saleability would not be affected by this proposed inspection process.

Required:

Evaluate each of the SEPARATE alternatives (i) and (ii) above and recommend which, if either, should be adopted by LMN. Show all your workings.

(10 marks)

- (c) As a management accountant, prepare a report addressed to the Board of Directors of LMN that explains the costs and benefits that would arise following the adoption of a Quality Control Programme. Your answer should refer to the different quality cost classifications that would be used and also to non-financial factors. (10 marks)

(Total = 30 marks)

Section C starts on the next page

SECTION C – 25 MARKS

ANSWER ONE QUESTION ONLY [EITHER question three OR question four, BUT NOT BOTH], showing supporting calculations where appropriate

Question Three

TBS produces two products in a single factory. The following details have been extracted from the standard marginal cost cards of the two products:

<i>Product</i>	<i>S3 \$/unit</i>	<i>S5 \$/unit</i>
Selling price	100	135
Variable costs:		
Material X (\$3 per kg)	30	39
Liquid Z (\$4.50 per litre)	27	45
Direct labour (\$6 per hour)	18	24
Overheads	12	16

TBS uses a standard marginal costing system linked with budgets.

Budgeted data for the month of October included:

	<i>S3</i>	<i>S5</i>
Sales (units)	10,000	10,000
Production (units)	12,000	13,500
Fixed costs:		
Production		\$51,000
Administration		\$34,000

Actual data for the month of October was as follows:

	<i>S3</i>	<i>S5</i>
Sales (units)	12,200	8,350
Production (units)	13,000	9,400
Selling prices per unit	\$96	\$145

Variable costs:

Material X	270,000 kgs costing	\$786,400
Liquid Z	150,000 litres costing	\$763,200
Direct labour	73,200 hours costing	\$508,350
Overheads		\$347,000

Fixed costs:

Production	\$47,550
Administration	\$36,870

Required:

- (a) Calculate the budgeted profit/loss for October. *(2 marks)*
- (b) Calculate the actual profit/loss for October. *(3 marks)*
- (c) As a management accountant in TBS you will be attending the monthly management team meeting. In preparation for that meeting you are required to:
- (i) Prepare a statement that reconciles the budgeted and actual profit/loss for October, showing the variances in as much detail as is possible from the data provided. *(15 marks)*
- (ii) State, and then briefly explain, the main issues in your profit reconciliation statement. *(5 marks)*
- (Total = 25 marks)*
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Question Four

The management team of WZX is about to start preparing the budgets for the year ending 31 December 2005. Relevant information is given below:

Sales

The predicted sales for 2005 are as follows:

<i>Quarter</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>Total</i>
Sales (units)	25,799	24,078	34,763	39,820	124,460

Sales demand is the principal budget factor.

Costs

The production costs have been predicted to be:

Materials	£15 per unit, but if production exceeds 30,000 units in a quarter a discount of 5% will be allowed on all units in the quarter.
Labour	£25 per unit in normal time. However, if production exceeds 30,000 units in a quarter, overtime will have to be worked and costs will rise to £38 per unit for those in excess of 30,000 in the quarter.
Overheads	
Variable	£10 per unit at all levels of activity.
Fixed	£100,000 per quarter for up to 30,000 units produced, but rising by 20% if output exceeds 30,000 units.

Stocks

WZX uses a Just in Time (JIT) system for raw materials.

It is company policy that there should be no stock of finished goods at the start of any year.

Finished goods are valued at the budgeted average annual marginal production cost per unit.

Production schedule

The total annual production requirement will be scheduled to be produced in equal amounts in the four quarters.

Costing system

WZX uses a marginal costing system based on the budgeted average annual cost per unit.

Required:

- (a) Prepare the production cost of sales budget for WZX for 2005 on the basis of its current purchasing, production and stock holding policies and its use of marginal costing. You should show the costs of each quarter and the total for the year. (7 marks)

- (b) The management of WZX is thinking of extending its use of a JIT approach to include finished goods and production.

Prepare the production cost of sales budget for 2005 on the basis of this policy change. You should show the costs of each quarter and the total for the year.

(8 marks)

- (c) Explain the reasons for the differences in materials, labour and fixed overhead costs in your answers to parts (a) and (b) above.

(6 marks)

- (d) Sales demand in 2006 is expected to be subject to seasonal fluctuations, as it has been in previous years. These seasonal variations are expected to be as follows:

Quarter	1	2	3	4
% variation	-10	-20	+10	+20

Assume that sales for Quarter 3 of 2005 will be 34,763 units and will continue to show an underlying growth of 5% per quarter. This trend of underlying growth is expected to continue throughout 2006.

Prepare a forecast of the sales volumes expected for each quarter of 2006.

(4 marks)

(Total = 25 marks)

End of Section C

SECTION D – 25 MARKS

ANSWER ONE QUESTION ONLY [EITHER question five OR question six, BUT NOT BOTH]

Question Five

HJL provides consultancy services to companies considering improving their telephone and communication systems, including those operated using computer technology. HJL employs a number of consultants and measures its performance based on profitability and the number of chargeable hours. Performance measures make comparisons between actual and budget performance using budgets that are developed on an incremental approach which adds 5% to the budget of the previous year.

The Managing Director has returned from a management training conference which provided her with a basic understanding of the use of alternative performance measures. Two of these were The Balanced Scorecard and Benchmarking. She has asked you, as a management accountant, to prepare a report to be discussed at the next meeting of the Board of Directors. The report should explain these terms and how the performance of the company may improve if HJL were to introduce these new performance measures.

Required:

Prepare a report, to be discussed at the next meeting of the Board of Directors, that:

- (a) Reviews the suitability of the existing performance measures used by HJL;
(7 marks)
- (b) Explains “The Balanced Scorecard” and recommends, with reasons, performance measures that could be used if it were introduced in HJL;
(12 marks)
- (c) Explains “Benchmarking” and the potential impact on operations within HJL if it were to be introduced.
(6 marks)

(Total = 25 marks)

Question Six

DFR operates a number of retail outlets selling a range of audio-visual products. These products range in size and value from small items such as portable radios that are easily displayed on shelves, to large and expensive equipment such as widescreen televisions. Some of these products take up considerable amounts of retail staff time advising customers at the point of sale.

DFR has a warehouse that it uses for storage of its products before they are delivered to its retail outlets using its own transport fleet. The warehouse and the retail outlets are all based in one country, but some of the outlets are significantly closer to the warehouse than others.

At present, warehousing costs are analysed between storage costs and distribution costs and these are then apportioned to retail outlets on the basis of the sales value of orders delivered. Retail outlet costs (including rent, heating and staff costs) are attributed to individual products based on their sales values.

For some time, the management of DFR has been considering the introduction of an Activity Based Costing (ABC) system. The management team has heard that this is a more accurate system of costing than that which is currently used, particularly since some of DFR's products require more involvement of staff in the retail outlets in advising customers of the meaning of the product specifications.

Required:

You have been appointed as a management accountant by DFR to introduce an ABC system. Prepare a report addressed to the Board of Directors of DFR that

- (a) explains the weaknesses of the present method used by DFR when attributing costs to products and its implications for cost control and product profitability. (9 marks)
- (b) states the principles of ABC. (4 marks)
- (c) explains, with suitable examples, how DFR's warehouse storage and distribution costs and retail outlet costs could be attributed to individual products using an ABC system. (8 marks)
- (d) explains how DFR will benefit from the introduction of an ABC system. (4 marks)

(Total = 25 marks)

End of paper