Series 4 Examination 2009

MANAGEMENT ACCOUNTING

Level 3

Tuesday 1 December

Subject Code: 3724 S

Time allowed: **3 hours**

INSTRUCTIONS FOR CANDIDATES

- Answer **all 5** questions.
- All questions carry equal marks.
- Write your answers in blue or black ink/ballpoint. Pencil may be used only for graphs, charts, diagrams, etc.
- Begin your answer to each question on a new page.
- All workings must be shown.
- All answers must be correctly numbered but need not be in numerical order.
- You may use a calculator provided the calculator gives no printout, has no word display facilities, is silent and cordless. The provision of batteries and their condition is your responsibility.

QUESTION 1

Company A, which manufactures and sells a single product, is attempting to separate its production supervision overhead costs into variable and fixed components. The following details are available for the past five operating periods:

	Supervision Costs	Direct Labour Hours	Machine Hours
Period 3	$61,875	5,400	11,340
Period 4	$66,250	6,200	11,925
Period 5	$73,215	7,560	14,850
Period 6	$67,500	6,540	14,625
Period 7	$76,575	8,200	15,260

REQUIRED

(a) Use the high-low method to calculate the **variable supervision costs per unit of activity** and the **total fixed supervision costs per period,** assuming that the company uses the following bases as the measure of its operating activity:

(i) direct labour hours (3 marks)

(ii) machine hours. (3 marks)

(b) For each period, other than these used in part (a) to estimate cost behaviour:

(i) predict total supervision costs using your answers to part (a) and the activity data provided

(3 marks)

(ii) compare the predicted supervision costs calculated in part (b)(i) with the actual costs.

(2 marks)

(c) Suggest which measure of activity, ie direct labour hours or machine hours, is likely to provide the better basis for estimating supervision cost behaviour.

(2 marks)

Company B has prepared a budget for the coming period when it plans to make and sell three products. The following details are provided:

	Product J	Product K	Product L
Sales volume (units)	8,000	20,000	12,000
Selling price per unit	$34.80	$55.00	$26.50
Variable costs per unit	$22.30	$40.70	$16.00

The fixed costs for the coming period are budgeted at $405,600.

REQUIRED

(d) Calculate the number of units of Product J, Product K and Product L that are required to be made and sold by the company in order to earn a profit of $180,000 in the coming period, assuming the budgeted sales mix is maintained.

(7 marks)

(Total 20 marks)

QUESTION 2

A company manufactures and sells three products which all use the same direct materials and the same type of direct labour. The following details are available:

	Product P	**Product Q**	**Product R**
	$ per unit	**$ per unit**	**$ per unit**
Selling price	210.20	220.30	162.40
Direct materials ($24.50 per kg)	75.95	53.90	61.25
Direct labour ($18.60 per hour)	46.50	60.45	32.55
Overhead costs	60.00	78.00	42.00

The overhead costs are estimated to be 35% variable and 65% fixed. The fixed element of overhead costs is charged to products on the basis of the total direct labour hours required to satisy the normal sales demand for each product as follows:

Product P	2,800 units
Product Q	2,400 units
Product R	4,400 units

There is a shortage of direct labour hours and only 20,550 hours are available for production in the coming period.

No stocks of finished products are carried.

REQUIRED

(a) Prepare a production schedule that will maximise profit for the coming period and calculate the amount of the profit.

(14 marks)

(b) Explain the meaning of the following terms used in the context of decision-making:

(i) opportunity cost (3 marks)

(ii) relevant cost. (3 marks)

(Total 20 marks)

QUESTION 3

Ginger Limited operates a standard costing system for the single product which it manufactures and sells. The following data relate to the standards set for Period 6 based on budgeted production and sales of 3,000 units:

		$ per unit
Direct material	(2.6 kg × $43.00 per kg)	111.80
Direct labour	(4 hours × $21.60 per hour)	86.40

The actual results for Period 6 were as follows:

Production and sales	2,850 units
Direct materials (purchased and used)	6,840 kg costing $318,060
Direct labour	10,830 hours costing $239,608

REQUIRED

(a) Calculate the following variances for Period 6:

(i) direct material cost (total) (1 mark)

(ii) direct material price (2 marks)

(iii) direct material usage (2 marks)

(iv) direct labour cost (total) (1 mark)

(v) direct labour rate (2 marks)

(vi) direct labour efficiency (2 marks)

When the above variances were discussed at a management meeting, it was agreed that the material variances did not reflect controllable effects on performance during this period. An unforeseen occurrence had caused a shortage of material and it was agreed that $47.30 per kg would have been an efficient buying price in the period. Furthermore, modifications had been made to the production process at the start of the period to reduce waste and change the standard quantity of material required per unit of product to 2.2 kg.

REQUIRED

(b) Using an ex-post standard, calculate the following direct material variances for Period 6:

(i) planning (total) (4 marks)

(ii) operational price (3 marks)

(iii) operational usage. (3 marks)

(Total 20 marks)

QUESTION 4

(a) Explain the difference between a forecast and a budget.

(6 marks)

A company manufactures and sells three products using two types of raw material and two grades of labour. The following details relate to the budget for Period 4:

Sales

Product X	7,500 units
Product Y	5,000 units
Product Z	9,000 units

	Product X Per unit	**Product Y** Per unit	**Product Z** Per unit
Direct materials			
Material R ($21.50 per kg)	2.4 kg	3.5 kg	1.2 kg
Material S ($13.20 per kg)	3.2 kg	1.8 kg	2.25 kg
Direct Labour			
Grade A ($24.60 per hour)	3 hours	2 hours	4 hours
Grade B ($18.75 per hour)	2 hours	3 hours	1 hour

Stockholding

	Start of Period	**End of Period**
Product X	1,550 units	1,875 units
Product Y	1,250 units	900 units
Product Z	1,600 units	1,200 units
Material R	9,215 kg	8,250 kg
Material S	6,560 kg	7,650 kg

REQUIRED

(b) Prepare the following budgets for Period 4:

(i) production (units of each product) (4 marks)

(ii) purchases of Material R (quantity in kg and cost) (6 marks)

(iii) Grade B direct labour (quantity in hours and cost). (4 marks)

(Total 20 marks)

QUESTION 5

A company has $850,000 available to invest in either one of two projects for a period of five years. The following are the net cash flows from the two projects:

	Project A	**Project B**
	$000	**$000**
Year 0	(850)	(850)
Year 1	380	80
Year 2	400	100
Year 3	200	320
Year 4	70	380
Year 5	20	460

Assume that net cash inflows occur at the end of the years to which they relate.

The cost of capital is 10% per annum.

Discount factors:	**Year**	**5%**	**10%**	**15%**	**20%**	**25%**
	1	0.952	0.909	0.870	0.833	0.800
	2	0.907	0.826	0.756	0.694	0.640
	3	0.864	0.751	0.658	0.579	0.512
	4	0.823	0.683	0.572	0.482	0.410
	5	0.784	0.621	0.497	0.402	0.328

REQUIRED

(a) Calculate for each of **Project A** and **Project B**, the

(i) net present value (6 marks)

(ii) internal rate of return (6 marks)

(iii) discounted payback period. (4 marks)

(b) Recommend, with reasons, which project should be undertaken based on your calculations of the net present values and internal rates of return in part (a).

(2 marks)

(c) Explain the difference in the discounted payback periods of the two projects in relation to the difference in their net present values.

(2 marks)

(Total 20 marks)

