THE OPEN UN IVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
BACHELOR OF TECHNOLOGY - LEVEL 5
FINAL EXAMINATION 2011/2012
MEM5336 - MANAGEMENT FOR ENGINEERS
DATE : 05th MARCH 2012
TIME : 0930 -1230 HRS
DURATION : THREE HOURS

THIS QUESTION PAPER HAS TWO SECTIONS, SECTION A AND B. ANSWER ANY FIVE PARTS FROM SECTION A AND FIVE QUESTIONS FROM SECTION B.

SECTION A

(a) What are the two basic Theories in Motivation? Explain each of them briefly.

(b) What is the difference between Administrative theory and Scientific Management?

(c) How do you categorize Marketing Variables? Explain them briefly.

(d) List the different methods used to evaluate a Capital project.

(e) Explain the term "Leadership" briefly.

(f) State common steps of planning and briefly explain each of them.

(g) What are the reasons for delegating authority?

(h) Briefly explain the social transformation which led to the evolution of "Behavioural Management Theory"

(20marks)

SECTION B

1. (a) State and briefly describe key components of Human Resource Management process.

(4marks)

(b) (i) What is meant by "job analysis"?
(ii) State two methods of job analysis and briefly describe them.

(6marks)

(c) (i) What are the sources of recruitment? State merits and demerits of each.
(ii) State three methods of recruitment and briefly indicate the benefits and relative costs of each method.

(6marks)

2. (a) Explain the following.
- Trial Balance
- Suspense account
- Prime entry books
- Gross profit and Net profit

(6marks)

(b) Trial Balance of Don Somapala Company as at 31st March 2010 is given below.

	Debit	Credit
Capital		42,140
Drawing	13,600	
Loan from Sirisena		10,000
Bank	5,800	
Cash	460	
Sales		88,400
Purchases	46,300	
Sales return	5,700	
Purchase return		3,100
Stock at 1st April 2009	8,500	
Carriage Inwards	2,400	
Carriage outwards	1,600	
Trade debtors	15,300	
Trade Creditors		7,200
Motor vehicles	23,100	
Fixtures and fittings	12,400	
Wages and salaries	6,800	
Rent	4,100	
Electricity	3,200	
Telephone and postage	1,700	
Discounts allowed	830	
Discounts received		950
	151,790	151,790

Prepare the following.

(i) Trading and profit and loss account for the year ended 31st March 2010.

(5marks)

(ii) The Balance sheet at that date.

(5marks)

3. (a) Briefly explain the steps that should be followed before implementing a corporate plan in an Organization.

(6marks)

(b) What are the precautions that should be taken in order to make the plans effective?

(5marks)

(c) How does the SWOT analysis contribute to improvement of productivity of an organization?

(5marks)

4. (a) Explain briefly, what marketing is.

(5marks)

(b) What are the main stages of a product life cycle? Explain them briefly with a suitable diagram.

(6marks)

(c) How do you extend the product life cycle at the decline stage of a product?

(5marks)

5. (a) What are the vital stages involved in Project Management?

(4marks)

(b) ABC company has already launched their latest project to introduce a new product to the market. Project activities, proceeding activities and duration for each activity are given in the table below.

Activity	Description	Required predecessor	Duration (months)
A	Product design	None	5
B	Market research	None	1
C	Production analysis	A	2
D	Product model	A	3
E	Sales brochure	A	2
F	Cost analysis	C	3
G	Product testing	D	4
H	Sales training	B,E	2
I	Pricing	H	1
J	Project report	F,G,I	1

(i) Draw the Network diagram of the project.
(ii) Find the critical path of the project.
(iii) What is the project duration?
(iv) If the activity 'D' is delayed by one month, what would be the outcome?
(v) How long the activity 'F' can be delayed without affecting the project duration.
(vi) If you delay the activity 'E' by one month, how long can you delay the activity 'I?'
(vii) If the activity 'H' takes 5 months to train sales people, what would be the critical path?

(12marks)

6. (a) Explain the following with particular reference to costing.

- Contribution
- Break-even point
- Variable cost
- Margin of safety in terms of Rupees and volume of sales

(6marks)

(b) A restaurant sells lunch packets which comprises of following cost. Cost component for each packet is as follows.

Rice = Rs. 20/=
Vegetables = Rs. 12/=
Fish = Rs. 20/=
Labour = Rs. 5/=
Packaging = Rs. 3/=

Selling price of each packet is Rs. 90/=. Average monthly rent and electricity bills are around Rs. 20,000/= and Rs. 10,000/= respectively.

(i) How many lunch packets should be sold in a month to break even the cost of production?
(ii) How many lunch packets should be sold to make the profit of Rs. 45,000/= per month.
(iii) Find out the margin of safety in terms of volume of sales and rupees at the above production level.
(iv) Draw a graph of sales and cost of sales vs volume of sales to illustrate the above situation.

(10marks)

7. (a) Explain in what situations the "Transportation method" could be used as a tool in management decision making.

(4marks)

(b) Four markets M1, M2, M3 and M4 are to be supplied with a certain product from three production plants, P1, P2, and P3. The costs involved in supplying the product from the plant to the markets are given in the table below. Also given in the table are the demand from different markets and the plant capacities to supply the product.

		Markets				Supply
		M1	M2	M3	M4	
Plant	P1	7	3	8	6	60
	P2	4	2	5	10	100
	P3	2	6	5	1	40
Demand		20	50	50	80	

(i) Determine an initial feasible supply schedule using one of the common methods.

(6marks)

(ii) Check your schedule for optimality and improve the schedule for minimum total cost.

(6marks)

8. (a) Briefly explain merits and demerits of maintaining inventories of raw materials in a production plant.

(4marks)

(b) (i) What are the costs that a company would incur in maintaining inventories?

(ii) What are the assumptions made in the simple Economic Order Quantity Model used to predict the size of optimum inventory?

(iii) Derive an expression for the simple Economic Oder Quantity model in terms of annual holding cost per item (h), Ordering cost per order (A), and Annual demand (D).

(6marks)

(c) A company stores a bought-out product for re-sale in the retail market. The following information is available.
Forecast sales (annual): 8,000 units
Holding cost: Rs. 0.20 per unit per year
Ordering cost: Rs. 180 per order

(i) Find the economic order quantity.

(ii) If the product can be purchased according to the following schedule of price, what is the order quantity the company should select?

Lot size	Unit Price (Rs.)
1 - 999	22
1,000 – 1,499	20
1,500 – 1,999	19
2,000 or more	18.50

(6marks)

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