THE OPEN UNIVERSITY OF SRI LANKA
FACULTY OF ENGINEERING TECHNOLOGY
BACHELOR OF TECHNOLOGY-LEVEL 5
FINAL EXAMINATION 2009/2010
MEM5336 - MANAGEMENT FOR ENGINEERS
DATE : 15th MARCH 2010
TIME : 0930 – 1230 HRS
DURATION : THREE HOURS

This question paper has two sections, Section A and Section B. Answer any Five Parts from Section A and any Five Questions from Section B.

SECTION A

(a) Explain briefly the contributions made by Elton Mayo on "Behavioural Management Theory".

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

(c) Briefly describe the steps of planning.

(d) Describe the main components of Human Resource Management.

(e) Write the steps that you would follow to determine the price of a commodity.

(f) What is advertising? What are the important steps in advertising?

(g) Write down the content theories and process theories in motivation?

(h) What are the techniques commonly used in evaluating capital projects?

[20 marks]

SECTION B

1. Organizing is a vital managerial function for implementation of plans.

(a) Briefly explain what is meant by "organizing"? **[4marks]**

(b) What are the factors that affect the coordination and control within an organization structure? Explain each of them briefly. **[4 marks]**

(c) What are the criteria of grouping jobs that lead to departmentalization in an organization structure? Explain each of them briefly. **[4marks]**

(d) What is meant by span of control? State the factors that affect span of control. **[4marks]**

2. (a) What are the costs involved in maintaining inventory of items in a production facility?
[3marks]

(b) Describe with graphical illustration the **Economic Order Quantity Model** used in inventory management. Show that the Economic Order Quantity (Q*) is given by the following formula.
[5 marks]

$$Q^* = \sqrt{\frac{2AD}{h}}$$

Where, A = Cost per order

D = annual demand

h = inventory holding cost per item per year

(c) A company annually uses 8,000 units of a product as raw material costing Rs.10/= per unit. The administrative costs per purchase is Rs. 400/=. The holding cost is Rs. 2.80 per unit per year.

Find, (i) Economic Order Quantity, **[3 marks]**

(ii) Total cost of purchase including the cost of units. **[3 marks]**

(iii) If the supplier offers the company a discount of 2% if it purchases its entire quantity 4 times a year, should the company accept the offer?
[2 marks]

3. Delegation of authority is necessary for smooth functioning of an organization. Authority is the Power that has been legitimized by the organization.

(a) What are the reasons for delegating authority?
[5 marks]

Briefly describe the problems the manager and the subordinate are required to be aware of when delegating authority.

[5 marks]

(b) What are the advantages of delegation authority?
[6 marks]

4. (a) A company has several production plants and several warehouses spread through out the country for supplying the products to the market. Explain what technique you would use to determine which plant should supply which warehouse for minimizing the total cost. What cost factors shall be taken into account in this problem?
[6 marks]

(b) A company has three production plants P1, P2, and P3, with capacities for production of 20,000, 16,000, and 25, 000 units of product per year respectively. These plants are to supply four warehouses A, B, C and D with annual requirements of 15,000, 18,000, 12,000 and 14,000 units respectively. The costs of transport per unit item are as follows:

Production Plant	Warehouse			
	A	B	C	D
P1	3	1	2	4
P2	6	4	3	2
P3	4	5	7	3

Determine

(i) Initial feasible distribution schedule using Least Cost Method or Vogel's Approximation Method. **[5 marks]**

(ii) Distribution schedule for minimum total cost. **[5 marks]**

5. (a) Explain the purpose of Critical Path Method (CPM) analysis of a project. What can be derived from this analysis? **[6 marks]**

(b) A project consists of 12 activities labeled A through L. The following table gives the estimated time duration for each of the 12 activities with what activities should have been completed prior to the commencement of the other relevant activity.

Activity	Time duration	Activities to be completed
A	6	-
B	4	-
C	10	-
D	1	A, B
E	1	B
F	3	B
G	14	C, F
H	6	B
I	9	E, H
J	2	E, H
K	7	C, D, F, J
L	5	K

(i) Draw a network diagram for this project. **[5 marks]**

(ii) Obtain the duration of all the paths and determine the critical path. **[5 marks]**

6. (a) Explain briefly,

(i) Double entry system
(ii) Trial Balance
(iii) Prime entry book

[5 marks]

(b) A businessman commenced a Trade on 1st January 2000 and his transactions during the month are as follows.

01.01.2000	-	Capital put into business	-	Rs. 80,000
04.01.2000	-	Bought furniture on cash	-	Rs. 10,000
06.01.2000	–	Goods purchased on credit	-	Rs. 50,000
10.01.2000	-	Sold goods on credit	-	Rs. 64,000
11.01.2000	–	Received money from debtors	-	Rs. 30,000
14.01.2000	–	Cash from sales	-	Rs. 42,000
15.01.2000	–	Credit purchase	-	Rs. 48,000
20.01.2000	-	Rent paid in cash	-	Rs. 8,400
26.01.2000	–	Paid creditors	-	Rs. 46,000
31.01.2000	–	Paid salaries	-	Rs. 12,000

(i) Prepare cash book, respective accounts such as (Capital, furniture, purchase, creditors, sales, debtors, rent and wages respectively).

[5 marks]

(ii) Hence prepare Trial Balance and comment on the accuracy of his accounting entries.

[6 marks]

7. (a) Define "Marketing" and its historical development **[6 marks]**

(b) State the variable functions of marketing.

Explain how you would make use of these variable functions to market alternate sources of fuel such as Petrol, LP gas and Bio-Ethanol used for running motor vehicles.

[10 marks]

8. (a) Describe broadly the maintenance functions in an organization such as in the process industry where there are plant and equipment engaged in continuous operation **[6 marks]**

(b) Explain how the documentation process takes place in the following example.

A defect is reported to the maintenance department by the process department. Maintenance Engineer takes up the job and repairs it and releases the equipment back to process department.

While implementing the job he makes use of facilities in the workshop which comes under the purview of a different department. He also draws spare parts from the stores which come under the supplies department.

[5 marks]

(c) A graph of "Failure rate Vs age (or running hours) could be a very useful guide in preparing a preventive maintenance schedule for plant and machinery"

Comment on the above statement. **[5 marks]**

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