00272

The Open University of Sri Lanka
Faculty of Engineering Technology

Study Programme	:	Diploma in Technology/Bachelor of Technology (Engineering)
Name of the Examination	:	Final Examination
Course Code and Title	:	**MEM5336-Management for Engineers**
Academic Year	:	2013/14
Date	:	**18th AUGUST 2014**
Time	:	**0930 -1230 HRS**
Duration	:	3 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) List and briefly explain the key components of Human Resource Management process. **(4 marks)**

(b) Categorize the basic theories in motivation into two groups and briefly describe them. **(4 marks)**

(c) Explain how you make use of Axile diagram for making entries in the ledger. **(4 marks)**

(d) What are the four different methods of market segmentation? **(4 marks)**

(e) List the basic elements of organization structure. **(4 marks)**

(f) Henry Fayol laid down several principles for effective management. State **five** of such principles. **(4 marks)**

(g) List the advantages of budgeting. **(4 marks)**

(h) What are the commonly used techniques in evaluating projects? **(4 marks)**

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SECTION B

Q1 (a) How does a functional organization structure operate? Describe it quoting a practical example. List advantages and disadvantages of a functional organization structure. **(5 marks)**

(b) For a time bound project, what sort of organizational structure would you adopt? State the reasons. **(5 marks)**

(c) Considering an organization which is familiar to you, describe how you would apply SWOT analysis to formulate an effective strategic plan. **(6 marks)**

Q2 (a) State the definition of 'marketing'. **(5 marks)**

(b) What are the philosophies of marketing management? **(5 marks)**
How would you use these philosophies to market mosquito coils of a given brand and toothpaste of another given brand?

(c) (i) Briefly explain the meaning of promotion, advertising, packaging and labeling from the marketing point of view. **(6 marks)**
(ii) Choose any product which you are familiar, and describe how you propose to package, label, promote and advertise it.

Q3 (a) Write short notes on each of the following. **(4 marks)**
(i) Working capital
(ii) Liquidity

(b) The following information is extracted from company 'X' which produces Brooms and sell them in the market.
Cost of producing a Broom and selling price are given below.

	Cost in Rs.
Material	8
Direct labour	4
General over head (Depreciation Rs.2)	3
Selling price	25

Weekly production and sales of brooms is 1000. Raw materials are kept in stores for 2 weeks. Brooms produced are sold within 2 weeks. Until then products are to be kept in stocks. Traders who buy brooms from the company and sell them in the market are allowed one week credit.

An amount equivalent to 1 ½ week purchases is to be kept as cash in hand. Purchases are on credit basis and credit period allowed by the suppliers is 3 weeks. Wages are paid daily. Credit period obtained for general overhead is one week. There is no opening or closing work in progress.

Calculate the following using above information.

(i) Current assets **(4 marks)**

(ii) Current Liabilities **(4 marks)**

(iii) Working capital **(4 marks)**

Q4 (a) What is "Financial Accounting Information"? **(3 marks)**

(b) Name the external users of Financial Accounting Information of an organization. **(3 marks)**

(c) The Trial balance extracted from Lester's books of accounts as at 31st December 2012 is given below.

	Debit (Rs.)	Credit (Rs.)
Capital		321100
Sales		473800
Purchases	313900	
Opening stock	94400	
Salaries	61200	
Motor cycle expenses	16600	
Rent	11400	
Rates	3000	
Insurance	3650	
Packing expenses	6900	
Electricity	16650	
Sundry expenses	2800	
Motor cycle	60000	
Furniture	15000	
Debtors	114400	
Creditors		76150
Cash in hand	3000	
Cash in bank	96900	
Drawings	51250	
	871050	871050

Additional information is given below.

1. Stocks at the end of the year is Rs. 124950/-
2. Prepayments;
   Insurance -Rs 1200
   Rates -Rs 800

3. Accrued expenses;
   Motor bike expenses -Rs 1600
   Rent -Rs 750
   Sundry expenses -Rs 900
4. Depreciation - to be charged on straight line basis
   Motor bike - 5%
   Furniture - 10%

Prepare the following.

(i) Trading and Profit and Loss account for the year ended 31st December 2012. **(5 marks)**

(ii) The Balance sheet at that date. **(5 marks)**

Q5 (a) Briefly explain the following. **(6 marks)**

(i) Functions of project management

(ii) Critical path method (CPM)

(b) A project consists of 12 activities, A – L. The duration of each activity, and the activities preceding each of them are as given below.

Activity	Duration	Preceding activities
A	1	-
B	6	A
C	3	A
D	1	C
E	6	C
F	2	C
G	5	B, D
H	1	E, G
I	2	E, G
J	1	F
K	1	H, I, J
L	1	K

(6 marks)

(i) Construct activity network diagram for the project and indicate earliest and latest event times.

(ii) Hence, find critical path and project duration. **(4 marks)**

Q6 (a) Briefly explain how the disciplinary process is organized in the hierarchy of an organization. **(4 marks)**

(b) Briefly discuss about the disciplinary procedure focusing on its main elements. **(4 marks)**

(c) What is meant by "grievance" in an organizational set up? Explain briefly grievance handling procedure addressing its main stages. **(4 marks)**

(d) Explain the informal groups in an organization focusing on the reasons for forming such groups, merits and demerits. **(4 marks)**

Q7 (a) Explain the Linear Programming as an optimization technique in resource management with its limitations. **(4 marks)**

(b) A manufacturer produces two types of electric fans, designated as F1 and F2. Both types require fabrication and assembly. Each of F1 requires 2h of fabrication and 1h of assembly, and each of F2 requires 2h of fabrication and 4h of assembly. The manufacturer can allocate only 260h for fabrication and 560h for assembly in the next month due to other operations. It has been estimated that profit of F1 and F2 are Rs. 800 and Rs. 1000 respectively.

(i) Formulate a linear programming problem for above data. **(4 marks)**

(ii) Using graphical method determine the planned production quantities of F1and F2 to maximize the profit assuming no limitation on demand for both F1 and F2. **(4 marks)**

(iii) If the demand for F1 is limited to 60 units and no such limitations for F2 what would be the planned quantities to maximize the profit? **(4 marks)**

Q8 (a) Briefly explain the merits and demerits of maintaining inventories of raw materials in a production plant. **(5 marks)**

(b) Derive an expression for simple economic order quantity in terms of annual holding cost (h), Ordering cost per order (A), and Annual demand (D), indicating the assumptions made. **(5 marks)**

(c) A company stores a bought out product for re-sale in the retail market. The following information is available. **(6 marks)**

Forecast sales (annual): 3,000 units
Holding cost: Rs. 6.00 per unit per year
Ordering cost: Rs. 250 per order
Unit price of the product: Rs. 60.00

Find the following.

(i) Economic order quantity
(ii) Time between orders
(iii) Average yearly running cost
(iv) Total cost
(v) 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	60
1,000 – 1,499	55
1,500 – 1,999	50
2,000 or more	45

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MEM5336 Management for Engineers

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Please disregard the Question 7 of the Question paper, and instead attempt the following question.

Q7. (a) Explain for what purposes the transportation optimization method could be used. (4 marks)

(b) A company has three warehouses W_1, W_2, and W_3 located in three different locations. A certain product distributed by the company needs to be supplied to three markets, M_1, M_2 and M_3. The costs of supplying a unit of the item from different warehouses to different markets are given in the table below. The stocks available in each of the warehouse and the demand from different markets are also given in the table below.

	M_1	M_2	M_3	Available Stock
W_1	6	4	1	50
W_2	3	8	7	40
W_3	4	4	2	60
Demand	20	95	35	

(i) Find the initial distribution schedule with the total cost indicating the method you used. (4 marks)

(ii) Improve the initial distribution schedule for minimum total cost, using a suitable technique. (8 marks)