

The Open University of Sri Lanka
Faculty of Engineering Technology
Department of Mechanical Engineering



Study Programme	: Bachelor of Technology Honours in Engineering
Name of the Examination	: Final Examination
Course Code and Title	: DMM5836 / MEM5336 Management for Engineers
Academic Year	: 2021/22
Date	: 8 th February 2023
Time	: 0930-1230hrs

General Instructions

1. Read all instructions carefully before answering the questions.
2. Answer for each question should commence from a new page.
3. Relevant charts/ codes are provided.
4. This is a Closed Book Test (CBT).
5. Answers should be in clear handwriting.
6. Do not use Red colour pen.

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 the key elements of Management Function and explain them briefly. (4 marks)
- (b) What are the advantages and disadvantages of Functional Organization structure? (4 marks)
- (c) What factors led to the evolution of Behavioural Management Theory? (4 marks)
- (d) Explain the essential qualities possessed by a good leader. (4 marks)
- (e) Write the steps that you would follow to determine the price of a commodity. (4 marks)

- (f) Differentiate between formal groups and informal groups in a business organization. (4 marks)
- (g) State the common steps of planning? Briefly explain each of them. (4 marks)
- (h) What are marketing variables? Explain each of them briefly. (4 marks)

SECTION B

- Q1 (a) State and describe the main components of human resources management process. (4 marks)
- (b) Why is it important to retain high quality human resources in any organization?
Discuss giving examples. (4 marks)
- (c) Basically, there are two sources from which a pool of qualified applicants may be recruited. Name these two sources and discuss advantages and disadvantages of them. (4 marks)
- (d) Motivation is the core of management. Explain Maslow's hierarchy of needs and the importance of it in human resource management. (4 marks)
- Q2 (a) Explain why control of stock volume /inventory is desirable stating at least three reasons. (4 marks)
- (b) The demand for a certain product is 800 units per year. The fixed administrative cost of placing an order is Rs.70 and the stock holding cost is Rs.8 per unit per year. Cost of one item is Rs 30. Calculate the following.
- (i) Economic lot size. (4 marks)
- (ii) How often orders should be placed. (4 marks)
- (iii) The average yearly cost. (4 marks)

- Q3 (a) What are the different concepts in marketing?
Briefly describe the above concepts with practical examples. (5 marks)
- (b) What are the '4P's of marketing mix? Explain each 'P' using suitable examples. (5 marks)
- (c) Select any product which you are familiar with and describe how you contemplate to promote the marketing of that product using labeling, packaging and advertising. (6 marks)

- Q4 (a) Name three methods used for finding a feasible solution of a transportation problem. (5 marks)
- (b) Amount of production of a crop in provinces P1, P2, P3 is 19, 37, 34 metric tons respectively. The demand for the crop in food processing units of a company situated in districts D1, D2, D3, D4 is 16, 18, 31, 25 metric tons respectively. The cost for transporting one metric ton is given in the table.

	D1	D2	D3	D4
P1	5	3	6	2
P2	4	7	9	1
P3	3	4	7	5

- (i) Find a feasible solution for the transportation problem using **least cost method**. (6 marks)
- (ii) Find the optimum solution and minimum transportation cost. (5 marks)
- Q5 (a) Discuss how leadership differs from management and briefly discuss the functions of leadership of an organization. (5 marks)
- (b) What are the different styles of leaderships that can be applied to an organization? (6 marks)
Give one merit and one demerit for each style.
- (c) What are the functions of leadership? Explain them briefly. (5 marks)

Q6 (a) Discuss two techniques used in activity scheduling of a project.

(3 marks)

(b) Following table shows the activities involved in completing a project, duration of each activity and its dependency.

Activity	Dependency	Task duration (weeks)
A	Start	8
B	A	12
C	A	16
D	A	20
E	C	8
F	B,C	24
G	B	16
H	F,G	20
J	D,E,F	12
K	J,H	8
Finish	K	-

(i) Draw the network diagram.

(4 marks)

(ii) Find the critical path.

(3 marks)

(iii) What is the total project duration?

(3 marks)

(iv) Mention the activity you may delay most, so that it will not affect the total project duration.

(3 marks)

Q7 (a) Explain the following related to cost-volume-profit analysis with an aid of graphical representation.

(4 marks)

(i) Variable cost

(ii) Fixed cost

(iii) Contribution per unit

(iv) Break-even point

- (b) A factory manufacturing electric bulb has a monthly capacity of 10000 bulbs. The variable cost for a bulb is Rs. 20. The fixed overhead cost per month is Rs. 16000. The selling price of a bulb is Rs. 60. Calculate the following.
- (i) Contribution per unit. (3 marks)
 - (ii) Break -even point volume. (3 marks)
 - (iii) Break-even revenue. (3 marks)
- (c) If the number of bulbs sold is 90% of the capacity, determine the profit. (3 marks)

- Q8 a) Explain the following terms use in Financial accounts.
- i) Ledger (2 marks)
 - ii) Balance sheet (2 marks)
- b) The following balances were extracted from the ABC Company on 31st December 2021. Using the balances and the additional information given below prepare the following statements.
- i) Trading and Profit and loss account for the year ending 31st December 2021. (6 marks)
 - ii) The Balance sheet as at that date. (6 marks)

Particulars	Debit (Rs.)	Credit (Rs.)
Cash in hand	250	
Purchases	25,000	
Stock as at 1 st January 2021	7,000	
Debtors	10,000	
Plant and Machinery	12,000	
Furniture	3,000	
Bills receivable	4,000	
Rent and Taxes	2,000	
Wages	3,200	
Salaries	3,760	
Capital		20,000
Bills payable		5,410
Creditors		4,800
Sales		40,000
Total	70,210	70,210

Additional information.

1. Closing stock at 31st December 2021 - Rs. 5,000
2. Outstanding wages - Rs. 500
3. Depreciation on Plants and Machinery at 10% and Furniture at 5%.

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