

027

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



Study Programme	:	Bachelor of Science Honors in Engineering
Name of the Examination	:	Final Examination
Course Code and Title	:	DMM5836 Management for Engineers
Academic Year	:	2022-2023
Date	:	08 February 2024
Time	:	0930-1230 hrs
Duration	:	3 hours

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.
7. This question paper has two sections, **SECTION A** and **SECTION B**.
8. Answer **any five (5)** questions from **SECTION A** and **any five (5)** questions from **SECTION B**

SECTION A- Answer any five (5) questions.

- (a) What are the four functions of management? Explain them briefly. (4 Marks)
- (b) What are the five levels identified by Maslow in his theory of motivation? (4 Marks)
- (c) Distinguish between the Functional and Matrix organizational structures. (4 Marks)
- (d) What are the key elements to be considered when designing an organization structure for an organization? Briefly explain each element. (4 Marks)
- (e) Explain the importance of activity network analysis as a planning tool in project management. (4 Marks)
- (f) What are the commonly used techniques in project evaluation. (4 Marks)
- (g) Explain the term, Break-even point, with reference to costing. (4 Marks)
- (h) Mention two principles of scientific management theory of Fredrick Taylor. (4 Marks)

SECTION B – Answer any five (5) questions.

Q1.

- (a) After the industrial revolution management theories started evolving considerably. What were the main reasons that caused the evolution of Behavioural Management Theory? (6 Marks)
- (b) Henry Fayol in his theory of administrative management, laid down several principles for effective management, State five of such principles. (4 Marks)
- (c) SWOT analysis enables managers to develop a strategic profile of the organization. Explain the SWOT analysis emphasizing the importance of each factor considering the status of the country. (6 Marks)

Q2.

- (a) State and describe three main components of human resources management process. (6 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. (6 Marks)

Q3.

- (a). Inventory management process involves different types of costs. List down four of them. (4 Marks)
- (b) The demand for a certain product is 15,000 units per year. The fixed administrative cost of placing an order is Rs.2000 and the stockholding cost is Rs.20% of the cost of item per unit per year. The cost of one item is Rs 4500. Calculate the following.
 - i. Economic lot size (4 Marks)
 - ii. Frequency of placing orders (4 Marks)
 - iii. The average yearly cost (4 Marks)

Q4.

- (a) Marketing is a human activity directed at satisfying needs and wants through the exchange process. Explain, 4Ps of “Marketing Mix”? (6 Marks)
- (b) What are the uncontrollable variables in marketing? (4 Marks)
- (c) Explain the difference between Monopoly, Duopoly and Oligopoly markets. (6 Marks)
- (d) State the importance of market segmentation and name four different methods of market segmentation. (4 Marks)

Q5.

- (a) Name three methods used for finding a feasible solution to a transportation problem. (3 Marks)
- (b) Amounts of production of Cement in factories A, B, C is 25, 35, 40 metric tons respectively. The warehouse capacities at W, X, Y, Z are 20, 30, 35, 15 metric tons respectively. The cost for transporting one metric ton is given in table Q5-1.

Table Q5-1

	W	X	Y	Z
A	3	1	7	4
B	2	6	5	9
C	8	3	3	2

- i. Find a feasible solution for the transportation problem using any of the methods mentioned in part (a), and state the method you used. (8 Marks)
- ii. Find the optimum solution and the minimum transportation cost (5 Marks)

Q6.

- (a) Discuss the importance of critical path analysis in **project resource planning**.

(3 Marks)

- (b) Following table shows the activities involved in completing a project, duration of each activity and its immediate predecessor:

Table Q6-1

Activity	Immediate Predecessor	Task duration (weeks)
A	-	2
B	A	5
C	A	8
D	B	8
E	B	10
F	B	4
G	C, F	7
H	D, E	4
I	G, H	3

- i. Draw the network diagram
- ii. Find the critical path
- iii. What is the total project duration?
- iv. Mention the activity you may delay most so that it will not affect the total project duration.

(5 Marks)

(4 Marks)

(2 Marks)

(2Marks)

Q7.

(a) Explain the following terms used in financial accounts.

i. Ledger

ii. Balance Sheet

(4 Marks)

(b) The table Q7-1 shows balances extracted from XYZ company on 31st December 2023.

Additional information:

1. Closing stock on 31st December 2023 - Rs 50,000

2. Outstanding wages - Rs 5,000

3. Depreciation of Plants and Machinery at 10% and Furniture at 5%.

Using the balances and the additional information given above, prepare the following statements.

i. Trading and Profit and loss account for the year ending 31st December 2023 (6 Marks)

ii. The Balance sheet as at that date. (6 Marks)

Table Q7-1

Particulars	Debit (Rs)	Credit (Rs)
Cash in hand	2,400	
Purchases	240,000	
Stock as at 1 st January 2023	70,000	
Debtors	100,000	
Plant and Machinery	120,000	
Furniture	30,000	
Bills receivable	40,000	
Rent and Taxes	20,000	
Wages	32,000	
Salaries	37,600	
Capital		200,000
Bills payable		44,000
Creditors		48,000
Sales		400,000
Total	692,000	692,000

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