

**S'07 : 3 FN : IC 402 (1411)**

**ENGINEERING MANAGEMENT**

*Time : Three hours*

*Maximum Marks : 100*

*Answer FIVE questions, taking ANY TWO from Group A ,  
ANY TWO from Group B and ALL from Group C .*

*All parts of a question ( a, b, etc. ) should  
be answered at one place.*

*Answer should be brief and to-the-point and be supplemented  
with neat sketches. Unnecessary long answers may  
result in loss of marks.*

*Any missing or wrong data may be assumed suitably giving  
proper justification.*

*Figures on the right-hand side margin indicate full marks .*

**Group A**

1. (a) Explain the classic three-fold concept for management as proposed by Harbison and Myers. 6
- (b) What are the different functions of management? Briefly explain the roles of managers as per Mintzberg's findings. 2 + 6
- (c) Classify organizations by the nature of authority? Explain one of them. 2 + 4

2. (a) Define leadership and motivation. Explain Herzberg's two-factor model of motivation. 3 + 7

(b) How do forecasting and decision-tree techniques help in planning and decision making in an organization? 5 + 5

3. (a) Why is the facility location decision important to an organization? What factors do affect the choice of locations in manufacturing? How do the location decisions for service facilities differ from that of manufacturing facilities? 4 + 4 + 4

(b) What is layout planning? Based on the firm's flow strategy, how many basic types of layout are possible? How do you design for a process layout? 2 + 2 + 4

4. (a) What is the purpose of materials management? What factors do contribute significantly in material requirement planning and how? 2 + 7

(b) What are the costs for holding inventories? What types of inventories does a business own? 2 + 3

(c) Perform ABC analysis using the following data: 6

Item	Units	Unit Price (Rs.)
1	700	5.00
2	2400	3.00
3	150	10.00
4	60	22.00
5	3800	1.50
6	4000	0.50

Item	Units	Unit Price (Rs.)
7	6000	0.20
8	300	3.50
9	30	8.00
10	2900	0.40
11	1150	7.10
12	410	6.20

**Group B**

5. (a) Present the account form as well as report form of a balance-sheet. 4

(b) What is investment analysis? Why is it of great importance to a firm? Discuss a method of evaluating investment proposals. 2 + 3 + 5

(c) What is the present value of the following cash stream, if the discount rate is 14 per cent? 6

Year	0	1	2	3	4
Cash flow	5000	6000	8000	9000	8000

6. (a) Define quality. What are the costs of poor quality? 2 + 3

(b) What are the five pillars of total quality management? Define Deming's PDCA cycle. Explain Juran's trilogy. 1 + 3 + 3

(c) Define assignable causes and common causes of variation. The ABC company produces incandescent light bulbs. Following data on the number of lumens for 40 W light bulbs were collected when the process was in control:

Sample	Observations	
	1	2
1	600	610
2	590	600
3	580	570
4	620	600
5	570	620

Construct  $\bar{x}$  chart [the value of  $A_2$  for  $n = 2$  is 1.88].

3 + 5

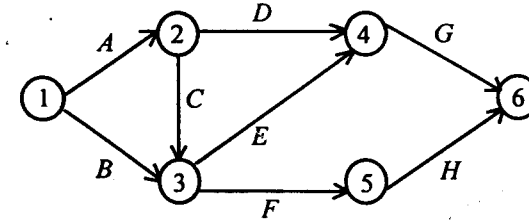
7. (a) What is product development? Why is product development a critical determinant of an organization's success? Define product life cycle. 2 + 3 + 2
- (b) Define marketing and marketing management. What are the key factors affecting pricing decision? Explain cost approach for pricing. 3 + 3 + 3
- (c) A process costs Rs. 200.00 to set up. The run time is 5 min per piece and the run cost is Rs. 30.00 per hour. Determine the (i) fixed cost and variable cost; and (ii) total cost and unit cost for a lot of 500. 2 + 2
8. (a) Define project. What are the elements of a successful project? What tools are available for scheduling and controlling projects? 2 + 2 + 2

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(Continued)

(b) Given the following network and activity times:



Activity	Optimistic Time	Most Likely Time	Pessimistic Time
A	6	7	14
B	8	10	12
C	2	3	4
D	6	7	8
E	5	5.5	9
F	5	7	9
G	4	6	8
H	2.5	3	3.5

- (i) Calculate the expected time and variance for each activity. 7
- (ii) What is the critical path? 2
- (iii) How long will it take to complete this project? 1
- (iv) What is the probability that the project will be completed within 25 days? 4

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( Turn Over )

### Group C

9. Write the *correct* answer for the following: 2x10

(i) The 'father of scientific management' is

- (a) F. W. Taylor
- (b) F. A. Gilbreth
- (c) M. L. Cooke
- (d) H. Emerson.

(ii) The 'classical management principles in terms of human factors' was proposed by

- (a) Elton Mayo
- (b) M. P. Follett
- (c) F. W. Taylor
- (d) Kurt Lewin.

(iii) Anthropology is one of the disciplinary bases for management, which deals with

- (a) measurement and analysis of physical factors in achieving efficiency
- (b) development of a sociotechnical model for employees' health and safety improvement
- (c) cultural variations and discoverable patterns of behaviour from history and environment
- (d) allocation of scarce resources with orientation to future.

(iv) The management function 'organizing' focuses on the

- (a) process by which the structure and allocation of jobs are determined
- (b) course of actions that can be chosen from available alternatives
- (c) process by which manager anticipates the future
- (d) process by which managers select, train, promote, and retire subordinates.

(v) The following is *not* a basic component of an inventory control system :

- (a) Planning what inventory to stock and how to acquire it
- (b) Forecasting the demand for parts and products
- (c) Organizing the internal inventory users and explain how they can help control inventory costs
- (d) Controlling inventory levels.

(vi) PERT never uses

- (a) activities with probabilistic times
- (b) dummy activities
- (c) activity variance estimates
- (d) None of the above.

1. (vii) If the cost of manufacturing (direct material and direct labor) is 60% of sales and profit is 10% of sales, what would be the improvement in profit. If the cost of manufacturing is reduced from 60% to 50% keeping other expenses constant?

(a) 50%

(b) 200%

(c) 75%

(d) 100%.

(viii) A company requires 9000 units of a certain item annually. It costs Rs. 3-00 per unit. The cost per purchase order is Rs. 300-00 and the inventory carrying cost per unit per year is 20 per cent of the unit cost. The economic order quantity for the company is

(a) 4000 units

(b) 3500 units

(c) 3000 units

(d) 5000 units.

(ix) Benchmarking used to develop objectives by

(a) obtaining reports from the government

(b) using SMART objectives

(c) making comparisons with excellent or best-practice companies

(d) listening to suggestions from employees.

(x) Managers who displays Theory X behaviours are

(a) autocratic

(b) democratic

(c) participative

(d) situational.