

Industrial Management

(ME – 806)

Time: 3 hours

Full Marks: 70

*Use Separate Answer Script for each half.
Answer six questions taking three from each half.
The questions are of equal value.*

First Half

Answer Question No. 1 and any two from rest.

1. Godha Engineering Works specializes in the installation of heating and air conditioning equipment in a metropolitan area of about one million people. Although the company usually installs nationally known equipment, it engages in limited manufacturing of certain components needed for commercial installations. Since it was established some forty years ago, the company has earned a reputation for quality work.

Prabhu Lal has been with the company as sales representative for two years. During this period he believes that the company has missed a number of opportunities to obtain lucrative contracts because of the conditions under which he is forced to operate. Particularly in the case of commercial installations, he does not have the authority to make any decision or commitments during preliminary contract negotiations. He has to postpone discussion of price, completion time, and credit terms until after each of the technical experts in these areas has studied the job and made formal commitments. By this time, some competing firm already completes negotiations and gets the contract. Prabhu Lal considers this a continuing problem, and feels hampered.

- (a) In what respects do you think Prabhu Lal is justified or not justified in his complaint?
 - (b) What can be done on a company-wide basis to improve the situation?
2. (a) Define Management. List its function. What is meant by the “Management Process”? Elaborate.
- (b) Discuss the importance of management in the present day world. Is it a science or an art? Explain.
3. Managers at all levels require some competence in each of the technical, human and conceptual skills, albeit with difference in emphasis. Analyze this statement with suitable examples from your knowledge.
4. (a) Describe the systems approach to management. Discuss the contributions of the human behaviour in the different schools of management.
- (b) What are planning? Explain the classifications of planning premises.
5. (a) Briefly explain the components of planning. Explain the advantage and limitations of planning.
- (b) Distinguish between production planning and production control and state their objectives.

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Second Half

Answer any three questions

The questions are of equal value

6. There are three location sites and five relevant factors like transportation cost per week, labour cost per week, finishing material supply, maintenance facilities and community attitude. The costs are in rupees whereas for the last three factors, points are assigned on 0 – 100 scale. The data are given below:

Sl. No.	Factors	Potential Location		
		S1	S2	S3
1.	Transportation cost per week (Rs.)	800	640	500
2.	Labour cost per week (Rs.)	1180	1020	1240
3.	Finishing material supply	30	80	70
4.	Maintenance facilities	60	20	30
5.	Community attitude	50	80	70

The location analyst has pre- established weights for various factors. This includes a standard of 1.0 for each Rs. 10 a week of economic advantage. Other weights applicable are 2.0 on finishing material supply, 0.5 on maintenance facilities and 2.5 on community attitude. Also the organization prescribes a minimum score of 30 for maintenance facilities. Select a suitable site based on the above given data.

7. Write short notes on:

- Fixed position layout.
- Group layout (Cellular layout or Combination layout)

8. (i) The rate of use of a particular raw material from stores is 20 units per year. The cost of placing and receiving an order is Rs. 40/-. The cost of each unit is Rs.100/-. The cost of carrying inventory in percent per year is 0.16 and it depends upon the average stock. Determine the economic order quantity. If the lead time is 3 months, calculate the reorder point.

(ii) Enumerate classical purchase order quantity inventory model.

9. (i) Define Quality, Quality control and Quality assurance.

(ii) The current capacity in amperes of 5 random samples from each batch is recorded as per following table. There are 10 such batches. Given that for sample size of 5, the value for $A_2 = 0.577$, the value of $D_3 = 0$ and value of $D_4 = 2.114$. Construct \bar{X} bar and R chart and comment.

Sl. No.	X1	X2	X3	X4	X5

1.	43	61	64	69	72
2.	46	54	67	71	79
3.	18	23	74	76	81
4.	37	49	56	67	70
5.	41	44	64	70	74
6.	21	24	23	45	51
7.	56	61	61	62	84
8.	25	38	40	46	71
9.	24	34	46	51	66
10.	33	38	40	49	58

10. A project consists of nine activities whose time estimates (in weeks) and other characteristics are given below:

Activity	Preceding activity(ies)	Time estimates (weeks)		
		Most optimistic	Most likely	Most pessimistic
A	-	2	4	6
B	-	6	6	6
C	-	6	12	24
D	A	2	5	8
E	A	11	14	23
F	B, D	8	10	12
G	B, D	3	6	9
H	C, F	9	15	27
I	E	4	10	16

- (i) Show the PERT network for the project.
- (ii) Identify the critical activities.
- (iii) What is the expected project completion time and its variance ?