

MANAGEMENT PROGRAMME**Term-End Examination****June, 2010****MS-5 : MANAGEMENT OF MACHINES AND MATERIALS**

Time : 3 hours

Maximum Marks : 100

(Weightage 70%)

Note : Section - A has five questions that carry 20 marks each. Attempt any three questions from this section. Section - B is compulsory and carries 40 marks.

SECTION - A

1. (a) Why does the "proper" operations strategy keep changing for companies that are world-class competitors ? 10+10
 (b) Some suggest that customer expectation is the key to service success. Give an example from your own experience to support or refute this assertion. 10+10
2. (a) "You don't inspect quality into a product; you have to build it in". Discuss the implications of this statement. 10+10
 (b) Find the economic order quantity and the reorder point, given the following data :
 Annual demand (D) = 1000 units.
 Ordering cost (S) = Rs. 50 per order. Holding cost (H) = Rs. 12.50 per unit per year
 Cost per unit (C) = Rs. 125.00. Lead time (L) = 5 days. Assume 250 working days in a year.
3. (a) Why are work measurement and time study activities still necessary today ? 10+10
 (b) A company that produces pleasure boats has decided to expand one of its lines. Current facilities are insufficient to handle the increased workload, so the company is considering three alternatives, A (new location), B (subcontract), and C (expand existing facilities). Alternative A would involve substantial fixed costs but relatively low variable costs :
 fixed costs would be Rs. 25,000,00 per year, and variable costs would be Rs. 5000 per boat.

Subcontracting would involve a cost per boat of Rs. 25,000 and expansion would require an annual fixed cost of Rs. 5,00,000 and a variable cost of Rs. 10,000 per boat.

- (i) For what range of output would each alternative yield the lowest total cost ?
- (ii) Which alternate would yield the lowest total cost for an expected annual volume of 150 boats ?

4. (a) How does the role of a project manager differ from that of a traditional functional manager ? 10+10

- (b) An industrial engineer conducts a time study on an operator and determine that a specific task takes about two minutes to complete. The engineer estimates that the particular operator that she is observing is working about 20 percent faster than normal. The company has an allowance factor of 15 percent of job time for personal needs, delays, and fatigue.

Calculate the standard time for this task.

5. (a) Explain value engineering giving its area of application in some industry which you are aware of. 10+10

- (b) There are seven jobs that must be processed in two operations. A and B. All seven jobs must go through A and B in that sequence A first, then B.

- (i) Determine the optimal order in which the jobs should be sequenced through the process using these times.

Job	Process A Time	Process B Time
1	9	6
2	8	5
3	7	7
4	6	3
5	1	2
6	2	6
7	4	7

- (ii) Draw a graph similar to the solved problems showing the sequence of jobs.
- (iii) What is the total completion time for all seven jobs ?

SECTION - B

6. The following activities are part of a project to be scheduled using CPM : 4x5=20

Activity	Intermediate Predecessor	Time (weeks)
A	-	6
B	A	3
C	A	7
D	C	2
E	B, D	4
F	D	3
G	E, F	7

- (a) Draw the network
 - (b) What is the critical path ?
 - (c) How many weeks will it take to complete the project ?
 - (d) How much slack does activity B have ?
7. Write short notes on *any four* of the following : 4x5=20
- (a) Preventive Maintenance
 - (b) Automated storage/retrieval
 - (c) CAD/CAM
 - (d) ABC Analysis
 - (e) Tero Technology
 - (f) LIFO system
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