

2010

PRODUCTION AND MATERIALS
MANAGEMENT

SIXTH PAPER

Full Marks : 100

Time : 3 hours

*The figures in the margin indicate full marks
for the questions*

1. Answer any five questions from the following : 5×5=25

- (a) Briefly describe five functions of production management.
- (b) Distinguish between flow line and batch production systems with suitable examples.
- (c) Give reasons of the inappropriateness of aggregate planning for service industries.
- (d) Given the following parents and components, construct a product tree. Figures in the parentheses, show the

quantities per item. How many Gs are needed to make 10A?

Parent	A	B	C	E
Components	B (2)	E (2)	G (2)	G (4)
	C (4)	F (1)		F (3)
	D (4)			H (2)

- (e) Define the terms 'critical path', 'event slack' and 'free slack'.
- (f) Describe the two classifications of contract purchasing.
- (g) Explain different costs associated with inventory management.
- (h) What are the differences between quality assurance and quality control?
2. Answer any *three* questions from the following : 10×3=30
- (a) Describe the major operational level decisions in production management.
- (b) What are the advantages of exponential smoothing over moving average and weighted moving average?
- (c) "Productivity and quality move in the same direction." Discuss the relationship between the two in context to the statement.

- (d) Consider the following jobs and their processing time (hr.) at corresponding machines :

		M 1	M 2	M 3
Job	A	13	5	9
	B	5	3	7
	C	6	4	5
	D	7	2	6

Using Johnson's rule, find the optimal sequence.

- (e) Suggest ordering policy for the following inventory situation :

Annual demand	7200 units
Cost per unit	Rs 4
Ordering cost/order	Rs 20
Inventory carrying charges	20%
Procurement lead time	15 days
Safety stock required for half-a-month consumption.	

3. Answer any *three* questions from the following : 15×3=45

- (a) Discuss the methods of centralised and decentralised purchasing and their advantages and limitations.
- (b) What are the objectives of production planning and control? Discuss in detail the three phases of PP and C.

- (c) Explain the role of inspection as a tool to control quality. What are the objectives of inspection? Discuss in detail different types of inspection and their advantages and disadvantages.
- (d) Consider a project having seven activities and the following precedence relationship :

<i>Activity</i>	<i>Predecessor</i>	<i>Duration (week)</i>
<i>a</i>	—	6
<i>b</i>	<i>a</i>	3
<i>c</i>	<i>a</i>	4
<i>d</i>	<i>a</i>	6
<i>e</i>	<i>c</i>	4
<i>f</i>	<i>b</i>	2
<i>g</i>	<i>d, e, f</i>	2

- (i) Draw a network of the project and identify the critical path for the project.
- (ii) Calculate the slack for the activities in the network.
- (iii) If you face resource constraints, which of the activities would you consider for rescheduling to optimize the resource utilization?

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