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Total Number of Pages: 2

**B.TECH**  
**PCME4404**

**8<sup>th</sup> Semester Regular / Back Examination 2016-17**  
**PRODUCTION AND OPERATION MANAGEMENT**  
**BRANCH(S): MECH, PLASTIC**

**Time: 3 Hours**

**Max Marks: 70**

**Q.CODE: Z279**

**Answer Question No.1 which is compulsory and any five from the rest.**  
**The figures in the right hand margin indicate marks.**

**Q1 Answer the following questions: (2 x 10)**

- a) What are the limitations of Product layout?
- b) What is Cost of quality?
- c) What are the difference between Job Enlargement and Job Enrichment?
- d) What do you mean by Anticipation Inventory?
- e) List the name of various Qualitative techniques of demand forecasting.
- f) By means of a graph, explain the quantity cost relationship in inventory.
- g) What do you mean by pure strategies?
- h) Explain the term 'Poka yoke'.
- i) What is the difference between the value analysis and value engineering?
- j) Write the name of various Priority Dispatching Rules used in job-shop scheduling.

**Q2 a) What is work sampling? How is it different from stop watch time study? (4)**

- b) A bookseller buys 2500 copies of a book 'Production Planning' every year. The OC is Rs.1000 per order. The CC is 5% of the inventory value. The price of a copy of the book is Rs. 400. The publisher of the book offers 1% discount if purchases are made in lot of 1250 or more. Should the bookseller opt for the discount option or the follow the EOQ model? (6)**

**Q3 a) A company needs to produce 4000 boxes per 40 hour to meet upcoming holiday demand. The information regarding work elements in terms of times and immediate predecessors are given (5)**

Work Element	Time(Min)	Immediate Predecessors
A	40	None
B	80	A
C	30	A
D	25	None
E	20	C,D
F	15	B,E

Find the minimum number of work stations, balance delay and line efficiency.

**b) What is FMS? How is it different from CIM? (5)**

- Q4** a) Briefly explain different tools for concurrent engineering. (5)  
 b) What are the types of demand pattern in forecasting? Explain them with suitable sketches. (5)
- Q5** Find the makespan for the following flow shop problems and also draw Gantt chart. (10)

Machine		M1	M2	M3	M4
Job	A	5	4	8	9
	B	4	8	3	6
	C	2	3	5	8
	D	4	5	4	3

- Q6** a) Define line of balance. (2)  
 b) Udampur Distilleries Ltd. Has four existing facilities – W, X, Y and Z. The details of these facilities are given in following table. The company wants to locate a new facility such that the total transportation cost is minimum. Advise the management of the company about the best possible location using the simple median model. Also, find the total transportation cost. (8)

Existing Facility	Coordinate location (x , y)	Cost of moving one unit by unit distance (Rs)	Annual load(units)
W	(20,30)	10	279
X	(70,10)	10	473
Y	(50,40)	10	350
Z	(10,80)	10	266

- Q7** a) What is Master production scheduling? Explain it with an example. (5)  
 b) What are the features of batch production? Derive the expression for Economic Batch Quantity. (5)
- Q8** Write short notes on any TWO: (5 x 2)
- JIT
  - Quality Circle
  - ISO 9000
  - Supply Chain Management