

**B.Tech. – VIEP – MECHANICAL ENGINEERING
(BTMEVI)**

Term-End Examination

00195

December, 2014

**BIMEE-012 : PRODUCTION AND OPERATIONS
MANAGEMENT**

Time : 3 hours

Maximum Marks : 70

Note : Attempt any five questions. All questions carry equal marks. Use of calculator is permitted.

1. (a) Enumerate at least five objectives of Production and Operations Management. 7
- (b) Why is it necessary to view production/operation as a system ? Explain. 7
2. (a) Compare and contrast product layout and process layout with a neat sketch. 7
- (b) Explain the steps involved in new product design with the help of flow diagram. 7

3. (a) Explain the principal techniques of work measurement and their applications. 7
- (b) The observed times and performance ratings for the five elements are given below. Compute the standard time assuming rest and personal allowance as 15% and contingency allowance as 2% of the basic time : 7

Element	1	2	3	4	5
Observed time (min.)	0.2	0.08	0.50	0.12	0.10
Performance rating	85	80	90	85	80

4. (a) Discuss at least five factors that influence the selection of location for a plant. 7
- (b) How does MRP differ from inventory control system and MRP-II ? Explain. 7
5. (a) Explain the steps involved in capacity planning. 7
- (b) Explain the techniques, that are used for Statistical Quality Control (SQC). 7

6. A project consists of 8 activities. Precedence relation and activity times are given below. Draw the network and compute the project completion time and total float of each activity :

14

Activity	Immediate Predecessor	Activity Time (weeks)
P	—	12
Q	—	20
R	—	28
S	R	12
T	P, Q	28
U	T, S	12
V	S	8
W	U, V	8

7. A paint shop with an automatic spray paint facility has 8 jobs on hand with estimated processing times and due dates as given below :

Job	1	2	3	4	5	6	7	8
Processing Time (days)	5	8	6	3	10	14	7	3
Due date (days)	15	10	15	25	20	40	45	50

The manager is convinced that the SPT rule is the best to develop a job processing schedule especially because of the fact that a flat penalty of ₹ 500 is to be paid for each job completed after due date.

- (a) Compute the SPT sequence and the penalty to be paid. 10
- (b) Can you suggest a better sequence ? If so, what is the penalty of the suggested sequence ? 4
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