| BIMEE-012 |

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

Term-End Examination

December, 2017

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BIMEE-012 : PRODUCTION AND OPERATIONS MANAGEMENT

Time : 3 hours   *Maximum Marks : 70*

Note : *Attempt any **five** questions. All questions carry equal marks. Use of non-programmable scientific calculator is permitted. Assume missing data suitably.*

1. (a) Distinguish between Production Management and Industrial Engineering.   7

    (b) What are the steps involved in the development of a new product ? Discuss the factors affecting the product design.   7

2. (a) Define Process Design. Explain its framework by means of a block diagram.   7

    (b) What are the benefits of a good plant layout ? Discuss the guiding principles in designing a layout of facilities in a plant.   7

3. (a) What are the basic inputs for MRP ? Discuss the similarities and differences between the traditional MRP and MRP II. 7

(b) The observed times and performance ratings for 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. Construct an activity network for a production schedule with the following information :

Activity (i − j)	Time in Hours	Activity (i − j)	Time in Hours
1 − 2	4	5 − 6	4
1 − 3	1	5 − 7	8
2 − 4	1	6 − 8	1
3 − 4	1	7 − 8	2
3 − 5	6	8 − 10	5
4 − 9	5	9 − 10	7

Identify the critical path. Calculate the total completion time and determine the total float for each activity. 14

5. (a) Distinguish between Design Capacity and System Capacity. 7

    (b) What is Job Design ? Explain the method of a job design with the help of a suitable example. 7

6. (a) What is Performance Rating ? What are the different rating techniques ? Explain any one of them briefly. 7

    (b) How is Quality defined ? Differentiate between quality control and quality assurance. 7

7. (a) Explain the various strategies associated with aggregate planning. 7

    (b) Discuss the objectives of work study. Describe how standard time for an activity is determined. 7

8. Write short notes on any *four* of the following : $4 \times 3\frac{1}{2} = 14$

   (a) Competitive Advantage

   (b) Operations Capacity

   (c) Operations Standards

   (d) Work Measurement

   (e) Operations Scheduling

   (f) Managing for Quality