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BIMEE-010

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

Term-End Examination

June, 2015

00336

BIMEE-010 : MECHANICAL SYSTEM DESIGN

Time : 3 hours

Maximum Marks : 70

Note : Answer any five questions. All questions carry equal marks. Use of scientific calculator is permitted. Assume missing data, if any.

1. (a) Explain how you would develop the design specifications of a Heating duct insulation system for inclusion in need statement.
- (b) Describe the various approaches and techniques used in Concurrent Engineering. 7+7
2. (a) Discuss the need of modelling of a system. Explain the various types of models used in modelling.
- (b) Explain the importance of optimization in a network model used in Automobile Industry. 7+7

3. (a) Develop a simulation model for the study of an Inventory control system in an Automobile company. Explain how you would effectively manage the inventory.
- (b) Explain the significance of financial analysis for the evaluation of a system. How is it useful in the designing of a system? 7+7
4. (a) What do you understand by decision tree analysis ? How is it useful in making decisions ? Explain.
- (b) What is simulation ? Explain the steps followed in simulating a system. 7+7
5. (a) Explain, with the help of suitable examples, the methodology of system analysis based on black-box approach. Illustrate your answer with reference to a manufacturing company.
- (b) List and explain the major models used in system analysis/design. 7+7

6. (a) Draw the network from the information given in the following table. Find the critical path and total duration of project.

Activity	Duration (Days)
1 - 2	9
1 - 3	8
1 - 4	15
2 - 4	5
3 - 4	10
4 - 5	2

- (b) Discuss two basic approaches to large scale system design. 10+4

7. Write short notes on any *four* of the following : 14

- (a) Planning Horizon
 - (b) Expected Monetary Value
 - (c) Probability Density Function
 - (d) Utility Value
 - (e) Linear Graph Modelling
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