

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

Term-End Examination

June, 2017

00354

BIMEE-010 : MECHANICAL SYSTEM DESIGN

Time : 3 hours

Maximum Marks : 70

Note : Answer any *five* questions. All questions carry equal marks.

1. (a) Discuss the need of modelling of a system. Briefly explain the various types of models used. 7
- (b) Describe briefly the State Theory Approach and discuss its essential features. 7
2. (a) How is feasibility assessment important in system evaluation ? Discuss the significance of financial analysis. 7
- (b) Discuss the general goals and purposes of an optimization process. 7

3. (a) Explain four essential attributes in defining a system and give four essential definitions of systems. 7

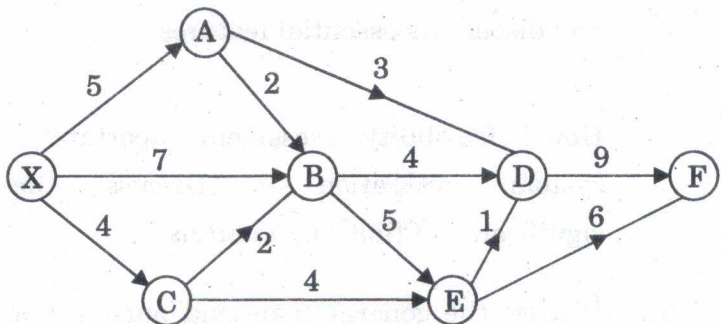
(b) With the help of suitable examples, differentiate between Iconic Model and Analog Model. 7

4. (a) Explain the following : $3\frac{1}{2} + 3\frac{1}{2}$

(i) Combinational optimization

(ii) Subjective optimization

(b) For the network flow diagram shown below, determine the maximum flow using a suitable algorithm. 7



5. (a) Discuss the factors that have promoted the development and rapid deployment of concurrent engineering in industries. 7
- (b) Explain how you would develop the design specifications of a product for inclusion in need assessment. 7
6. (a) Explain how a mathematical model is formulated for a compound bar system. 7
- (b) Why is financial analysis made for evaluation of a system ? Discuss how it is useful in designing a system. 7
7. Write short notes on the following : $4 \times 3 \frac{1}{2} = 14$
- (a) Advantages of System Approach
- (b) Graph Modelling and Analysis Process
- (c) Expected Monetary Value
- (d) Feasibility Assessment
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