No. of Printed Pages : 3

**BIME-018**

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

## Term-End Examination

00092

## December, 2016

## BIME-018 : COMPUTER AIDED DESIGN

*Time : 3 hours* *Maximum Marks : 70*

***Note :*** *Attempt any **five** questions. All questions carry equal marks. Use of scientific calculator is permitted. Standard notations and symbols have usual meanings.*

**1.** (a) How can you integrate CAD/CAM systems ? Discuss the necessity and the importance of integrating CAD/CAM. 7

(b) What are the basic techniques for generation of graphic images ? Explain with suitable examples. 7

**2.** (a) What are the input devices applied in a CAD system ? Explain any two with sketches. 7

(b) Why is the parametric representation of curves better as compared to analytic representation ? 7

3. (a) What are Bezier curves ? Write their important properties. 7

(b) Why do we need synthetic surfaces ? Discuss in detail. Give suitable examples of synthetic surfaces. 7

4. (a) What is solid modelling ? Explain the various methods of solid modelling with suitable examples. 7

(b) What is the function of a frame buffer ? Compute the frame buffer size for a CRT display terminal of 640 × 480 resolution with 96 pixels per inch. 7

5. (a) Describe, in brief, the bicubic surface method of surface modelling. 7

(b) What is a wire frame model ? Enlist the limitations of wire frame model compared with solid model. 7

6. (a) What are the various types of graphic standards in a CAD system ? Explain any one graphic standard with neat sketch. 7

(b) Consider a line AB whose position vectors of end points are [A] = [1, 2] and B = [3, 4]. The translations in X and Y directions $[\tau_X, \tau_Y] = [2, 3]$. Calculate the end points of the translated line. Draw neat sketches of the original line and translated line. 7

7. (a) Find the real root of the following equation by using bisection method, correct to three decimal places : 7

$$X^3 - 4X - 9 = 0$$

(b) What do you understand by the FEM ? Give an example of modelling a mechanical component. 7