No. of Printed Pages : 3

BIME-018

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

Term-End Examination

00592

December, 2017

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.*

1. (a) Explain the working of a Cathode Ray Tube (CRT) graphic display device with a neat sketch. 7

(b) List out the various input devices in CAD systems. Explain any two with neat sketches. 7

2. (a) Explain the software configuration with a suitable block diagram. 7

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

3. (a) What is Composite Transformation ? Explain with suitable examples. 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

4. (a) Describe in brief, bicubic surface method of surface modelling. 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) Compare the splines for the same control points created by B-spline and Bezier spline techniques. 7

(b) Describe the importance of curve and surface modelling in CAD systems. 7

6. (a) What is a Wire Frame Model ? Enlist the limitations of a wire frame model when compared to a corresponding solid model. 7

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

7. (a) Find the real root of the equation

$$X^4 + X^2 - 80 = 0$$

by Newton-Raphson method, correct to three decimal places. 7

(b) What is Finite Element Method ? Write down the steps involved in the finite element procedure in analysis of any machine member. 7