BIME-018

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

Term-End Examination

□□453 **June, 2018**

BIME-018 : COMPUTER AIDED DESIGN

Time : 3 hours   *Maximum Marks : 70*

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

---

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

   (b) What is solid modelling ? Discuss any one method of solid modelling.   7

2. (a) Why is parametric representation of curves better as compared to analytic representation ? Explain.   7

   (b) What are the input devices in a CAD system ? Explain any two with neat sketches.   7

3. (a) What is visualisation of a model ? Differentiate between random scan display and raster scan display.   7

   (b) With a suitable block diagram, explain the configuration of graphic software in a CAD system.   7

4. (a) List the different properties of a Bezier curve. Describe the shapes of Bezier curves for varying control points. 7

   (b) Differentiate between Exact fit and Best fit polynomials. 7

5. (a) Why do we need synthetic surfaces ? Discuss. 7

   (b) Fit a Bezier curve having the following control points :

   $P_0(1, 1)$, $P_1(3, 6)$, $P_2(5, 7)$ and $P_3(7, 4)$.

   Find out a point at t = 0·4. 7

6. (a) Describe the step-by-step FEM for solving a design problem of a mechanical component. 7

   (b) Use Newton-Raphson method to obtain root to three decimal places of the following equation : 7

   $$x^3 + 3x^2 - 3 = 0$$

7. (a) Explain the features of colour model application in a CAD system. Give suitable examples. 7

   (b) Describe the bi-cubic surface method of surface modelling. 7