Roll No. | | | | | | | | | | | | Total No. of Pages : 02

Total No. of Questions : 08

M.Tech. (PE) (Sem.–1)

COMPUTER AIDED DESIGN & MANUFACTURING

Subject Code : PE-505

M.Code : 39006

Time : 3 Hrs. Max. Marks : 100

INSTRUCTIONS TO CANDIDATES :

1. Attempt any FIVE questions out of EIGHT questions.
2. Each question carries TWENTY marks.

Q1. a) Define CAD tools. Show a typical CAD/CAM system utilized in industrial environment.

b) List out some input and output devices used in CAD/CAM systems.

Q2. a) What led to microCAD's popularity? Name at least three advantages of microCAD system.

b) Find the unit tangent vector in the direction of a line perpendicular to an existing line.

Q3. a) Derive the equations of blending functions for Hermite cubic splines in terms of parameter u.

b) What is the use of curve manipulations in design and manufacturing environment.

Q4. Find the equivalent bicubic formulation of a cubic Bezier surface patch.

Q5. a) In order to represent solids accurately in CAD what are the properties that a solid model should capture mathematically.

b) Discuss in details the technique used in boundary representation method for creating a solid model of an object.

Q6. What is the use of inverse transformation and mapping in CAD/CAM systems? Discuss the procedure to find inverse transformations. An entity is rotated about the three principal axes of its MCS with equal angles of 45° each. Find the equivalent axis and angle of rotation.

Q7. a) What is the basic concept of assembly modeling? What are the basic requirements that are necessary assembly modeling?

b) Describe in detail the various available tolerance concepts.

Q8. Write short notes on :

a) NC and CNC machines.

b) Part Programming.

c) Synthetic and analytic curves.

d) Half-spaces method.

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.