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R-15

Code: 5G562

III B.Tech. II Semester Supplementary Examinations April 2023

CAD/CAM

(Mechanical Engineering)

Max. Marks: 70

Time: 3 Hours

Answer *all five* units by choosing one question from each unit (5 x 14 = 70 Marks)

UNIT-I

1. a) Describe the product cycle followed in a CAD/CAM system 7M
- b) What are the designs related tasks performed by modern computer? Explain with block diagram 7M

OR

2. a) Briefly describe the different techniques used for scan conversion in Computer Graphics. 7M
- b) Describe an algorithm for the removal of hidden lines. 7M

UNIT-II

3. a) What is the need for concatenation of transformations? Explain what care should be taken in such cases. 6M
- b) Describe briefly the following methods of surface modeling with a few application examples:
i. Revsurf ii. Tabcyl iii. Bicubic surface iv. Bezier surface 8M

OR

4. a) What is geometric modeling? Explain its importance in CAD / CAM applications. Discuss the different types of geometric modeling techniques. 8M
- b) A triangle ABC with vertices A(30,20), B(90,20) and C(30,80) is to be scaled by factor 0.5 about a point X(50,40). Determine (i) the composition matrix and (ii) the coordinates of the vertices for a scaled triangle. 6M

UNIT-III

5. a) What are the basic components of NC system? Explain the function of each component. 7M
- b) Sketch and explain DNC system. 7M

OR

6. a) Explain the APT statements:
i) GOTO and GO/TO ii) GODLTA and GOBACK and iii) INTOL and OUTTOL. 7M
- b) With a neat sketch explain the Structure of CNC machine tools 7M

UNIT-IV

7. a) How is tool life monitored in FMS? What are the major elements of FMS? 7M
- b) Discuss the principle and advantages of group technology coding. 7M

OR

8. a) Discuss how group technology is used in designing manufacturing cells. 7M
- b) Discuss the principle of variant process planning. 7M

UNIT-V

9. a) Discuss the important benefits of computer-aided quality control. 7M
 - b) Describe the features of a flexible inspection system. 7M
- OR**
10. a) Explain CIM integration of all activities of industry 7M
 - b) Discuss the major non-contact inspection methods. 7M
