Code No: **R1641032** **R16** **Set No. 1**

IV B.Tech I Semester Regular/Supplementary Examinations, Jan/Feb - 2022

CAD/CAM

(Common to Mechanical Engineering and Automobile Engineering)

Time: 3 hours **Max. Marks: 70**

Question paper consists of Part-A and Part-B
Answer ALL sub questions from Part-A
Answer any FOUR questions from Part-B
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PART–A *(14 Marks)*

1. a) Write any three reasons for implementing CAD. [3]
   b) What does geometric modeling mean? [3]
   c) What do you understand by the term computer numerical control? [2]
   d) What is FMS? Write its applications. [2]
   e) Define the term Post process inspection. [2]
   f) What is lean manufacturing? [2]

PART–B *(4x14 = 56 Marks)*

2. a) Compare traditional and the CAD/CAM based product cycle. [7]
   b) What is inverse transformation? Derive the inverse transformation matrix for 3D translation and rotation. [7]

3. a) List out the curve representation methods. Explain any one method in detail. [7]
   b) A line segment with end points P1(2,4) and P2(20,5) lying in xy plane. Rotate a line about x axis from which a surface can be generated. Find the point on the surface at u = 0.3 and $\varphi = \pi/2$ [7]

4. a) Briefly discuss the data required for Computer Aided Part Programming. [7]
   b) Define Numerical Control. Why computer aided programs are preferred for NC machine tools. [7]

5. a) Compare a process type layout and group technology layout for batch production of a simple component. [7]
   b) Explain machine cell design in group technology. [7]

6. a) Explain about different noncontact optical inspection methods. [7]
   b) What is a CMM? Explain its working principle. Sketch different types of CMM available. [7]

7. a) Discuss the computerized elements of CIM system. [7]
   b) Explain the advantages that will be gained by implementing CIM. [7]