B. M. S. College of Engineering, Bengaluru - 560019

Autonomous Institute Affiliated to VTU

September / October 2023 Supplementary Examinations

Programme: B.E.
Branch: Mechanical Engineering
Course Code: 20ME5DCCCR
Course: CAD CAM and Robotics

Semester: V
Duration: 3 hrs.
Max Marks: 100

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

UNIT - I

1. a) Explain the features of Graphics software. **06**

   b) A triangle with coordinates (10, 20), (10, 10) and (20, 10) is to be rotated by 30° counter clockwise. Compute its new coordinates. **08**

   c) Explain the role of computers in manufacturing. **06**

UNIT - II

2. a) Explain the various types of surfaces used in geometric modelling. **12**

   b) Explain any two data exchange formats. **08**

OR

3. a) Compare constructive solid geometry approach with Boundary – Representation system of solid modelling. **12**

   b) Write the Euler-Poincare law and explain the terms. **08**

UNIT - III

4. a) Explain with neat sketches (i) Optical Rotary Encoder **12**

   (ii) Brushless D C motor

   (iii) Ball Bearing Screw

   b) List the sequence of Tool change activity for a machining center **08**

UNIT - IV

5. a) Write a manual part program for the following turning component shown in Fig 1. Use one finish cut and remaining rough-cut to remove the material (Select suitable raw material dimension). Use the following information: **12**

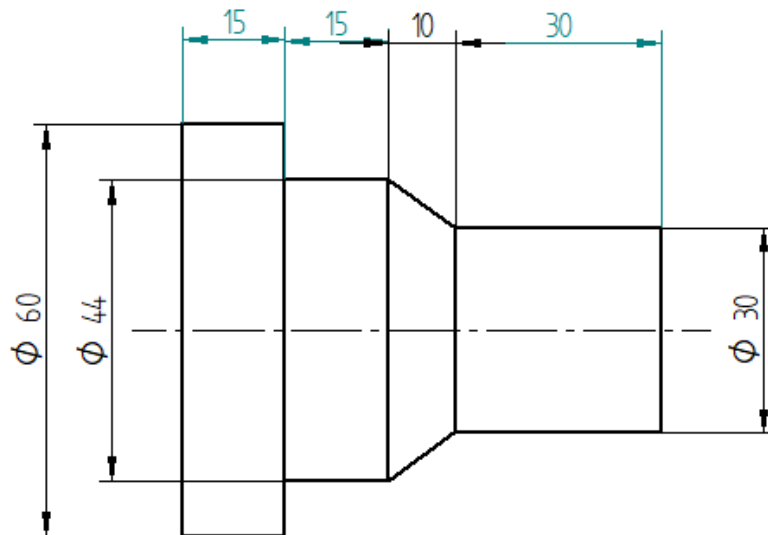| Operation	Tool no.	Cutting Speed (m/min)	Feed (mm/rev)
Rough cut	T01	200	0.4
Finish cut	T02	300	0.2

Fig 1

b) List and explain Post processor commands used in APT Programming. **08**

UNIT - V

6. a) What are the components of an industrial robot? Explain **10**

b) Explain robot characteristics **10**

OR

7. a) Sketch and explain the working of i) Potentiometer ii) LVDT sensor used in Robots. **10**

b) Explain the different types of Robot programming. **10**

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