Hall Ticket No | | | | | | | | | | | Question Paper Code: AMEB26

INSTITUTE OF AERONAUTICAL ENGINEERING

(Autonomous)
Dundigal-500043, Hyderabad

B.Tech VII SEMESTER END EXAMINATIONS (REGULAR/SUPPLEMENTARY) - DECEMBER 2022

Regulation: R18

CAD/CAM

Time: 3 Hours **(MECHANICAL ENGINEERING)** **Max Marks: 70**

Answer FIVE Questions choosing ONE question from each module
All Questions Carry Equal Marks
All parts of the question must be answered in one place only

MODULE – I

1. (a) Explain and draw the product cycle by considering computer aided design and manufacturing [BL: Understand| CO: 1|Marks: 7]

   (b) Outline the flow of manufacturing information in the state-of-the- art CAD/CAM/CNC systems. [BL: Understand| CO: 1|Marks: 7]

2. (a) Summarize the secondary storage devices used in CAD system along with their importance. [BL: Understand| CO: 1|Marks: 7]

   (b) Make use of the concept of obtaining reflection about an arbitrary line starting from plane reflection about an axis. How do you obtain the orthographic projection of geometric database. [BL: Apply| CO: 1|Marks: 7]

MODULE – II

3. (a) Interpret briefly interpolation and approximation of curves. List the applications of surface modeling. [BL: Understand| CO: 2|Marks: 7]

   (b) Illustrate the concepts of parametric and non-parametric representation in wire frame modelling. [BL: Understand| CO: 2|Marks: 7]

4. (a) Outline the importance of considering geometric modeling which is important in relation to CAD in manufacturing industry? Explain with suitable case study. [BL: Understand| CO: 2|Marks: 7]

   (b) Apply the boolean operations in solid modelling. Describe procedure to ensure convex hull property in Bezier surface [BL: Apply| CO: 2|Marks: 7]

MODULE – III

5. (a) illustrate the basic components of NC system and explain the function of each component. [BL: Understand| CO: 3|Marks: 7]

   (b) Develop an NC part program for the part shown in Figure 1. All the dimensions are in mm. [BL: Apply| CO: 3|Marks: 7]

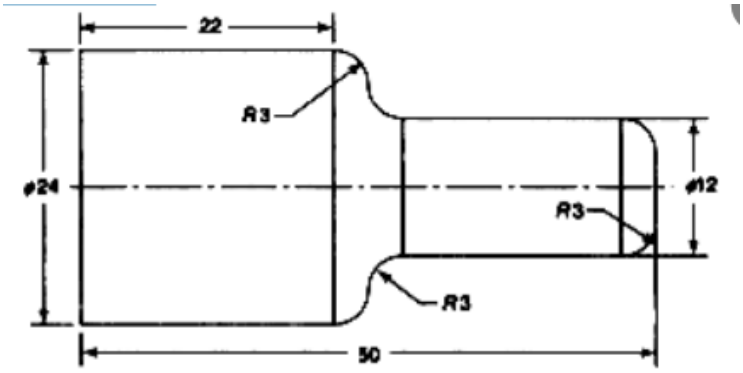

Figure 1

6. (a) Identify the several word functions in numerical control systems and list out the merits of DNC over NC/CNC. [BL: Understand| CO: 4|Marks: 7]

   (b) Develop the syntax for defining a geometry in computer assisted part programming. Also name the four types of statements in a complete APT part program. [BL: Apply| CO: 4|Marks: 7]

MODULE – IV

7. (a) Demonstrate the principle and advantages of group technology coding. Describe any one computer aided process planning software. [BL: Understand| CO: 5|Marks: 7]

   (b) Explain contact inspection technique with neat sketch. Discuss the advantage and disadvantages of OPITZ code system. [BL: Understand| CO: 5|Marks: 7]

8. (a) Make use of the concept of computer aided testing. Elucidate briefly retrieval type computer aided processes planning. [BL: Understand| CO: 5|Marks: 7]

   (b) Compare generative type and retrieval type process planning. Write note on the advantages of applying group technology in an industrial set up. [BL: Understand| CO: 5|Marks: 7]

MODULE – V

9. (a) Explain in the details the different data files in CIM and the system reports generated by CIM. [BL: Understand| CO: 6|Marks: 7]

   (b) Illustrate the concept of CIM wheel. Discuss its strengths and weakness of CIM's scope. [BL: Apply| CO: 6|Marks: 7]

10. (a) Outline the layout of a typical FMS and explain the important subsystems with suitable applications. [BL: Understand| CO: 6|Marks: 7]

    (b) Contrast between CIM and CAD /CAM. Explain in detail the integration of CAD, CAM, CAE and CAPP systems in CIM environment. [BL: Understand| CO: 6|Marks: 7]

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