R18

Code No: 156AG

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech III Year II Semester Examinations, August - 2022

CAD AND CAM

(Mechanical Engineering)

Time: 3 Hours **Max. Marks: 75**

Answer any five questions

All questions carry equal marks

\- - -

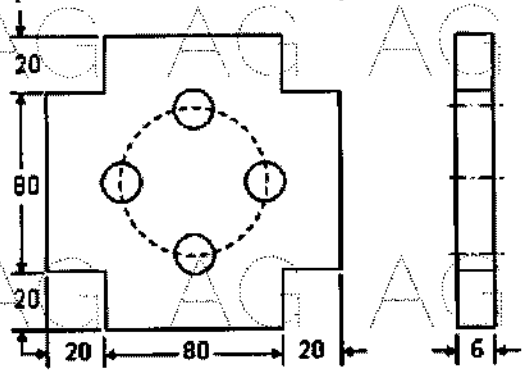
1. Explain the following with respect to the CAD system:
   a) Random scan graphic terminal
   b) Digitizers and Image scanners
   c) CPU. [5+5+5]

2.a) Derive the parametric form of following:
   i) Bezier curve
   ii) B-Spline curve.
   b) Distinguish between interpolation and approximation approaches used in design of curves. [7+8]

3.a) Discuss blending function, and also explain parameterization of a surface patch.
   b) What conditions are required to convert a B-Spline surface to a Bezier Surface? Explain in brief. [7+8]

4.a) Explain the solid modeling concepts of wire frames and Boundary representation methods. Discuss the advantages of each method.
   b) Explain the Constructive Solid Geometry (CSG) method to create models. [8+7]

5.a) Prepare manual part program for machining the component with 4 holes of 10 mm diameter on 60 mm p.c.d. as shown in below figure. Do not use G41 or G42.



   b) Differentiate Manual part programming and Computer assisted part programming. [8+7]

6.a) Write a brief note on APT and SPPL languages along with their major applications.

b) Discuss the adaptive control of machining process for turning. Explain with the block diagram adaptive control with optimization system. [7+8]

7.a) Why production flow analysis is required in implementation of group technology? Explain data collection and sortation of process routing steps in product flow analysis.

b) How is capacity managed in resource planning? What are the various stages in capacity requirement planning during resource planning? Explain in brief. [7+8]

8.a) Many businesses are changing their manufacturing systems from inflexible automated machinery to Flexible Manufacturing Systems (FMS). Explain the implications of this change.

b) Discuss the scope of Computer Integrated Manufacturing in manufacturing industry. [7+8]

---ooOoo---