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CBCS SCHEME

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17MA52

# Fifth Semester B.E. Degree Examination, Dec.2019/Jan.2020
## Computer Aided Design and Manufactures

Time: 3 hrs. Max. Marks: 100

***Note: Answer any FIVE full questions, choosing ONE full question from each module.***

Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.

### Module-1

1 a. Explain the role of computer in the design process with the help of flow chart. **(10 Marks)**

b. With a block diagram, explain product cycle in computerized manufacturing environment. **(10 Marks)**

**OR**

2 a. Define the Computerized Aided Design (CAD) and CAM. Explain the need for the CAD system. **(08 Marks)**

b. What are the reasons for implementing CAD system? **(08 Marks)**

c. Write the advantages and disadvantages of CAD/CAM. **(04 Marks)**

### Module-2

3 a. Explain the basic hardware structure of CAD. **(08 Marks)**

b. List the input and output devices. Explain the Construction and Display Techniques of CRT Screen. **(12 Marks)**

**OR**

4 a. Explain the function of graphics packages used in CAD/CAM. **(12 Marks)**

b. Write the 3-D transformation matrix for translation and scaling. **(08 Marks)**

### Module-3

5 a. For a 3 stepped bar as shown in Fig.Q5(a), determine the displacement at nodes 2 and 3 stress in three sections and reactions at the ends.

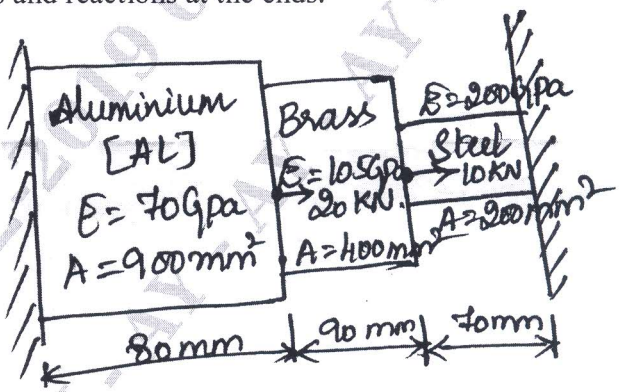


Fig.Q5(a) **(12 Marks)**

b. List and describe briefly the basic steps of finite element method. **(08 Marks)**

**OR**

6 a. Explain the following:
(i) Mesh generation
(ii) Automatic tool change **(10 Marks)**

b. What are the functions of DNC and differentiate between CNC and DNC. **(10 Marks)**

## Module-4

7 a. Write short notes on:
(i) High Speed Machine Tools
(ii) CNC Turning Centers **(08 Marks)**

b. Write the CNC part program for the sketch given below Fig.Q7(b).

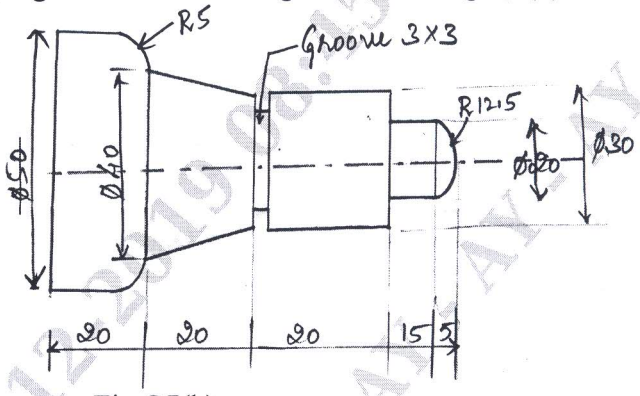


Fig.Q7(b) **(12 Marks)**

**OR**

8 a. Explain the steps involved in CNC part programming. **(08 Marks)**

b. Write the part program for the sketch given below Fig.Q8(b).

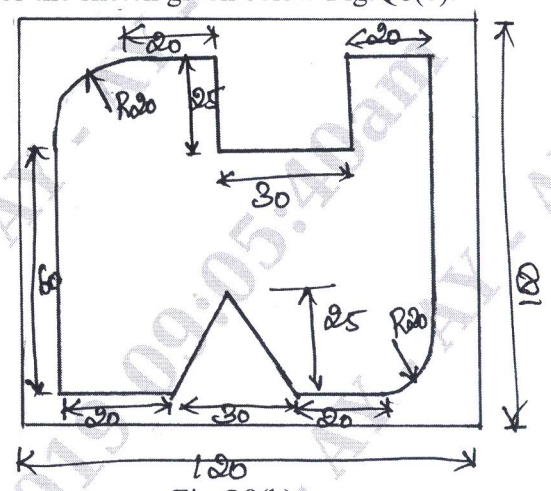


Fig.Q8(b) **(12 Marks)**

## Module-5

9 a. Explain any two types of robot configuration with neat sketches. **(10 Marks)**

b. Write note on programming of robots. **(10 Marks)**

**OR**

10 a. Write note on Grippers and Sensors used in the robots. **(10 Marks)**

b. Explain the terms:
(i) Work volume
(ii) Accuracy
(iii) Repeatability
(iv) Resolution **(10 Marks)**

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