

# CBCS Scheme

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15MA52

Fifth Semester B.E. Degree Examination, Dec.2017/Jan.2018

## Computer Aided Design and Manufacturing

Time: 3 hrs.

Max. Marks: 80

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

### Module-1

1. a. Explain the role of computer in the design process with the help of flow chart. (10 Marks)  
b. Define CAD/CAM and explain the need for the CAD system. (06 Marks)

OR

2. a. Explain the computerized manufacturing environment for product cycle. (10 Marks)  
b. Write the advantages and disadvantages of CAD/CAM. (06 Marks)

### Module-2

3. a. Explain the basic hardware structure of CAD. (06 Marks)  
b. List the input and output devices. Explain the construction and display techniques of CRT screen. (10 Marks)

OR

4. a. Explain the function of graphics packages used in CAD/CAM. (10 Marks)  
b. With an example explain the Transformations. (06 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.

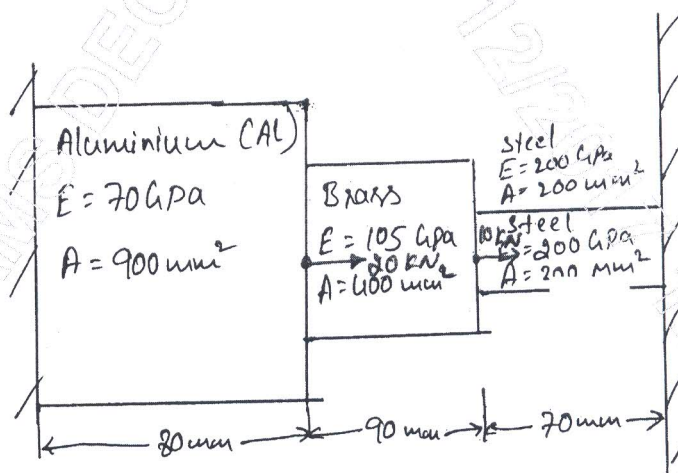


Fig Q5(a)

- b. What are the steps in FEM? Explain discretizations. (10 Marks)

(06 Marks)

OR

6. a. Write note on NC, CNC and DNC. (06 Marks)  
b. What is ATC? Explain its types. (06 Marks)  
c. Explain with an example, absolute and incremental co-ordinate systems. (04 Marks)

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-4**

- 7 a. Write note on high speed machine tools. (04 Marks)  
 b. Write the part program for the sketch given below Fig Q7(b)

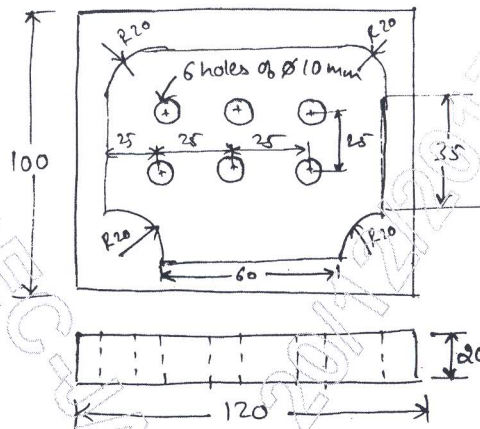


Fig Q7(b)

(12 Marks)

**OR**

- 8 a. Explain the steps involved in CNC part programming. (06 Marks)  
 b. Write the CNC part program for the sketch given below Fig. Q8(b).

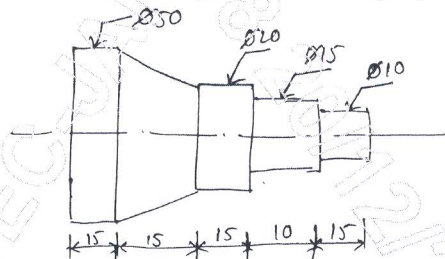


Fig. Q8(b)

(10 Marks)

**Module-5**

- 9 a. Explain any 5 robot configurations. (10 Marks)  
 b. Write note on programming of robots. (06 Marks)

**OR**

- 10 a. Write note on Grippers and sensors used in the robots. (08 Marks)  
 b. Explain the terms  
 i) Work volume  
 ii) Accuracy  
 iii) Repeatability  
 iv) Capacity (08 Marks)

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