

USN

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10MA56

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

CAD/CAM

Time: 3 hrs.

Max. Marks:100

Note: Answer any FIVE full questions, selecting at least TWO questions from each part.

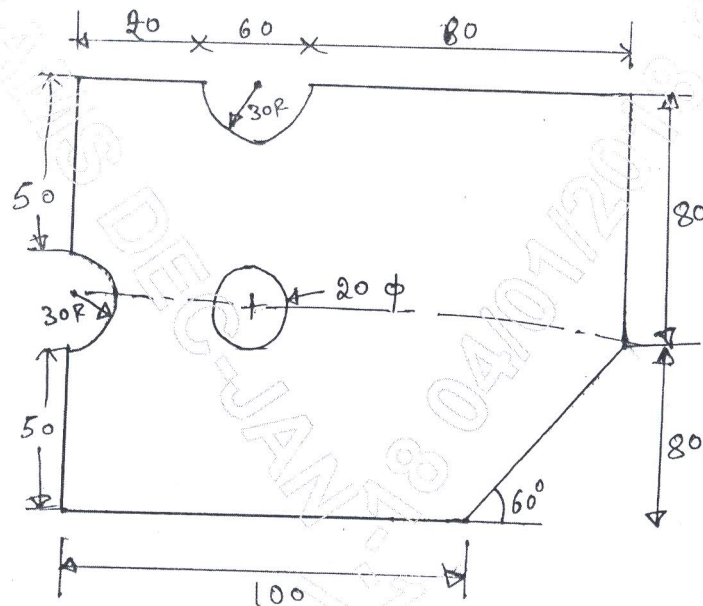
PART – A

- 1
 - a. Explain the basic reasons for using a CAD system. (05 Marks)
 - b. Explain with the block diagram the product cycle with respect to conventional and computerized manufacturing environment. (10 Marks)
 - c. Explain the role of computers in the design process. (05 Marks)
- 2
 - a. Explain the basic hardware structure used in CAD system. (05 Marks)
 - b. Briefly explain the techniques used to generate images on CRT. (10 Marks)
 - c. List and explain the output devices used in CAD system. (05 Marks)
- 3
 - a. Explain in briefly the basic function of graphics packages. (10 Marks)
 - b. Explain in detail the initial graphics exchange specification (IGES) for CAD system. (10 Marks)
- 4
 - a. Explain the criteria used for applying FEA technique, to solve the problem. (07 Marks)
 - b. Explain the basic steps involved in FEM analysis. (10 Marks)
 - c. Differentiate between absolute positioning and incremental positioning. (03 Marks)

PART – B

- 5
 - a. Explain in detail automatic tool changer with respect to CNC machine tool. (05 Marks)
 - b. Briefly explain the strap clamps and heel blocks arrangement in work holding devices. (05 Marks)
 - c. Explain with a neat sketch, drum type tool magazine automatic tool changer. (10 Marks)
- 6
 - a. Explain with a block diagram the steps involved in part programming. (10 Marks)
 - b. Explain in brief the three types of N.C data formats. (10 Marks)

- 7 a. The Fig.Q7(a) shows the details of a certain components to be machined. The machining involves profile milling and drilling. For both take speed = 500 rpm, feed = 75 mm/min. Assume a thickness of 20 mm and cutter diameter of 20 mm. Write the manual part program for machining the component.



All dimensions in mm.

Fig.Q7(a)

(12 Marks)

- b. Describe the following G-codes and M-codes.

(i) G41

(ii) G02

(iii) G76

(iv) M98

(v) M08

(vi) M99

(vii) G00

(viii) M30

(08 Marks)

- 8 a. With a neat sketch, explain any two types of physical configurations of robots. (10 Marks)
- b. Define end effectors. Explain the different types of end effectors. (05 Marks)
- c. List and explain the applications of industrial robots. (05 Marks)
