Code: 15A03702 **R15**

B.Tech IV Year I Semester (R15) Regular Examinations November/December 2018

CAD/CAM

(Mechanical Engineering)

Time: 3 hours Max. Marks: 70

PART – A

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

(a) Specify the major stages in product cycle.
(b) List any two CAD and CAM tools.
(c) What is wireframe modeling? Give one example.
(d) Specify any four features of solid modeling packages.
(e) Write the format of CNC programming block.
(f) State any eight G-code commands.
(g) State the benefits of FMS.
(h) Specify the components in CIM.
(i) What is meant by sustainable manufacturing?
(j) Specify the benefits of machinability data systems.

PART – B

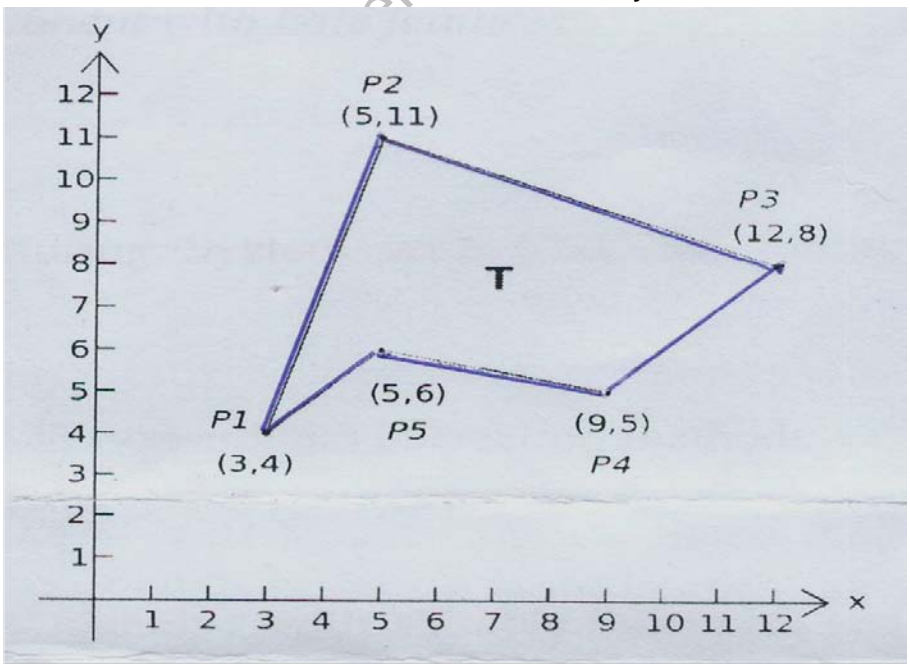
(Answer all five units, 5 X 10 = 50 Marks)

UNIT – I

2 With schematic diagrams, explain 2D transformations and derive the matrix for rotation of an object about z-axis.

OR

3 Calculate and draw the transformed shape of the object shown in figure below by translating (with respect to point P_1) to the distance of 10 units in x-direction and 8 units y-direction, and rotating by 30°.



UNIT – II

4 With schematic diagrams, discuss the parametric and non-parametric representation of CAD models.

OR

5 Discuss the boundary representation method with schematic diagrams.

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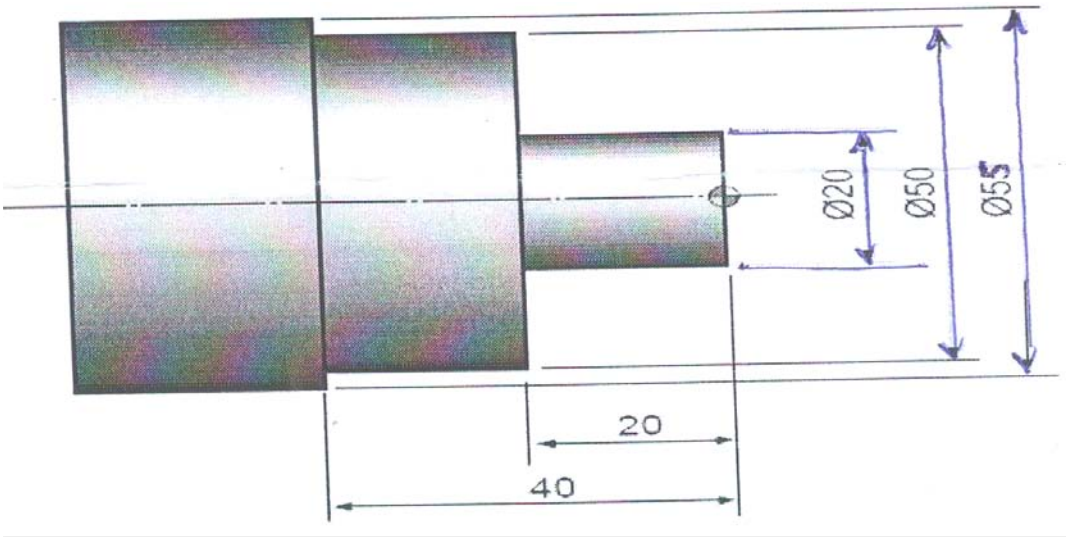
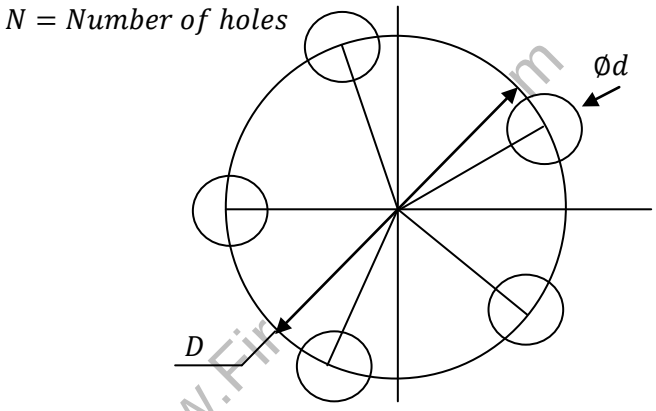
UNIT – III

6 Write CNC part program to produce cylindrical component as shown in figure below. Use canned cycle method. Explain each programming block and relate with tool path.



OR

7 Write CNC part program to create a pattern of holes on 12 mm MS circular plate of diameter 140 mm as shown in figure below. Consider N = 5, D = 50 mm, and d = 8 mm. Draw the orthographic view of the part drawing as per given dimensions.



UNIT – IV

8 Sketch and explain a simple flexible manufacturing system with CNC machining centers, robots, and material handling system.

OR

9 With examples, discuss different types of contact and non-contact inspection methods.

UNIT – V

10 Discuss various stages in computer aided process planning with suitable examples and illustration and generate the process sheet for a prismatic part.

OR

11 What is reconfigurable manufacturing system? Discuss its characteristics and technologies involved.

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