

## FACULTY OF ENGINEERING

B.E. 3/4 (M/P) II – Semester (New) (Main) Examination, April / May 2013

Subject: CAD / CAM

Time: 3 Hours

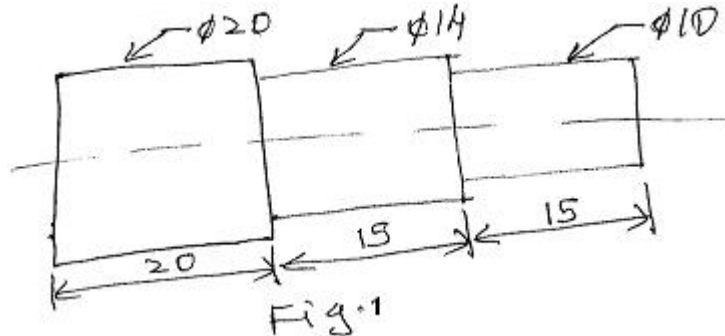
Max.Marks: 75

**Note: Answer all questions from Part – A and any five questions from Part – B.****PART – A (25 Marks)**

1. Define CAD and sketch the implementation of CAD process on a CAD/CAM systems.
2. Mention the properties of splines.
3. What is meant by surface of revolution and tabulated cylinder?
4. Distinguish between C-rep and B-rep approaches.
5. List different types of file formats used in CAD.
6. What is the role of post processor in an NC machine tool?
7. Distinguish between NC, CNC and DNC.
8. Name different types of robot programming methods.
9. Define the terms part families, part classification and coding system.
10. What is meant by rapid prototyping?

**PART – B (5x10 = 50 Marks)**

- 11.(a) Discuss the parametric and non-parametric representation of a circle, ellipse and hyperbola. (5)  
(b) What is a Bezier curve? Mention the properties of a Bezier curve. (5)
12. Given the four corners  $P_0(1,1)$ ,  $P_1(3,1)$ ,  $P_2(3,3)$  and  $P_3(4,2)$ . Find the equation of the bi-cubic surface. (10)
13. Write a manual part program for step turning operation using canned cycle for the component shown in Figure I. The spindle speed is 1000 rpm. The feed rate is 30 mm/min. while the tool nose radius is 0.4 mm. (10)



- 14.(a) With a neat sketch explains adaptive control with constraint. (5)  
(b) Classify robots based on physical configuration. (5)
- 15.(a) Classify different types of CAPP processes. Explain any one of them with a neat sketch. (6)  
(b) Explain the working principle of CMM. (4)
- 16.(a) Perform a  $45^\circ$  of rotation of a triangle  $A(0,0)$ ,  $B(1,1)$  and  $C(5,2)$ 
  - i) About the origin and
  - ii) About  $(-1, -1)$ . (6)
- (b) What is meant by CAD / CAM integration? Explain it with a neat diagram. (4)
17. Write short notes on the following: (10)
  - i) NURBS
  - ii) Mechanical tolerancing
  - iii) Reverse engineering.