BE-sem-VII – old – Mechanical

10/12/15

05

CAD/CAM

QP Code : 2154

(4 Hours) **Max. Marks: 100**

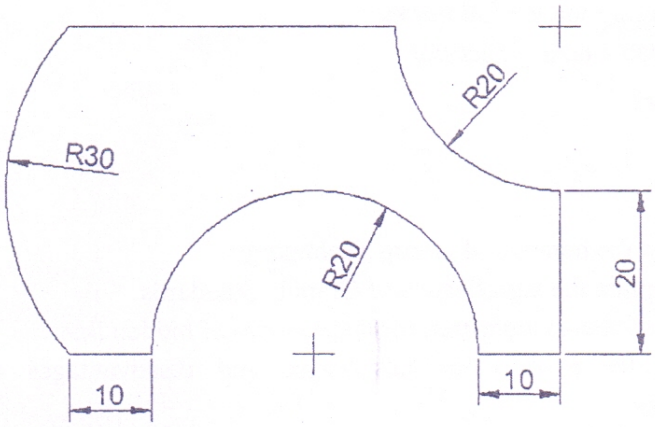
Note:

1. **Question 1 is Compulsory**
2. Solve any four from remaining six
3. Figures to right indicate full marks
4. Assume suitable data if necessary

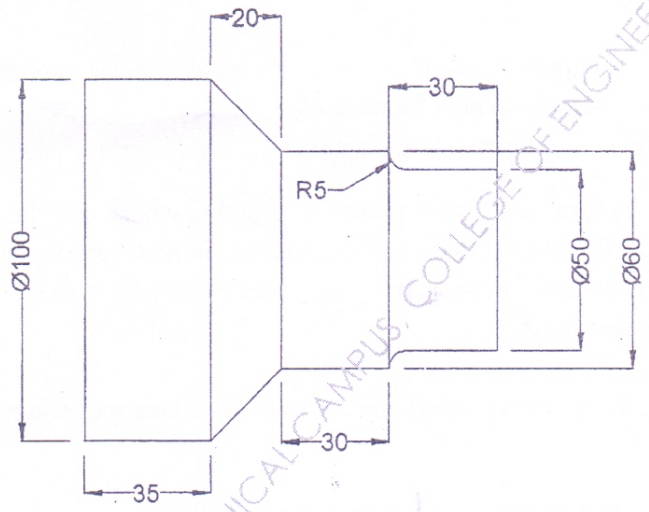
Question No.			Max. Marks
Q.1	a)	List the benefits of Group Technology	5
	b)	Explain the significance of Graphic Standards.	5
	c)	Describe an algorithm for the removal of hidden lines.	5
	d)	Briefly explain the advantages and disadvantages of NC machines.	5
Q.2	a)	Derive the parametric Bezier equation from the following points. (0, 0), (7, 6), (6, 5) and (4, 0). Also find the midpoint of the curve.	10
	b)	Write a program in object oriented language for 2D geometric transformation which include functions for the following operations: a) Translation b) Rotation @ Y axis	10
Q.3	a)	A triangle formed by three points A, B and C whose coordinates are A(50, 40), B (100, 60), C(70,80).Calculate the new coordinates if the triangle is reduced in size using the scale factors Sx = 0.5, Sy = 0.7 and base point is A.	10
	b)	Explain the advantages and applications of surface modeling.	5
	c)	Explain Data structures for interactive modeling.	5
Q.4	a)	Explain Green Manufacturing.	5
	b)	What are the obstacles for implementation of CIM?	5

[TURN OVER

c) Write a complete APT part program to machine the profile of the geometry shown in figure. The component is 5mm thick. The end mill used is 10mm in diameter. Assume spindle speed as 1000 rpm and feed as 0.3 mm/rev. 10



Q.5 a) Write a complete part program to turn a raw bar of carbon steel of dia. 100mm as per the component drawing shown in figure. 12



b) Describe the need for CIM and the issues addressed by CIM. 6

Q.6 a) Compare CNC/DNC and FMS in detail. 8
b) Describe the architecture of a CAD system. 6
b) Explain Similarity coefficient matrix and its uses 6

Q.7 Write short note on any **Four**: 20
a) Velocity Feedback Device.
b) Automated Guided Vehicles
c) Macro statement in APT
d) Homogeneous coordinates
e) Non Contact Inspection method

****