

JK Lakshmipat University Jaipur

INSTITUTE OF ENGINEERING AND TECHNOLOGY

End-Term Examination, April-May 2015
B. Tech. in Mechanical Engineering, Semester VI



Roll No.....

ME601: CAD-CAM

Time: 3 hours

Max. Marks: 100

Instructions to students:

1. Do not write anything other than your roll number on question paper.
2. Assume suitable data wherever required and mention it clearly.
3. Writing appropriate units, nomenclature, and drawing neat sketches/schematics/ flow chart wherever, required are an integral part of the answer.

Q.1A	Objective type questions (10 questions @ 1 mark)	10
i.	Define Numerical control	
ii.	GUI is the acronym for Graphical User Interface. Given statement is True or False	
iii.	The widely employed computer architecture for CAD/CAM applications is based system	
iv.	What are B-spline curves?	
v.	Name the basic motion control systems used in NC	
vi.	In a 2-D CAD package, clockwise circular arc of radius, 5, specified from P1 (15,10) to P2 (10,15) will have its center at	
vii.	NC contouring is an example of positioning	
viii.	In CNC program block, N002 G02 G91 X40 Z40 ..., G02 and G91 refer to Circular interpolation in direction and dimension.	
ix.	In the following geometric modelling techniques which are not three-dimensional modelling? (a) Wireframe modelling (b) Drafting (c) Surface modelling (d) solid modelling	
x.	The interpolator in a CNC machine controls	
Q.1B	Short answer type questions (4 questions @ 2.5 marks)	10
a)	What are the major advantages of CNC machine tool compared to its conventional counter-part?	
b)	What are the objectives of computer aided quality control	
c)	Define the term Material handling and state it's objectives (at least four)	
d)	What are the benefits of FMS	
Q.2A	What is CAD and what are its applications and benefits?	05
Q.2B	What are the hardware requirements of a Design workstation? Explain.	05
Q.3A	Explain B-rep and C-rep approach of solid modeling in detail	05
Q.3B	Define and explain the following with respect to 3-D transformations. (i) Rotation, and (ii) Shearing	05
OR		
Q.3B	What is a geometric transformations? Define and explain the following with respect to 2-D transformations. (i) Translation and (ii) scaling	05

Q.4A	Discuss the need for flexibility in automated manufacturing system	05
Q.4B	List the advantages of CNC and DNC	05
Q.5A	Why is part classification and coding required in GT. Explain OPTIZ system of coding.	05
Q.5B	Explain non-contact inspection methods	05
OR		
Q.5B	List the important benefits of computer aided quality control	05
Q.6A	Explain the types of flexibilities in FMS and discuss the factors on which these flexibilities depend	05
Q.6B	Discuss how group technology is used in designing manufacturing cells	05
Q.7A	Describe briefly the construction and function of roller conveyor.	05
Q.7B	Write a short not on AGV (automated guided vehicle) systems	05
Q.8	Write complete process planning and part program of a component (Fig.1) for machining on a lathe. This part is to be machined from a rolled stock of 40 mm diameter. Assume suitable depth of cut for rough cutting and finish turning.	10
Q.9	Write a complete part program using the ISO codes for the following component for the external counter for the component shown in fig. 2, without using the cutter radius compensation.	10
OR		
Q.9	a) Give any six circle definitions in APT geometry. b) Write APT geometry to define lines and circles shown in Fig.3.	5 + 5

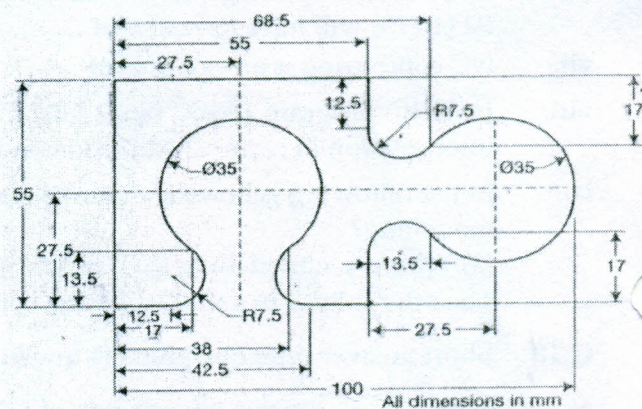
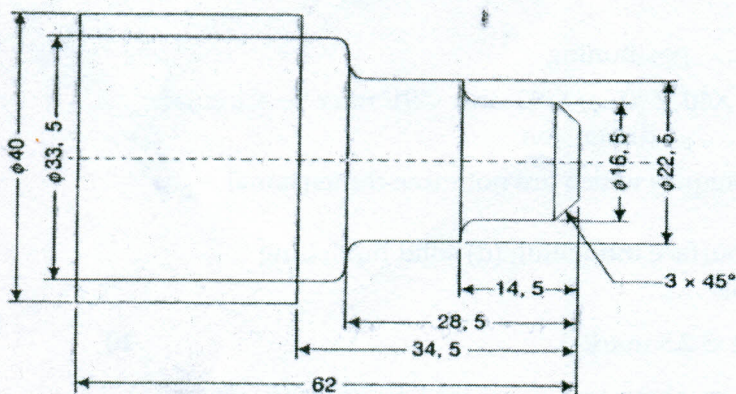


Fig. 2

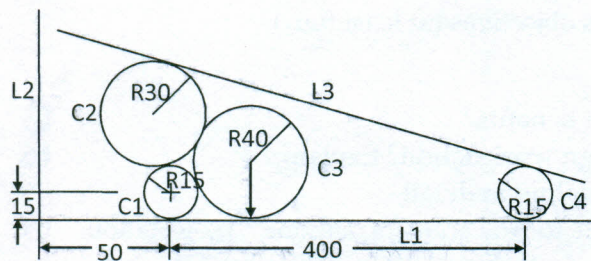


Fig. 3

Fig. 1