

QP Code : 29688

Duration: 4 hours

Max. Marks: 100

- 1) Question No.1 is compulsory.
  - 2) Attempt **any four** questions out of remaining six questions.
  - 3) Draw neat and labeled diagrams wherever required.
  - 4) Figures to the right indicate full marks.
  - 5) Assume suitable data if necessary but justify.
1. a) What are different geometric modeling techniques? Explain feature based modeling with the help of an example. (05)
  - b) What is Artificial Intelligence? How it is applicable in the field of CAPP? (05)
  - c) Explain the role of CAD-CAM in product life cycle. (05)
  - d) What are the obstacles in implementing Computer Integrated Manufacturing? (05)
  2. a) Write a program for three dimensional geometric transformation using object oriented programming language C++, for translation, and rotation. (07)
  - b) What is a Flexible Manufacturing System? Explain components of FMS. Discuss layouts of FMS. (08)
  - c) What is cutter radius compensation? (05)
  3. a) Explain any one of the hidden line removal algorithm in detail. (10)
  - b) Write a manual part program in G and M codes using Canned cycle for generating a part as shown in Figure 1. Size of raw material is  $\phi 46\text{mm}$  by 85mm. Explain each code. Assume suitable data if required. (10)

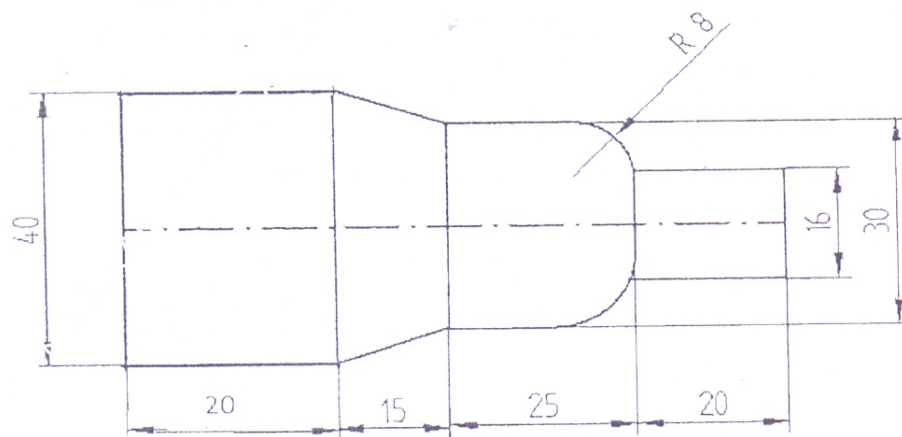


Figure 1

GE-Con. 9911-16.

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4. a) Reflect a triangle ABC, A (2, 4), B (4, 6) and C (2, 6) about a line  $2y - x - 4 = 0$ . (08)  
Find out the new vertices of a triangle.
- PTO
- b) What is Macro statement in APT. Explain with suitable example. (06)
- c) Write in detail about OPITZ classification system in group technology (06)
5. a) Explain CAD system architecture. (05)
- b) What is a parametric curve? Represent line and ellipse in the parametric form. (05)
- c) What is a concept of Adaptive Control Optimization? (05)
- d) Explain the concept of rapid prototyping. Enlist different methods of rapid prototyping and write advantages of rapid prototyping. (05)
6. a) What is concurrent engineering? What is the role of concurrent engineering in product design and development? (10)
- b) What is a Bezier Curve? How a Bezier curve is different from cubic spline curve? (10)  
Derive a characteristic equation for Bezier curve having 4 control points. Write properties of Bezier Curve in detail
7. Write notes on any four of the followings. (20)
- a) NC Programming Languages
  - b) Knowledge based engineering
  - c) DNC
  - d) Window to viewport mapping
  - e) Non contact inspection methods in CAQC
  - f) Reverse Engineering

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