B.E. Sem VII CBSGS
Mechanical Engg.
CAD|CAM|CAE
19/5/2016
11 am to 2 pm

QP Code : 31287

(CBSGS)(R-2012)

(3 hours) [Total marks: 80]

N.B.: 1) Q. No. **1** is **compulsory**.

2) Attempt any **three** questions out of remaining five questions.

3) Assume suitable data if required.

Q1 a) Explain wire frame modeling, surface modeling and solid modeling. 10

b) Write a manual part program for finishing a forged component as shown in **Fig.** 1. Assume the spindle speed and feed for machining as 500 rpm and 0.3 mm/rev respectively. 10
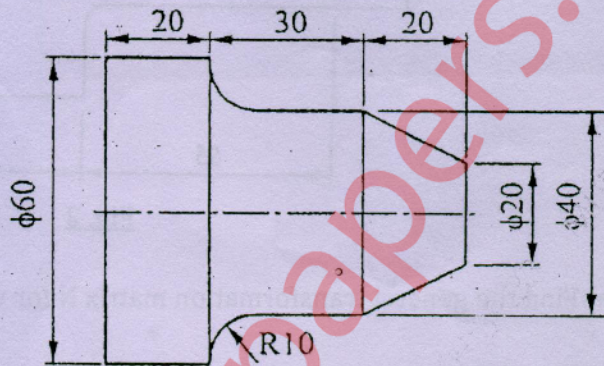

Fig. 1

Q2 a) A Hermite cubic spline is defined by points (1, 1) and (6, 5), having tangent vectors as (0, 4) and (4, 0) respectively. Find the co-ordinates of parametric mid-point and slope at the same point. 10

b) Explain AS/RS and their types. 10

Q3 a) Find the ... co-ordinates of a triangle A (50, 20), B (110, 20) and C (80, 60), ... 10
... about; i) X-axis and ii) Line y = x.

... role of CIM elements. 10

... matrix which aligns vector **K** along positive z-axis 10
... + c**K**,

... involved in rapid prototyping, list the various rapid 10
... and explain Stereo-lithography in detail.

Q5 a) Find the transformed ... C (80, 60), if it is reflec...

b) Explain the nature an...

Q4 a) Find the transformati... with vector **V** = a**I** + b**J**...

b) Explain the major step... prototyping technolog...

[P.T.O.]

Q5 a) Write a complete APT part program to machine the outline of the geometry   12
and drill a hole as shown in **Fig. 2**. The component is 5 mm thick. The end
mill used is 10 mm in diameter and suitable drill. Assume suitable speed
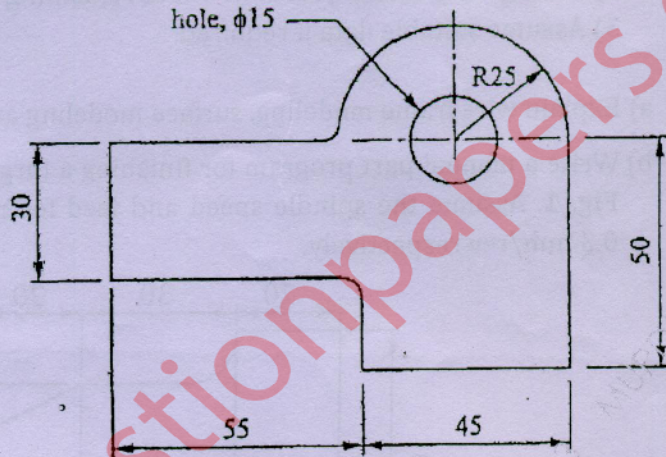and feed for machining.

hole, $\phi 15$

R25

30

50

55   45

Fig. 2

b) Find the general transformation matrix N for window to viewport mapping.   8

Q6   Write short notes on;   20
a) Knowledge based Engineering
b) Computer Aided Engineering
c) CIM Hardware and Software
d) Rapid Prototyping Applications