

Total No. of Printed Pages:2

SUBJECT CODE NO: H-194
FACULTY OF ENGINEERING AND TECHNOLOGY
T.E. (Mechanical)
CAD/CAM/CAE
(REVISED)

[Time: Three Hours]

[Max.Marks:80]

Please check whether you have got the right question paper.

- N.B
- i) Answer any three questions from each section.
 - ii) Assume suitable data whenever necessary.
 - iii) Figures to the right indicate full marks.
 - iv) Draw neat sketches wherever necessary.

Section A

- | | | |
|-----|--|----|
| Q.1 | a. Explain how computer aided design procedure is superior to conventional design procedure? | 07 |
| | b. Explain the importance of manufacturing database in CAD applications. | 06 |
| Q.2 | a. What is concatenation in transformation process explain with suitable example. | 06 |
| | b. Explain following modelling techniques. | 07 |
| | i) Parametric modelling | |
| | ii) Constraint based modelling | |
| Q.3 | A – square with its vertices. A(3,2), B(8,2), C(8,7) and D(3,7) is defined in 2D space, perform the following transformations separately and show them on graph paper. | 13 |
| | i) Translation in X-direction by 2 units & 1 unit in Y-direction. | |
| | ii) Rotation about point A through an angle 90° anticlockwise, the axis of rotation is parallel to z-axis. | |
| Q.4 | a. Enlist different surface generation techniques & explain anyone in detail. | 07 |
| | b. Explain the characteristics of B-spline curves. | 06 |
| Q.5 | Write short notes on following. (<u>any three</u>) | 14 |
| | a. Bezier curve | |
| | b. Product life cycle | |
| | c. CAE | |
| | d. Data input devices used in CAD systems | |
| | e. Solid representation techniques used in CAD | |

Section B

- Q.6 a. Define FMS and explain various elements of FMS. 07
 b. Define CIM and explain the concept of CIM industries. 06
- Q.7 a. Explain co-ordinate system for axis identification for following machines with neat sketch. 07
 i) Lathe M/C
 ii) Vertical milling M/C
- b. Explain following G codes & M codes. G04, G27, G54. 06
- Q.8 a. Explain different robot programming methods. 07
 b. Enlist the applications of FEA software & explain any one in detail. 06
- Q.9 A profile milling operation is to be performed to generate the outline of the part and drill the holes; 13
 as shown in figure 1, the part thickness is 15mm, cutter diameter as 10 mm dia & cutter speed
 500 rpm, write down the complete ADT programme for it.

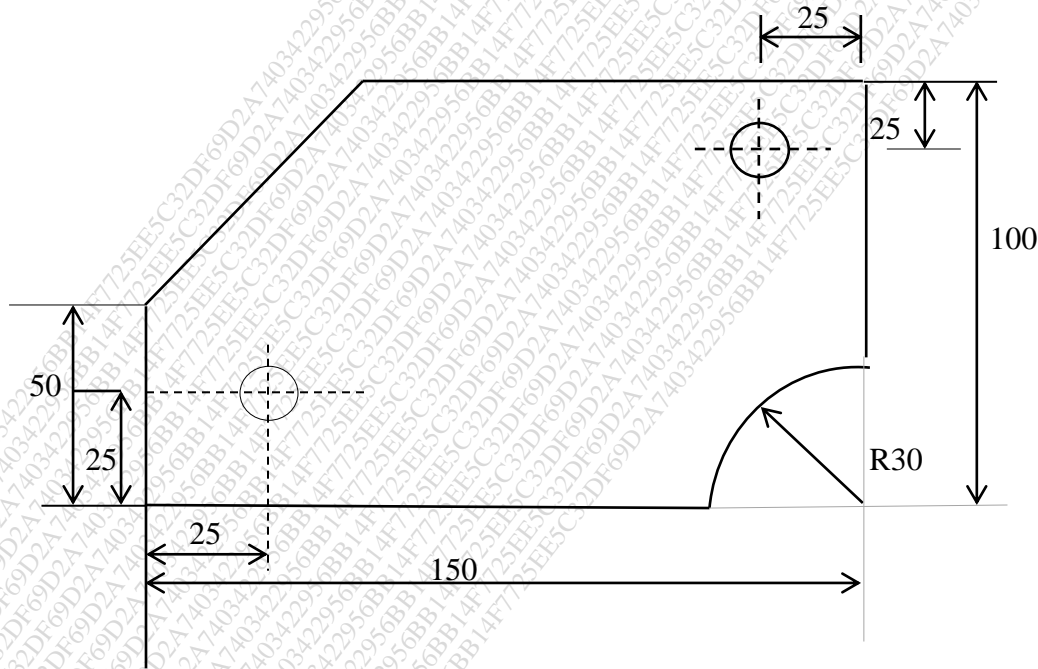


Figure.1

- Q.10 Write short notes on (any two) 14
 a. Group Technology
 b. Fixed zero & floating zero
 c. Forward kinematics in robots