Question Paper Code : X10707

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2020 AND
APRIL/MAY 2021
Sixth/Seventh Semester
Mechatronics Engineering
ME 8691 – COMPUTER AIDED DESIGN AND MANUFACTURING
(Common to Mechanical Engineering)
(Regulations 2017)

Time : Three Hours   Maximum : 100 Marks

Answer ALL questions

PART – A   (10×2=20 Marks)

1. Plot the various stages of Product Life Cycle.

2. What is meant by Clipping ?

3. Give any two characteristics of B-spline curves.

4. Name the two basic approaches followed in solid modeling.

5. What is meant by CAD data exchange ? Mention its importance.

6. What is application of IGES ?

7. What is the difference between incremental and absolute system ?

8. What is meant by G00,M30 in CNC part programming ?

9. What is the weakness of PFA ?

10. How does FMS classified based on number of machines ?

PART – B **(5×13=65 Marks)**

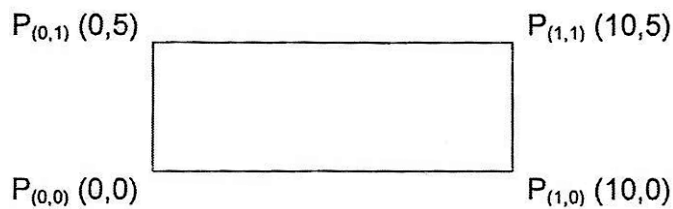11. a) What is Design Process ? Explain briefly the steps involved in design process.

(OR)

b) Explain line drawing algorithms.

12. a) Derive the equation for Hermite Cubic spline curve.

(OR)

b) Find the equation of the Bezier surface with four corner points as shown in figure and also find midpoint of surface.

$P_{(0,1)}$ (0,5) $P_{(1,1)}$ (10,5)

$P_{(0,0)}$ (0,0) $P_{(1,0)}$ (10,0)

13. a) Explain about Graphics Kernel System (GKS).

(OR)

b) Write short notes on Drawing Exchange Format (DXF) standard.

14. a) Explain the working and construction features of CNC with neat sketch.

(OR)

b) What is canned cycle ? Explain any two drilling canned cycles with their syntax.

15. a) Define GT ? Explain OPITZ coding system for GT.

(OR)

b) Explain the different flexibilities in FMS.

PART – C **(1×15=15 Marks)**

16. a) A rectangle with co-ordinate A(2,3), B(2, 5), C(6, 5) and D(6, 3) is reflected along line whose equation is y = 2x + 4, and sheared by 2 units in x direction and 2 units in y direction. Find the new co-ordinates of the object.

(OR)

b) Derive the equation for Bezier Curve. Find the equation of a Bezier curve which is defined by the four points as P0 (2, 2, 0), P1(2, 3, 0), P2(3, 3, 0) and also find the points on the curve for u = 0, ¼, ½, ¾, 1.

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