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Roll No.

337733(37)

B. E. (Seventh Semester) Examination, April-May 2021

(New Scheme)

(Mech. Engineering Branch)

COMPUTER AIDED DESIGN & MANUFACTURING

Time Allowed : Three hours

Maximum Marks : 80

Minimum Pass Marks : 28

***Note : Part (a) of all questions are compulsory.
Attempt any two parts from (b), (c) and (d)
of each question.***

Unit-I

1. (a) List down any four fields where CAD/CAM can be used.

2

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PTO

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- (b) What are the different kind of CAD/CAM modules which are used in a typical industrial environment? 7
- (c) Taking mobile phone as an industrial product, explain the role of concurrent engineering in new product development. 7
- (d) What are : 7
- (i) World coordinates
 - (ii) Screen coordinates
 - (iii) Normalized coordinates
 - (iv) Device coordinates

Unit-II

2. (a) Write the geometric (forward) transformation matrix for : 2
- (i) Rotate transformation
 - (ii) Move transformation
- (b) The coordinates of the quadrilateral ABCD are A (10, 8), B (22, 8), C (34, 17), D (10, 27). shear the quadrilateral by 0.05 and -0.1 in the X and Y directions respectively and then rotate the image by

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- 60° anticlock wise. If the order of transformation is reversed how the final coordinates will be displaced. comment use matrix concatenation method. 7
- (c) Explain the difference between parametric and non parametric curves with examples. 7
- (d) Find the coordinates of the Hermite cubic curve at $u = 0.25$, when curve start from the (0, 3) and ends up at (4, 2) with tangent at the start is defined by angle 45° and 90° . 7

Unit-III

3. (a) Write the difference between Geometry and Topology. 2
- (b) Explain the Boundary Representation (B-rep) method of solid modelling. 7
- (c) With the help of diagram, explain generalized sweep operation. Explain the difference between : 7
- (i) Linear extruded sweep
 - (ii) Non-linear sweep
- (d) Write a short note on Bezier-bi cubic surface. 7

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Unit-IV

4. (a) Write the difference between point to point (PTP) and contouring operations. 2
- (b) Write the functions of CNC. Enumerate the advantages of CNC. 7
- (c) What are the different types of adaptive control system? How adaptive control is advantageous over DNC system? 7
- (d) What is MACRO in APT and how it is incorporated in part program. Show with an example. 7

Unit-V

5. (a) Write any two benefits of CAPP. 2
- (b) Explain in detail MICLASS system of parts classification. 7
- (c) What do you mean by FMS layout? Explain different types of layout with neat diagrams. 7
- (d) Write the difference between RETRIEVAL type and VARIANT process planning system. 7