Paper ID : 261603

Subject Code:BME602

Roll No:													

BTECH
(SEM. VI) THEORY EXAMINATION 2025-26
CAD/CAM

TIME: 3 HRS **M.MARKS: 70**

Note: Attempt all Sections. In case of any missing data; choose suitably.

SECTION A

1. Attempt *all* questions in brief. **02 x 7 = 14**

Q no.	Question	CO	Level
a.	What is meant by Sequential Engineering and Concurrent Engineering?	1	K2
b.	Mention the types of 3D transformations.	1	K2
c.	What is Constructive Solid Geometry (CSG)?	2	K2
d.	Differentiate between IGES and STEP.	3	K2
e.	Define canned cycles in CNC programming.	4	K3
f.	Differentiate between NC and CNC systems.	4	K3
g.	What is meant by FMS Planning and FMS Control?	5	K3

SECTION B

2. Attempt any *three* of the following: **07 x 3 = 21**

a.	Explain the basic concepts of CAD and CAM and their industrial applications.	1	K2
b.	What is curve representation? Describe the mathematical representation and properties of Hermite curves.	2	K2
c.	Explain the architecture and functions of the Graphical Kernel System (GKS).	3	K2
d.	What is a coordinate system in CNC? Describe the machine axis and coordinate systems used in CNC machines.	4	K3
e.	Describe Production Flow Analysis (PFA) and its role in Cellular Manufacturing.	5	K3

SECTION C

3. Attempt any *one* part of the following: **07 x 1 = 07**

a.	A sphere having centre (12, 12, 12) and radius 10 unit is translated by 5 units in X-direction and 8 units in Y-direction. Then it rotated by 60° in anticlockwise direction about y-axis. Find the new centre of the sphere.	1	K2
b.	A point Q (8, - 6, - 4) is rotated at 60° about Y-axis and then it rotated at 60° about Z-axis. Find the final coordinate of the point Q.	1	K2

4. Attempt any *one* part of the following: **07 x 1 = 07**

a.	What is meant by Surface Patch and Bi-cubic Patch? Discuss Bi-cubic patches and their applications in CAD/CAM systems.	2	K2
b.	Write short notes on: a) Rational Curves b) Surface Modeling Techniques c) Solid Modeling Applications.	2	K2

5. Attempt any *one* part of the following: **07 x 1 = 07**

a.	Describe Open Graphics Library (OpenGL) and its applications in CAD systems.	3	K2

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b.	Discuss various international standards used in CAD/CAM systems and their applications.	3	K2

6. Attempt any *one* part of the following: 07 x 1 = 07

a.	Write a detailed manual part program for CNC turning (lathe) operation using G-codes and M-codes.	4	K3
b.	Write short notes on: a) CNC Controllers b) Part Programming c) CAM Software Packages.	4	K3

7. Attempt any *one* part of the following: 07 x 1 = 07

a.	Explain the concept and importance of Group Technology (GT) in manufacturing industries.	5	K3
b.	Compare Cellular Manufacturing and Flexible Manufacturing Systems.	5	K3