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BTECH
(SEM VII) THEORY EXAMINATION 2023-24
COMPUTER GRAPHICS AND PRODUCT MODELING

TIME: 3 HRS

M.MARKS: 100

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief.**

Q no.	Question	Marks	CO
a.	Discuss characteristics of B-Spline curve.	2	1
b.	Differentiate between C0 and C1 continuity.	2	1
c.	Describe geometric transformations.	2	2
d.	Describe Illumination and shading	2	2
e.	Define Rendering.	2	3
f.	Define anti-aliasing.	2	3
g.	Describe the importance of product strategy.	2	4
h.	Explain briefly concurrent development of product and process.	2	4
i.	Explain the need of organization process management.	2	5
j.	Explain the various factors that promote innovation and continuous improvement in an organization.	2	5

SECTION B**2. Attempt any three of the following:**

a.	Briefly explain and draw 8-way symmetry of circle.	10	1
b.	What is the need for concatenation of transformations? Explain what care should be taken in such cases.	10	2
c.	Illustrate IGES file structure with examples.	10	3
d.	Assess the process of Developing Services and Product Service Systems.	10	4
e.	Explain Intellectual Property Issues in Product Development	10	5

SECTION C**3. Attempt any one part of the following:**

a.	Consider the line from (5, 5) to (13, 9). Use the Bresenham's algorithm to rasterize this line.	10	1
b.	Compare Bezier and Cubic Spline curves giving suitable examples.	10	1

4. Attempt any one part of the following:

a.	Calculate coordinates of a triangle A(0,0), B(1,1), C(5,2) for rotating by 45 degree about origin.	10	2
b.	Explain 3-D scaling, rotation, reflection and translation with suitable example.	10	2

5. Attempt any one part of the following:

a.	Explain the details of polygon clipping. Give its advantages compared to the line clipping	10	3
b.	Briefly describe the various visible face detection methods or hidden surface elimination method.	10	3

6. Attempt any one part of the following:

a.	Examine the various factors that are required in an effective and good product design. Discuss the term, physical realizability in the content of engineering product designing.	10	4
b.	For a good product design financial feasibility and economic worth wholeness are important. Examine what are these terms and how are they different from each other.	10	4

7. Attempt any one part of the following:

a.	Examine what should be the qualification of product design engineer and what are the opportunities available for product design engineer?	10	5
b.	Examine what are the preliminary studies to be made before designing? What do you understand by value of appearance? What are different types of value?	10	5