CBCS SCHEME

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BCS515A

Fifth Semester B.E./B.Tech. Degree Examination, Dec.2025/Jan.2026
Computer Graphics

Time: 3 hrs. Max. Marks: 100

Note: 1. Answer any FIVE full questions, choosing ONE full question from each module.
2. M : Marks , L: Bloom's level , C: Course outcomes.

		Module – 1	M	L	C
Q.1	**a.**	Define Computer Graphics and explain its applications in various domains.	**6**	**L2**	**CO1**
	b.	Describe the difference between physical and synthetic with suitable examples.	**6**	**L3**	**CO1**
	c.	Explain the architecture of a typical graphics system , with a block diagram.	**8**	**L2**	**CO1**
		OR			
Q.2	**a.**	Compare raster graphics and vector graphics in terms of design and application.	**6**	**L2**	**CO1**
	b.	Explain the programmers interface in graphics system and its components.	**6**	**L2**	**CO1**
	c.	Discuss the factors affecting the performance of graphics system.	**8**	**L3**	**CO1**
		Module – 2			
Q.3	**a.**	Describe various input devices used in graphics with their working principles.	**6**	**L3**	**CO2**
	b.	How are clients and servers used in graphics system? Illustrate with an example.	**6**	**L2**	**CO2**
	c.	Explain how display lists improves the efficiency of a graphical system.	**8**	**L2**	**CO2**
		OR			
Q.4	**a.**	Discuss the implementation of menus in graphical applications with examples.	**6**	**L3**	**CO2**
	b.	What are Display Lists? Explain their usage in graphical applications.	**6**	**L2**	**CO2**
	c.	Write a program in Open GL to demonstrate event handling using input devices.	**8**	**L2**	**CO2**
		Module – 3			
Q.5	**a.**	Discuss the steps involved in concatenating transformations with an example.	**6**	**L3**	**CO3**
	b.	How is a colored cube modeled in Open GL providing an example program?	**6**	**L2**	**CO3**
	c.	Derive the matrix for 2D scaling and rotation transformation with examples.	**8**	**L3**	**CO3**

		OR			
Q.6	**a.**	Explain the significance of homogeneous coordinates in geometric transformation.	**6**	**L2**	**CO3**
	b.	Difference between translation , rotation and scaling transformation.	**6**	**L2**	**CO3**
	c.	Illustrate the process of applying geometric transformation with a practical example.	**8**	**L4**	**CO3**
		Module – 4			
Q.7	**a.**	Compare and contrast classical and computer viewing techniques.	**6**	**L2**	**CO4**
	b.	Discuss the role of light and matter interactions in graphical rendering.	**6**	**L3**	**CO4**
	c.	Explain the importance of viewing transformation in 3D graphics.	**8**	**L2**	**CO4**
		OR			
Q.8	**a.**	Discuss how shading enhances the realism of 3D objects in graphics.	**6**	**L3**	**CO4**
	b.	Differentiate between ambient , diffuse and specular lighting with examples.	**6**	**L2**	**CO4**
	c.	Explain the Phong lighting model with mathematical equations and examples.	**8**	**L2**	**CO4**
		Module – 5			
Q.9	**a.**	Differentiate between Liang – Barsky and Cohen – Sutherland line clipping algorithm.	**6**	**L2**	**CO5**
	b.	Explain the Cohen – Sutherland line clipping algorithm with step by step example.	**6**	**L2**	**CO5**
	c.	Explain how parallel processing is used in line drawing algorithm for performance improvement.	**8**	**L2**	**CO5**
		OR			
Q.10	**a.**	Describe the basic implementation strategies for rendering graphics primitives.	**6**	**L3**	**CO5**
	b.	Explain the major tasks involved in converting vertices to fragments in graphics.	**6**	**L2**	**CO5**
	c.	Write the steps for midpoint circle algorithm with an example.	**8**	**L2**	**CO5**

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