PSNCOLLEGEOFENGINEERINGANDTECHNOLOGY

(An Autonomous Institution Affiliated to Anna University)

Melathediyoor, Tirunelveli-627152

Department of Computer Science and Engineering

QUESTION BANK

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Prepared By: Mr.C.RAJESHKUMAR. M.E, Assistant Professor/CSE

Subject Name: Computer Graphics and Multimedia **Class** : III CSE
Subject Code:**503017** **Semester** :VI

S.No.	Question	CO	BT
	PART –A (TWO MARKS)		
1	Define Computer Graphics. Computer graphics remains one of the most existing and rapidly growing computer fields. Computer graphics may be defined as a pictorial representation or graphical representation of objects in a computer.	CO1	REMEMBER
2	Define Random scan/Raster scan displays. Random scan is a method in which the display is made by the electronic beam which is directed only to the points or part of the screen where the picture is to be drawn. The Raster scan system is a scanning technique in which the electrons sweep from top to bottom and from left to right. The intensity is turned on or off to light and unlight the pixel.	CO1	UNDERSTAND
3	List out the merits and demerits of Penetration techniques. The merits and demerits of the Penetration techniques are as follows ● It is an inexpensive technique ● It has only four colors ● The quality of the picture is not good when it is compared to other techniques ● It can display color scans in monitors ● Poor limitation etc.	CO1	REMEMBER
4	List out the merits and demerits of DVST. The merits and demerits of direct view storage tubes [DVST] are as follows ● It has a flat screen ● Refreshing of screen is not required ● Selective or part erasing of screen is not possible ● It has poor contrast ● Performance is inferior to the refresh CRT.	CO1	REMEMBER
5	What do you mean by emissive and non-emissive displays? The emissive display converts electrical energy into light energy. The plasma panels, thin film electro- luminescent displays are the examples. The Non emissive are optical effects to convert the sunlight or light from any other source to graphic form. Liquid crystal display is an example.	CO1	ANALYZE
6	List out the merits and demerits of Plasma panel display. Merits • Refreshing is not required • Produce a very steady image free of Flicker • Less bulky than a CRT. Demerits • Poor resolution of up to 60 d.p.i	CO1	REMEMBER

	• It requires complex addressing and wiring It is costlier than CRT.		
7	What is persistence? The time it takes the emitted light from the screen to decay one tenth of its original intensity is called as persistence.	CO1	REMEMBER
8	What is resolution? The maximum number of points that can be displayed without an overlap on a CRT is called as resolution.	CO1	REMEMBER
9	What is Aspect ratio? The ratio of vertical points to the horizontal points necessary to produce length of lines in both directions of the screen is called the Aspect ratio. Usually the aspect ratio is ¾.	CO1	REMEMBER
9	What are the advantages of laser printer? • High speed, precision and economy. • Cheap to maintain. • Quality printers. • Lasts for longer time. • Toner power is very cheap.	CO1	ANALYZE
10	Define Computer Graphics. Computer graphics remains one of the most existing and rapidly growing computer fields. Computer graphics may be defined as a pictorial representation or graphical representation of objects in a computer.	CO1	REMEMBER
11	What is frame buffer? Picture definition is stored in a memory area called frame buffer or refresh buffer.	CO1	REMEMBER
12	What do you mean by scan conversion? A major task of the display processor is digitizing a picture definition given in an application program into a set of pixel-intensity values for storage in the frame buffer. This digitization process is called scan conversion.	CO1	REMEMBER
13	What is an output primitive? Graphics programming packages provide function to describe a scene in terms of these basic geometric structures, referred to as output primitives.	CO1	REMEMBER
14	What do you mean by ‘jaggies’? Line with stair step appearance is known as jaggies.	CO1	REMEMBER
15	Where the video controller is used? A special purpose processor, which is used to control the operation of the display device, is known as video controller or display controller.	CO1	REMEMBER
	PART B		
1	Explain refresh cathode ray tube.	CO1	EVALUATE
2	Explain color CRT monitors.		EVALUATE
3	Explain direct view storage tubes and liquid crystal displays.		ANALYZE
4	Write short notes on Raster scan systems.		CREATE
5	Explain in detail about video display devices.		CREATE
6	Explain in detail about raster and random scan systems.		EVALUATE
7	Explain in detail about graphics input devices.		EVALUATE

8	Briefly explain hard copy devices in computer graphics.		EVALUATE
9	Write short notes about printers and plotters.		EVALUATE
10	What are beam penetrations and shadow mask technique explains the details about it.		EVALUATE
	UNIT 2 PART A		
1	Write short notes on lines. A line is of infinite extent can be defined by an angle of slope . and one point on the line P=P(x,y). This can also be defined as Y=mx+C where C is the Y- intercept.	CO2	REMEMBER
2	Define Circle. Circle is defined by its center xc, yc and its radius in user coordinate units. The equation of the circle is (x-xc) + (y-yc) = r2.	CO2	REMEMBER
3	Define Ellipse. An ellipse can use the same parameters xc, yc ,r as a circle, in addition to the eccentricity e. the eqn of an ellipse is: (x-xc)2/a2 + (y-yc)2/b2 = 1	CO2	REMEMBER
4	Define polygon. A polygon is any closed continues sequence of line segments ie, a polyline whose last node point is same as that of its first node point. The line segments form the sides of the polygon and their intersecting points from the vertices of the polygon	CO2	REMEMBER
5	Distinguish between convex and concave polygons. If the line joining any two points in the polygon lies completely inside the polygon then, they are known as convex polygons. If the line joining any two points in the polygon lies outside the polygon then, they are known as concave polygons.	CO2	REMEMBER
6	What is seed fill and soft fill? One way to fill a polygon is to start from a given point (seed) known to be inside the polygon and highlight outward from this point i.e neighboring pixels until encounter the boundary pixels, this approach is called seed fill.	CO2	REMEMBER
7	What is scan line algorithm? One way to fill the polygon is to apply the inside test. i.e to check whether the pixel is inside the polygon or outside the polygon and then highlight the pixel which lie inside the polygon. This approach is known as scan-line algorithm.	CO2	EVALUATE
8	What is an active edge list in the scan line algorithm? The active edge list for a scan line contains all edges crossed by that scan line.	CO2	REMEMBER
9	List out the methods used for smoothly joining two line segments. • Mitter join-by extending the outer boundaries of each of the two lines until they meet. • Round join – by capping the connection between the two segments with a circular boundary whose diameter is equal to the line width.	CO2	UNDERSTAND
10	What is aliasing and antialiasing? In the line drawing algorithms, all rasterzed locations do not match with the true line and have to represent a straight line. This problem	CO2	UNDERSTAND

	a stair-step		
11	What is pixel phasing? Pixel phasing is an ant aliasing technique, stair steps are smoothed out by moving the electron beam to more nearly approximate positions specified by the object geometry.	CO2	EVALUATE
UNIT -2 PART B			
1	Describe in detail about the DDA scan conversion algorithm?	CO2	CREATE
2	Write down and explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and co-ordinate origin as the centre of the circle.		CREATE
3	Explain Ellipse generating Algorithm.		EVALUATE
4	Explain in detail about Bresenham‟s line generating algorithm. Give example.		UNDERSTAND
5	Explain in detail about Bresenham‟s circle generating algorithm. Give example.		EVALUATE
6	Explain in detail about Bresenham‟s ellipse generating algorithm. Give example.		Creative
7	Explain in detail about video display devices.		Creative
8	Explain in detail about raster and random scan systems.		Creative
9	Explain in detail about graphics input devices.		Creative
UNIT 3- PART A			
1	What is Transformation? Transformation is the process of introducing changes in the shape size and orientation of the object using scaling rotation reflection shearing & translation etc.	CO3	REMEMBER
2	Write short notes on active and passive transformations. In the active transformation the points x and y represent different coordinates of the same coordinate system. Here all the points are acted upon by the same transformation and hence the shape of the object is not distorted.	CO3	ANALYZE
3	What is translation? Translation is the process of changing the position of an object in a straight-line path from one coordinate location to another. Every point (x, y) in the object must undergo a displacement to (x´,y´).	CO3	REMEMBER
4	What is rotation? A 2-D rotation is done by repositioning the coordinates along a circular path, in X = rcos (q + f) and Y = r sin (q + f).	CO3	REMEMBER
5	What is scaling? The scaling transformations changes the shape of an object and can be carried out by multiplying each vertex (x,y) by scaling factor Sx,Sy where Sx is the scaling factor of x and Sy is the scaling factor of y.	CO3	ANALYZE
6	What is shearing? The shearing transformation actually slants the object along the	CO3	REMEMBER

	X direction or the Y direction as required.ie; this transformation slants the shape of an object along a required plane.		
7	What is reflection? The reflection is actually the transformation that produces a mirror image of an object. For this use some angles and lines of reflection.	CO3	EVALUATE
8	Distinguish between window port & view port? A portion of a picture that is to be displayed by a window is known as window port. The display area of the part selected or the form in which the selected part is viewed is known as view port.	CO3	REMEMBER
9	Define clipping? And types of clipping. Clipping is the method of cutting a graphics display to neatly fit a predefined graphics region or the view port. ● Point clipping ● Line clipping ● Area clipping ● Curve clipping ● Text clipping	CO3	REMEMBER
10	What is the need of homogeneous coordinates? To perform more than one transformation at a time, use homogeneous coordinates or matrixes. They reduce unwanted calculations intermediate steps saves time and memory and produce a sequence of transformations	CO3	UNDERSTAND
11	Define Affine transformation. A coordinate transformation of the form X= axxx +axyy+bx, y ‟ayxx+ayy y+by is called a two-dimensional affine transformation. Each of the transformed coordinates x „and y „is a linear function of the original coordinates x and y, and parameters aij and bk are constants determined by the transformation type.	CO3	UNDERSTAND
12	List out the various Text clipping. • All-or-none string clipping -if all of the string is inside a clip window, keep it otherwise discards. • All-or-none character clipping – discard only those characters that are not completely inside the window. Any character that either overlaps or is outside a window boundary is clipped.	CO3	REMEMBER
13	What is the use of clipping?(may/june 2012) Clipping in computer graphics is to remove objects, lines or line segments that are outside the viewing volume	CO3	REMEMBER
14	How will you clip a point?(may/june 2013) Assuming that the clip window is a rectangle in standard position, we save a point P=(x,y) for display if the following inequalities are satisfied: $xw_{min} \leq x \leq xw_{max}$ $yw_{min} \leq y \leq yw_{max}$	CO3	UNDERSTAND

15	Define viewing transformation. The mapping of a part of world coordinate scene to device coordinates are called viewing transformation. Two dimensional viewing transformation is simply referred to as window to viewport transformation or the windowing transformation.	CO3	REMEMBER
	UNIT 3 –PART B		
1	Explain reflection and shear?	CO3	EVALUATE
2	Explain Liang Barsky line clipping		EVALUATE
3	Explain Sutherland Hodgeman polygon clipping		EVALUATE
4	Explain about clipping operations		EVALUATE
5	Explain in detail about window to viewport coordinate transformation.		EVALUATE
6	Write a detailed note on the basic two dimensional transformations.		EVALUATE
7	Explain with an example the Cohen-Sutherland line clipping algorithm.		EVALUATE
8	Compare Cohen-Sutherland line clipping algorithm and Liang-Barsky line clipping algorithm. Write note on any one polygon clipping algorithm.		EVALUATE
	UNIT -4 PART-A		
1	What is the various representation schemes used in three dimensional objects? ● Boundary representation (B-res) – describe the 3 dimensional objects as a set of surfaces that separate the object interior from the environment.	CO4	ANALYZE
2	What is Polygon mesh? Polygon mesh is a method to represent the polygon, when the object surfaces are tiled, it is more convenient to specify the surface facets with a mesh function	CO4	REMEMBER
3	What is Bezier Basis Function? Bezier Basis functions are a set of polynomials, which can be used instead of the primitive polynomial basis, and have some useful properties for interactive curve design.	CO4	UNDERSTAND
4	What is surface patch? A single surface element can be defined as the surface traced out as two parameters (u, v) take all possible values between 0 and 1 in a two-parameter representation. Such a single surface element is known as a surface patch.	CO4	UNDERSTAND
5	What are the advantages of rendering polygons by scan line method? i. The max and min values of the scan were easily found. ii. The intersection of scan lines with edges is easily calculated by a simple incremental method. iii. The depth of the polygon at each pixel is easily calculated by an incremental method.	CO4	REMEMBER
6	Define B-Spline curve. A B-Spline curve is a set of piecewise(usually cubic) polynomial segments that pass close to a set of control points. However the curve does not pass through these control points, it only passes close to them.	CO4	REMEMBER

7	What do you mean by parabolic splines? For parabolic splines a parabola is fitted through the first three points p1,p2,p3 of the data array of k points. Then a second parabolic arc is found to fit the sequence of points p2, p3, p4. This continues in this way until a parabolic arc is found to fit through points pn-2, pn-1 and pn. The final plotted curve is a meshing together of all these parabolic arcs.	CO4	UNDERSTAND
8	Define Projection. The process of displaying 3D into a 2D display unit is known as projection. The projection transforms 3D objects into a 2D projection plane. The process of converting the description of objects from world coordinates to viewing coordinates is known as projection	CO4	APPLY
8	What are the steps involved in 3D transformation? • Modeling Transformation • Viewing Transformation • Projection Transformation • Workstation Transformation	CO4	REMEMBER
10	What do you mean by view plane? A view plane is nothing but the film plane in camera which is positioned and oriented for a particular shot of the scene.	CO4	REMEMBER
11	What is view-plane normal vector? This normal vector is the direction perpendicular to the view plane and it is called as [DXN DYN DZN]	CO4	ANALYZE
12	What you mean by parallel projection? Parallel projection is one in which z coordinates is discarded and parallel lines from each vertex on the object are extended until they intersect the view plane.	CO4	UNDERSTAND
13	What do you mean by Perspective projection? Perspective projection is one in which the lines of projection are not parallel. Instead, they all converge at a single point called the center of projection.	CO4	ANALYZE
14	What is orthographic oblique projection? When the direction of the projection is not normal (not perpendicular) to the view plane then the projection is known as oblique projection.	CO4	ANALYZE
15	What do you mean by principle vanishing point? The vanishing point of any set of lines that are parallel to one of the three principle axes of an object is referred to as a principle vanishing point or axis vanishing point.	CO4	ANALYZE
	UNIT 4 PART -B		
1	Explain in detail about XYZ color model.	CO4	CREATE
2	Explain in detail about RGB color model.		CREATE
3	Explain in detail about YIQ color model.		EVALUATE
4	Explain in detail about CMY color model.		ANALYZE
5	Explain in detail about HSV color model.		EVALUATE
6	Briefly explain about the basic transformations performed on three dimensional objects.		CREATE
7	Write short notes on parallel and perspective projections		CREATE

8	Explain in detail about three dimensional display methods.		EVALUATE
9	Explain in detail about the boundary representation of three dimensional objects.		ANALYZE
10	Explain in detail about the three dimensional transformations.		EVALUATE
	UNIT 5 (PART-A)		
1	Define Multimedia? Multimedia is defined as a Computer based Interactive Communication process that incorporates text, numeric data, record based data, graphic art, video and audio elements, animation etc. It is used for describing sophisticated systems that support moving images and audio. Eg.Personal Computer	CO5	UNDERSTAND
2	What are the data elements of MM? Facsimile Document Images Photographic Images Geographic Information System Maps	CO5	REMEMBER
3	State the resolution of Facsimile, Document Images and Photographic Images? Facsimile-100 to 200 dpi Document images – 300 dpi (dots/pixels per inch) Photographic images – 600 dpi	CO5	ANALYZE
4	What is the compression technique used in Facsimile and Document Images? Facsimile - CCITT Group3 Document Images - CCITT Group4	CO5	ANALYZE
5	What is the use of Document Images? It is used for storing business documents that must be retained for long periods of time and accessed by large number of people. It removes the need for making several copies for storage or distribution.	CO5	REMEMBER
6	Explain about GIS Systems? GIS means Geographic Information System Maps. It is used for natural resource and wild life management and urban planning.	CO5	REMEMBER
7	What are the two technologies used for storage and display of GIS systems? Raster Storage Raster Image (Raster Image has basic color map, vector overlay and text display)	CO5	ANALYZE

8	Explain about Full motion and live video? Full motion video refers to prestored video clip. i.e., video stored in CD Eg: games, courseware, training manuals, MM online manuals etc Live video refers to live telecast.	CO5	REMEMBER
9	Explain the terms Holography and Hologram? Holography is defined as the means of creating a unique photographic image without the use of lens. The photographic recording of the image is called a Hologram	CO5	REMEMBER
10	Define Fractals? Fractals are regular objects with a high degree of irregular shapes. It is a lossy Compression technique but it doesn't change the shape of the image. Fractals are decompressed images that result from a compression format	CO5	REMEMBER
	PART B UNIT 5		
1	Explain in detail: Applications of multimedia	CO5	EVALUATE
2	Write a note on: Integrated multimedia message and standards		EVALUATE
3	Write a short note on compression and decompression techniques of Multimedia		CREATE
4	Explain: Multimedia Data interface standards		REMEMBER
5	Write a note on: Mobile messaging		UNDERSTAND
6	Briefly explain the multimedia system architecture and its details		EVALUATE