MCA Software LAB Viva Questions

1. **Write the two techniques for producing color displays with a CRT?**
   Beam penetration method, shadow mask method.
2. **Short notes on video controller?**
   Video controller is used to control the operation of the display device. A fixedarea of the system is reserved for the frame buffer, and the video controller isgiven direct access to the frame buffer memory.

3. **What is scan conversion?**
   A major task of the display processor is digitizing a picture definitiongiven in an application program into a set of pixel-intensity values for storage inthe frame buffer. This digitization process is called scan conversion.

4. **Write the properties of video display devices?**
   Properties of video display devices are persistence, resolution, and aspectratio.

5. **What is rasterization?**
   The process of determining the appropriate pixels for representing pictureor graphics object is known as rasterization.
6. **Name any four input devices.**
   Four input devices are keyboard, mouse, image scanners, and trackball.
7. **What is vertical retrace of the electron beam?**
   In raster scan display, at the end of one frame, the electron beam returns to theleft top corner of the screen to start the next frame, is called vertical retrace of theelectron beam.
8. **Short notes on video controller?**
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9. **What are the difference between vector and raster graphics?**

Raster or Bitmap images are resolution-dependent because of this, it's not possible to increase or reduce their size without sacrificing on image quality. While the vector-based display is not dependent on resolution, the range of vector image can be increased or reduced without affecting image quality. Unlike a raster image, a vector picture can't be used for realistic pictures. This is because vector images are made up of solid-color areas and scientific gradients, so they can't be used to demonstrate the continuous tone of colors in a natural photograph.

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 representationor graphical representation of objects in a computer

11. **What are the advantage and disadvantages of DDA Algorithm?**

Advantage:

It is the most straightforward algorithm.

It is a faster process for calculating pixel positions.

Disadvantage:

Floating-point arithmetic in DDA technique is time-consuming.

Endpoint accuracy is poor.

12. Difference between DDA and Bresenham's line drawing algorithm.

Arithmetic	DDA algorithm uses floating point, i.e., Real Arithmetic's.	Bresenhams algorithm uses fixed point, i.e., Integer Arithmetic's.
Operations	DDA algorithms uses multiplication and division in its operation.	Bresenhams algorithm use only subtraction and addition in its operations.
Speed	DDA algorithm is slowly than Bresenham's algorithm inline drawing because it uses real arithmetic	Bresenhams algorithm is faster than the DDA algorithm inline drawing because it performs only addition and

	(floating-point methods).	subtractions in its calculation and uses only integer arithmetic, so it runs significantly fast.
Accuracy & Efficiency	DDA algorithms is not as accurate and efficient as Bresenham's algorithm.	Bresenham's algorithm is much accurate than the DDA algorithms.
Drawing	DDA algorithm can draw circle and curves, but which is not as accurate as Bresenhams	Bresenhams algorithm can draw circle and curves with much more accuracy than DDA Algorithm.
Expensive	DDA algorithm uses an excessive number of floating-point multiplications, so it is costly.	Bresenhams algorithm is less costly than the DDA algorithm as it uses only addition and subtraction.

13. What is Translation?

A translation is used to an object by repositioning it along a straight line path from one co-ordinate point to another. We translate a 2-D points by adding translation distance, tx, and ty, to the original coordinates position (x,y) to move the points to a new position (x', y').

$$x' = = x + tx$$
$$y' = y + ty.$$

14. What is Reflection?

A Reflection is a transformation which produces a mirror display of an object. The mirror image for a 2D reflection is created relative to an axis of reflection by rotating the objects 180 degrees about the reflection axis.

15. What is Shearing?

A transformation which distorts the shape of an object such that the transformed way develop as if the object were consist of internal layers that had been caused to slide over each other is known as shearing.

16. What is viewing transformation?

The mapping of a component of a world-coordinate scene to device coordinates is called a viewing transformation.

17. Define Clipping and Clip window.

Any method that identifies those portions of a display that are either inside or outside of a particular region of space is referred to as a clipping algorithm or simply clipping. The region against which an object is clipped is known a clip window.

18. Differentiate between parallel projections from perspective projection.

In parallel projection, coordinate positions are changed to the view plane along parallel lines.	In perspective projection, object positions are changed to the view plane along lines that converge to a point known as a projection reference point or center of projection.
Preserves the related proportions of objects.	Produce realistic vision but does not keep relative proportions.
It is used in drafting to produce scale drawings of 3Dobjects.	Projections of distant objects are lower than the projections of objects of the same size that are near to the projection plane.

19. What is the need for space partitioning representation?
Space partitioning representations are used to define interior methods, by partitioning the spatial domain including an object into a set of small non-overlapping, and contiguous solids. A common space partitioning description for a three object is an octree representation.

20. What is the quadric surfaces?
Quadric surfaces are described with second-degree equations (quadrics). They include sphere, ellipsoids, tori, paraboloids, and hyperboloids. Spheres and ellipsoids are necessary components of graphic scenes; they are often feasible in graphics packages from which more complex object can be constructed.

21. What is an animation?
Computer Animation usually defines any time sequence of visual transformation in a scene. In adding to the dynamic area with translations or rotations, computer-generated animations could exhibit time innovation in object dimension, color, transparency, or surface texture. Animations often transition from one object shape to another.

22. Define Keyframe systems.
Key-frame systems are specialized animation languages designed to generate the in-between frames from user-specified keyframes. Each object in the scene is described as a set of rigid bodies connected at the joints and with a limited number of degree of freedom. In-between frames are generated from the specification of two or more fey frames. Motion paths can be given by kinematic description as a set of spline curves or physically based by specifying the force acting on the object to be animated.

23. Define Window and viewport.
A world-coordinate area selected for display is known as a window.
An area on the display device to which a windows is mapped is known as a viewport.

24. Define clipping?
Clipping is the method of cutting a graphics display to neatly fit a predefined graphics region or the view port

25. Define computer graphics animation?

Computer graphics animation is the use of computer graphics equipment where the graphics output presentation dynamically changes in real time. This is often also called real time animation.

26. What are the different attributes of image?

Images has the following attribute: (a) size (b) color (c) depth (d) image resolution.

27. What is key frame?

One of the shape photographs that a film or video is made of the shape of an object is known initially and for a small no of other frames called keyframe

28. What is computer animation?

Computer animation is the latest technique of animation that includes 2D and 3D animation.

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37. What is bitmap?

Some system has only one bit per pixel; the frame buffer is often referred to as bitmap.

38. Differentiate plasma panel display and thin film electro luminescent display?

In plasma panel display, the region between two glass plates is filled with neon gas. In thin film electro luminescent display, the region between two glasses plates are filled with phosphor, such as zinc sulphide doped with manganese.

39. What are the Spline curves?

The name spline is a flexible strip used to generate a smooth curve through a designated set of points. In computer Graphics, the name spline curves define to any combined curve create with polynomial portions fulfilling specified continuity methods at the edge of the pieces.

40. What does it mean by RGB?

RGB is a color model, it is an additive color image in which red, green, and blue lights are added composed in various methods to reproduce a broad display of colors. The term of the model comes from the labels of the three additive primary colors, red, green, and blue. The main objective of the RGB color model is for the sensing, defining, and display of pictures in electronic systems, such as televisions and computers, though it has also been utilizing in conventional photography.