MASTER OF COMPUTER APPLICATION
FOURTH SEMESTER
COMPUTER GRAPHICS
MCA-405

(Use separate answer scripts for Objective & Descriptive)

Duration : 3 hrs. **Full Marks : 70**

[PART-A : Objective]

Time : 20 min. **Marks : 20**

Choose the correct answer from the following: *1x20=20*

1. Good graphics programming avoids the use of floating point operations because:
   a. Large memory space required to store floating point value.
   b. Floating point operations slow down the system.
   c. Floating point operations speed up the system.
   d. None of these.

2. The translation distances (dx, dy) is called as:
   a. Translation vector
   b. Shift vector
   c. Both a and b
   d. Neither a nor b

3. Following is an algorithm for line clipping:
   a. Cohen-Sutherland algorithm
   b. Z-buffer algorithm
   c. Bresenham's algorithm
   d. None of these

4. Which device provides positional information to the graphics system?
   a. Input devices
   b. Output devices
   c. Pointing devices
   d. Both a and c

5. In graphical system, the array of pixels in the picture are stored in:
   a. Memory
   b. Frame buffer
   c. Processor
   d. All of the mentioned

6. Heat supplied to the cathode by directing a current through a coil of wire is called:
   a. Electron gun
   b. Electron bean
   c. Filament
   d. Anode and cathode

7. Pixel mask means:
   a. A string containing only 1's
   b. A string containing only 0's
   c. A string containing 1 and 0
   d. A string containing 0 and 0

8. The basic attributes of a straight line segment are:
   a. Type
   b. Width
   c. Colour
   d. All of these

9. The process of digitizing a given picture definition into a set of pixel-intensity for storage in the frame buffer is called:
   a. Rasterization
   b. Encoding
   c. Scan conversion
   d. True color system

10. The primary output device in a graphics system is.....
    a. Scanner
    b. Video monitor
    c. Neither a nor b
    d. Printer

11. The color code "000" is for:
    a. White
    b. Black
    c. Blue
    d. Green

12. With 3 bits per pixel, we can accommodate 8 gray levels. If we use 8 bits per pixel then what is the value of gray levels?
    a. 18 gray levels
    b. 128 gray levels
    c. 256 gray levels
    d. No color

13. For 2D transformation the value of third coordinate i.e. w=?
    a. 1
    b. 0
    c. -1
    d. Any value

14. The surfaces that is blocked or hidden from view in a 3D scene are known as:
    a. Hidden surface
    b. Frame buffer
    c. Quad tree
    d. None of these

15. The method which is based on the principle of checking the visibility point at each pixel position on the projection plane are called:
    a. Object-space method
    b. Image-space method
    c. Both a & b
    d. None of these

16. A video consists of a sequence of:
    a. Frames
    b. Signals
    c. Packets
    d. Slots

17. In Audio and Video Compression, each frame is divided into small grids, called picture elements or
    a. Frame
    b. Packet
    c. Pixels
    d. Mega pixels

18. The transformation that disturbs the shape of an object are called:
    a. Reflection
    b. Shear
    c. Rotation
    d. Scaling

19. The object space in which the application model is defined:
    a. Screen coordinate system
    b. Clipping window or world window
    c. World coordinate system
    d. None of these

20. Expansion of line DDA algorithm is:
    a. Digital difference analyzer
    b. Direct differential analyzer
    c. Digital differential analyzer
    d. Data differential analyzer

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(PART-B : Descriptive)

Time : 2 hrs. 40 min. **Marks : 50**

[Answer question no.1 & any four (4) from the rest]

1. Define the different input devices used in computer graphics. 10

2. What is Hidden surface? Write about the 4 different algorithms to remove hidden surface. 2+8=10

3. Write DDA line drawing algorithm. Draw a circle with radius 6 using midpoint algorithm. 4+6=10

4. Describe window to viewport transformation. Write the Cohen-Sutherland line clipping algorithm. 4+6=10

5. a. What is MIDI? Describe all components of MIDI. 5+5=10
   b. What is multimedia? Write about the uses of multimedia.

6. Define the basic 2-D transformation with examples. Write about homogenous coordinate. 6+4=10

7. What is Projection? Describe the all categories of projection. 2+8=10

8. a. Describe plasma display with advantages and disadvantages. 4+6=10
   b. Find the coordinates of intersecting points for line joining the points (-1,-2) and (12,13) with window coordinates(2,2) and (7,8) using Liang-Barsky clipping algorithm.

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