

**Code No. : 1295**

**B. C. A. (Fourth Semester) Examination, 2023-24**

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**Paper First**

**COMPUTER GRAPHICS AND MULTIMEDIA  
APPLICATION (MAJOR)**

**Course Code—BCA-401(T)**

In Figures (अंकों में) :

**Roll No.**

In Words (शब्दों में) :

Date : .....

**Time : 2 Hrs.**

**Signature of Invigilator**

**कक्ष निरीक्षक के हस्ताक्षर**

**Max. Marks : 75**

**Important Instructions :**

1. The candidate will write his/her Roll Number only at the places provided for, i. e., on the cover page and on the OMR answer sheet at the end and nowhere else.
2. Immediately on receipt of the question booklet, the candidate should check up the booklet and ensure that it contains all the pages and that no question is missing. If the candidate finds any discrepancy in the question booklet, he/she should report the invigilator within 10 minutes of the issue of this booklet and a fresh question booklet without any discrepancy is obtained.
3. No second question booklet shall be given to a candidate under any circumstances after 10 minutes. The candidate should be careful in handling the question booklet and in filling the OMR answer sheet given separately with this booklet

**महत्वपूर्ण निर्देश :**

1. अभ्यर्थी अपने अनुक्रमांक केवल उन्हीं स्थानों पर लिखेंगे जो इसके लिए दिये गये हैं, अर्थात् प्रश्न पुस्तिका के मुख्य पृष्ठ तथा साथ दिये गये ओ. एम. आर. उत्तर पत्र पर, तथा अन्यत्र कहीं नहीं लिखेंगे।
2. प्रश्न पुस्तिका मिलते ही अभ्यर्थी को जाँच करके सुनिश्चित कर लेना चाहिए कि पुस्तिका में पूरे पृष्ठ हैं और कोई प्रश्न छूटा तो नहीं है। यदि कोई विसंगति है तो प्रश्न पुस्तिका मिलने के 10 मिनट के भीतर ही कक्ष परिप्रेक्षक को सूचित करना चाहिए और बिना त्रुटि की दूसरी प्रश्न पुस्तिका प्राप्त कर लेना चाहिए।
3. किसी भी परिस्थिति में 10 मिनट बाद अभ्यर्थी को दूसरी प्रश्न पुस्तिका नहीं मिलेगी। अभ्यर्थी को प्रश्न पुस्तिका को उपयोग में लाने और ओ. एम. आर. उत्तर पत्र को भरने में सावधानी बरतनी चाहिए।

∇

1. Which of the following statements define Computer Graphics ?
  - (A) It refers to designing plans.
  - (B) It means designing computers.
  - (C) It refers to designing images.
  - (D) None of the mentioned
  
2. Which of the following are the features of Computer Graphics ?
  - (A) Creation and deletion of images by computer only
  - (B) Deletion and manipulation of graphical images by computer
  - (C) Creation and manipulation of graphics by computer
  - (D) Creation of artificial images by computer only
  
3. Which of the following is a Computer Graphics type ?
  - (A) Raster and Vector
  - (B) Raster and Scalar
  - (C) Scalar only
  - (D) All of the above
  
4. Which of the following planes is used for 2D transformations ?
  - (A) Three-dimensional plane
  - (B) Two-dimensional plane
  - (C) One-dimensional plane
  - (D) Four-dimensional plane
  
5. Which of the following is a Computer Graphics Curve ?
  - (A) Bezier Curves
  - (B) Implicit Curves
  - (C) Explicit Curves
  - (D) All of the above
  
6. Which of the following is the purpose for using clipping in computer graphics ?
  - (A) copying
  - (B) zooming
  - (C) adding graphics
  - (D) removing objects and lines
  
7. Curves in computer graphics is primarily used for which of the following functions ?
  - (A) To draw different types of objects onto the screen
  - (B) Zooming out a picture
  - (C) Copying a picture
  - (D) Zooming in a picture
  
8. In a graphical system an array of pixels in the picture are stored in which of the following locations ?
  - (A) Frame buffer
  - (B) Processor
  - (C) Memory
  - (D) All of the mentioned

9. Bitmap is a collection of ..... that describes an image.
- (A) pixels
  - (B) algorithms
  - (C) bits
  - (D) colors
10. Which of the following devices provides positional information to the graphics system ?
- (A) Pointing devices
  - (B) Both Input devices and Pointing devices
  - (C) Output devices
  - (D) Input devices
11. Which of the following is defined as the number of pixels stored in the frame buffer of a graphics system ?
- (A) Resalution
  - (B) Resolution
  - (C) Depth
  - (D) None of the mentioned
12. Which of the following is a primary output device of a graphics system ?
- (A) Printer
  - (B) Scanner
  - (C) Video monitor
  - (D) None of the mentioned
13. Which of the following is used in graphics workstations as input devices to accept voice commands ?
- (A) Speech recognizers
  - (B) Touch panels
  - (C) All of the mentioned
  - (D) None of the mentioned
14. What is the use of voice system input ?
- (A) To enter data
  - (B) To initiate graphics operation and also to enter data
  - (C) To initiate graphics operation
  - (D) None of the mentioned
15. Which of the following is defined as the process of elimination of parts of a scene outside a window or a viewport ?
- (A) Editing
  - (B) Cutting
  - (C) Plucking
  - (D) Clipping
16. Which of the following is known as the window opened on the raster graphics screen in which the image will be displayed ?
- (A) Interface window
  - (B) World window
  - (C) World co-ordinate system
  - (D) Screen co-ordinate system

17. Which of the following operations can be used to zoom in or out around any axis on a three-dimensional object from its original position ?
- (A) Rotation
  - (B) Shearing
  - (C) Scaling
  - (D) Translation
18. Which of the following is defined as the drawing of number of copies of the same image in rows and columns across the interface window so that they cover the entire window ?
- (A) Zooming
  - (B) Panning
  - (C) Tiling
  - (D) Roaming
19. How many axes do 3D graphics consist of ?
- (A) 2
  - (B) 3
  - (C) 5
  - (D) 1
20. Which of the following is the most commonly used boundary representation for a 3-dimensional graphics object ?
- (A) Volume polygon
  - (B) System polygon
  - (C) Data polygon
  - (D) Surface polygon
21. Which of the following is the process of digitizing a given picture definition into a set of pixel-intensity for storage in the frame buffer ?
- (A) Scan conversion
  - (B) True color system
  - (C) Encoding
  - (D) Rasterization
22. Which of the following is commonly known as frame buffer on a black and white system with one bit per pixel ?
- (A) Bitmap
  - (B) Pix map
  - (C) Multi map
  - (D) All of the mentioned

23. Which of the following algorithms is a faster method for calculating pixel positions ?
- (A) Parallel line algorithm
  - (B) Mid-point algorithm
  - (C) DDA line algorithm
  - (D) Bresenham's line algorithm
24. If the boundary is specified in a single color and if the algorithm proceeds pixel by pixel until the boundary color is encountered is known as :
- (A) Parallel curve algorithm
  - (B) Flood-fill algorithm
  - (C) Scan-line fill algorithm
  - (D) Boundary-fill algorithm
25. Which of the following defines a pixel mask ?
- (A) A string containing 1 and 0
  - (B) A string containing 0 and 0
  - (C) A string containing only 0s
  - (D) A string containing only 1s
26. What does an aspect ratio mean ?
- (A) Ratio of vertical points to horizontal points
  - (B) Ratio of vertical points to horizontal points and horizontal points to vertical points
  - (C) Number of pixels
  - (D) Ratio of horizontal points to vertical points
27. Which of the following is a correct abbreviation of DDA algorithm ?
- (A) Data Differential Analyzer
  - (B) Direct Differential Analyzer
  - (C) Digital Difference Analyzer
  - (D) Digital Differential Analyzer
28. The Cohen-Sutherland algorithm divides the region into how many spaces ?
- (A) 9
  - (B) 8
  - (C) 7
  - (D) 6
29. The Cohen-Sutherland algorithm is more efficient than the Liang-Barsky algorithm.
- (A) Yes
  - (B) No
  - (C) Depends on different cases
  - (D) None of the mentioned
30. Which of the following is used for 3D positioning and modelling animation and other application ?
- (A) Space ball
  - (B) Track ball
  - (C) Space ball
  - (D) All of the mentioned

31. Which of the following types of perspective projection is also called Angular Perspective ?
- (A) Four-point
  - (B) Three-point
  - (C) One-point
  - (D) Two-point
32. Which of the following types of perspective projection is used in drawings of railway lines ?
- (A) Three-point
  - (B) Two-point
  - (C) One-point
  - (D) Perspective projection is not used to draw railway lines
33. Which of the following representations represents a three-dimensional object ?
- (A) Function
  - (B) Point
  - (C) Polygon
  - (D) Equation
34. Which part of a picture is considered and saved in exterior clipping ?
- (A) We do not consider the picture in exterior clipping.
  - (B) Picture which is outside the view window.
  - (C) Picture which is inside the view window.
  - (D) Picture which is on the edges of the view window.
35. Which of the following clipping processes handles the clipping of strings ?
- (A) Text Clipping
  - (B) Exterior Clipping
  - (C) Curve Clipping
  - (D) Shape Clipping
36. Which of the following algorithms can be used to clip a polygon in 3D space ?
- (A) Vatti Clipping Algorithm
  - (B) Polygon in 3D space cannot be clipped
  - (C) Weiler Atherton Algorithm
  - (D) Greiner Hormann Clipping Algorithm

37. How is the line path on the polygon area for a 45° line ?
- (A) Vertical
  - (B) Horizontal
  - (C) Centered
  - (D) None of the mentioned
38. Which of the following is defined as the sampling of object characteristics at a high resolution and displaying the result at a lower resolution ?
- (A) Anti-aliasing
  - (B) Super-sampling or Post-filtering
  - (C) Post-filtering
  - (D) Super-sampling
39. Which of the following is the correct full form of the NLN line clipping algorithm ?
- (A) Nicholai-Lee-Nicholl algorithm
  - (B) Nicholl-Liang-Nicholl algorithm
  - (C) Nicholl-Lee-Nicholl algorithm
  - (D) Nicholai-Liang-Nicholl algorithm
40. Skala is an example of which of the following types of clipping ?
- (A) polygon clipping
  - (B) line clipping
  - (C) curve clipping
  - (D) point clipping
41. Which of the following is not a type of area sampling ?
- (A) Point sampling
  - (B) Weighted area sampling
  - (C) Anti-aliasing
  - (D) Unweighted area sampling
42. In which of the following methods, fixed pattern of a line is used to generate characters ?
- (A) Dot-matrix method
  - (B) Bitmap method
  - (C) Stroke method
  - (D) Starburst method
43. Which of the following stores the picture information as a charge distribution behind the phosphor-coated screen ?
- (A) Direct-view storage tube
  - (B) Flat panel displays
  - (C) 3D viewing device
  - (D) Cathode ray tube

44. Which of the following devices is designed to minimize the background sound ?
- (A) Joystick
  - (B) Data glove
  - (C) Microphone
  - (D) Digitizers
45. GUI stands for :
- (A) Graphics Uniform Interaction
  - (B) Graphical User Interaction
  - (C) Graphical User Interface
  - (D) None of the mentioned
46. Graphics can be :
- (A) Simulation
  - (B) Drawing
  - (C) Movies and Photographs
  - (D) All of the above
47. CAD stands for :
- (A) Computer Art Design
  - (B) Computer-Aided Design
  - (C) Car Art Design
  - (D) None of the mentioned
48. The component(s) of Interactive computer graphics is/are :
- (A) A monitor
  - (B) Display controller
  - (C) Frame buffer
  - (D) All of the above
49. A user can make any change in the image using :
- (A) Interactive computer graphics
  - (B) Non-Interactive computer graphics
  - (C) Both (A) and (B)
  - (D) None of the mentioned
50. The higher number of pixels gives us a ..... image.
- (A) Better
  - (B) Worst
  - (C) Smaller
  - (D) None of the mentioned
51. Which one of the following terms is used for the area of the computer captured by an application ?
- (A) Display
  - (B) Window
  - (C) Viewport
  - (D) None of the mentioned



52. Which of the following is not the pattern of line ?
- (A) Dotted line
  - (B) Dashed line
  - (C) Dark line
  - (D) All of the above
53. The process of repositioning an object along a circular path is called :
- (A) Translation
  - (B) Rotation
  - (C) Both (A) and (B)
  - (D) None of the mentioned
54. Which of the following is must be specified to generate a rotation ?
- (A) Rotational distance
  - (B) Rotation angle
  - (C) Co-ordinates
  - (D) None of the mentioned
55. A positive value of the rotation angle :
- (A) rotates an object in the clockwise direction
  - (B) rotates an object in the counter-clockwise direction
  - (C) Both of the above
  - (D) None of the mentioned
56. Which of the following transformations is used for altering the object size ?
- (A) Translation
  - (B) Scaling
  - (C) Rotation
  - (D) None of the mentioned
57. In which of the following cases, the uniform scaling will be produced ?
- (A) Values of scaling factors  $s_x$  and  $s_y$  are unequal.
  - (B) Values of scaling factors  $s_x$  and  $s_y$  are equal.
  - (C) Both (A) and (B)
  - (D) None of the mentioned
58. The 4-bit code of the bottom-region among the nine regions divided using the Cohen-Sutherland algorithm ?
- (A) 0000
  - (B) 0010
  - (C) 0110
  - (D) 0101

59. According to the Cohen-Sutherland algorithm where the line lies if the 4-bit code of both ends is 0000 and also the logical OR gives 0000 ?
- (A) Half outside half inside
  - (B) Completely inside
  - (C) Completely outside
  - (D) None of the mentioned
60. Which one of the following is the most commonly used and basic input device ?
- (A) Mouse
  - (B) Printer
  - (C) Scanner
  - (D) Keyboard
61. Which of the following devices is used for the 3D positioning of an object ?
- (A) Trackball
  - (B) Mouse
  - (C) Space Ball
  - (D) All of the above
62. Which is not an input device ?
- (A) Impact printer
  - (B) Trackball
  - (C) Mouse
  - (D) Keyboard
63. Which of the following is an example of the impact device ?
- (A) Laser printer
  - (B) Inkjet printer
  - (C) Line printer
  - (D) None of the mentioned
64. Which of the following allows us to select the screen positions with the touch of a finger ?
- (A) Mouse
  - (B) Trackball
  - (C) Touch panel
  - (D) None of the mentioned
65. Grayscale is used for :
- (A) Random scan display
  - (B) Monitors with color capability
  - (C) Monitors with no color capability
  - (D) All of the above
66. Random scan systems are used for :
- (A) Color drawing application
  - (B) Pixel drawing application
  - (C) Line drawing application
  - (D) None of the mentioned

67. How many phosphor color dots at each pixel position in a shadow mask CRT ?
- 1
  - 7
  - 2
  - 3
68. Shadow mask method is used in :
- Raster scan system
  - Random scan system
  - Both (A) and (B)
  - None of the mentioned
69. In which of the following CRT methods there is an occurrence of convergence problem ?
- Shadow mask method
  - Beam penetration
  - Both (A) and (B)
  - None of the mentioned
70. Which of the following uses the Beam penetration method ?
- Raster scan system
  - Random scan system
  - Both (A) and (B)
  - None of the mentioned
71. Plasma panel is a type of :
- Emissive display
  - Non-Emissive display
  - Printer
  - None of the mentioned
72. Which of the following algorithms is used to fill the interior of a polygon ?
- Boundary fill algorithm
  - Scan line polygon fill algorithm
  - Flood fill algorithm
  - All of the above
73. Which of the following algorithms is used to color a pixel if it is not colored and leaves it if it is already filled ?
- Boundary fill algorithm
  - Scan line polygon fill algorithm
  - Flood fill algorithm
  - All of the above
74. A spline can be defined as :
- Curved strip
  - A smooth curve is drawn using a pencil
  - A flexible strip used to generate a smooth curve through a designated set of points
  - None of the mentioned

75. Which of the following are the 2d color models ?
- (A) RGB and CMK
  - (B) RGB and CMG
  - (C) RGB and CMYK
  - (D) All of the above
76. RGB color model is used for :
- (A) Painting
  - (B) Sketching
  - (C) Printing
  - (D) Computer display
77. Which of the following colors will generate with the intersection of three primary RGB colors ?
- (A) Green
  - (B) Dark red
  - (C) Dark blue
  - (D) White
78. The intersection of primary colors in the CMYK color model will generate the :
- (A) Green
  - (B) White
  - (C) Black
  - (D) Dark red
79. Select the set of colors produced in the beam-penetration method of the color CRT :
- (A) Red-Green-Blue
  - (B) Cyan-Magenta-Blue
  - (C) Red-Green-Orange-Yellow
  - (D) Green-Black-Orange
80. The phase of determining the appropriate pixels for representing images or graphics object is called as :
- (A) Translation
  - (B) Transformation
  - (C) Rasterization
  - (D) Scaling
81. The process of displaying 3D into a 2D display unit is called as :
- (A) Resolution
  - (B) Projection
  - (C) Rasterization
  - (D) Transformation
82. The video device with reduced volume power consumption and weight is :
- (A) CRT
  - (B) Flat-panel display
  - (C) Portable display
  - (D) None of the mentioned

83. Plasma panel is also called as :
- (A) Non-emissive display
  - (B) Liquid crystal display
  - (C) Gas discharge display
  - (D) None of the mentioned
84. Computer Graphics was first used by :
- (A) William Fetter
  - (B) James Fetter
  - (C) James Gosling
  - (D) John Taylor
85. Graphics is one of the ..... major key elements in design of multimedia application.
- (A) 5
  - (B) 3
  - (C) 4
  - (D) 8
86. Vector graphics is composed of :
- (A) Pixels
  - (B) Paths
  - (C) Palette
  - (D) None of the mentioned
87. Raster graphics are composed of :
- (A) Pixels
  - (B) Paths
  - (C) Palette
  - (D) None of the mentioned
88. Raster images are more commonly called :
- (A) Pix map
  - (B) Bitmap
  - (C) Both (A) and (B)
  - (D) None of the mentioned
89. Pixel can be arranged in a regular :
- (A) 1D grid
  - (B) 2D grid
  - (C) 3D grid
  - (D) None of the mentioned
90. The brightness of each pixel is :
- (A) Compatible
  - (B) Incompatible
  - (C) Both (A) and (B)
  - (D) None of the mentioned
91. A palette can be defined as a *finite* set of colors for managing the :
- (A) Analog images
  - (B) Digital images
  - (C) Both (A) and (B)
  - (D) None of the mentioned

92. Display card are :

- (A) VGA
- (B) EGA
- (C) Both (A) and (B)
- (D) None of the mentioned

93. Several graphics image file formats that are used by most of graphics system are :

- (A) GIF
- (B) JPEG
- (C) TIFF
- (D) All of the above

94. The GIF format is much ..... to be downloaded or uploaded over the www.

- (A) Slower
- (B) Faster
- (C) Medium
- (D) None of the mentioned

95. EPS stands for :

- (A) Entire Post Script
- (B) Entire Post Scale
- (C) Encapsulated Post Script
- (D) None of the mentioned

96. Color apparents in subtractive model are the result of :

- (A) Amount of Reflected light
- (B) Transmmission of light
- (C) Flow of light
- (D) None of the mentioned

97. Color depth can be defined by ..... which can be displayed on display unit.

- (A) Bits per pixel
- (B) Bytes per pixel
- (C) Megabyte per pixel
- (D) None of the mentioned

98. RGB true color model has color depth of :

- (A) 24 bit
- (B) 32 bit
- (C) 64 bit
- (D) None of the mentioned

99. Graphics with limited features is known as :

- (A) Active Graphics
- (B) Passive Graphics
- (C) Grayscale Image
- (D) None of the mentioned

100. Computer Graphics is used in many DTP softwares as :

- (A) Photoshop
- (B) Paint Brush
- (C) Both (A) and (B)
- (D) None of the mentioned

4. The candidate has to answer all 100 questions given in question booklet. Ovals are given against the alternative answer to each question. The candidate is expected to fill the oval against the particular question. Each question is of .75 mark.

5. There is no separate answer-book and the candidate has no mark answer on the OMR answer sheet given with this booklet separately. Only this sheet will be evaluated. In this answer sheet, the candidate is required :

(a) To blacken the alternative (A), (B), (C) or (D) which he/she considers to be correct answer to the question.

(b) To leave blanks all the ovals representing that question which he/she does not attempt.

6. The OMR answer sheet is generated by computer, therefore, in no case it should be mutilated or damaged or dog-eared as such sheet will not be evaluated by the computer.

7. As the maximum time allowed for the examination is 2:00 hours, the candidate is advised to spend initial 1:30 hours for the question paper and the remaining 30 minutes for carefully filling in the OMR answer sheet.

8. The candidate shall not bring any loose paper, whether printed, written or blank, mobile phone, calculator etc. inside the examination hall except the Admit Card.

9. End pages of question booklet shall be used for rough work.

**Note :** Please check the answer number of each question in the question booklet before filling ovals in the OMR answer sheet. Instruction for filling the OMR answer sheet is given on the back of this sheet. Read it carefully and do accordingly. Use black/blue ball pen only for filling the OMR answer sheet. Pencil or fountain pen must not be used for this purpose.

4. अभ्यर्थी को प्रश्न पुस्तिका में दिये गये सभी 100 प्रश्नों के उत्तर देने हैं। प्रत्येक प्रश्न के वैकल्पिक उत्तरों के सामने ओवल (गोला) बना हुआ है। अभ्यर्थी द्वारा उपयुक्त ओवल को पूर्णतया काला कर देना है, जिसको वह प्रश्न का सही उत्तर समझता है। प्रत्येक प्रश्न .75 अंक का है।

5. कोई अलग से उत्तर पुस्तिका नहीं है और अभ्यर्थी को प्रश्न पुस्तिका के साथ अलग दिए गए ओ. एम. आर. उत्तर पत्र पर ही प्रश्नों के उत्तर भरने हैं। केवल इस उत्तर पत्र का मूल्यांकन होगा। इस उत्तर पत्र में अभ्यर्थी को निम्न बातें भरनी हैं :

(अ) प्रश्न के वैकल्पिक उत्तर (A), (B), (C) या (D) जिसे वह प्रश्न का सही उत्तर समझता है, उससे सम्बन्धित ओवल को काला करें।

(ब) जिस प्रश्न का उत्तर अभ्यर्थी को नहीं पता है उसके सामने बने सभी ओवल को खाली छोड़ दें।

6. ओ. एम. आर. उत्तर पत्र कम्प्यूटर जनित है। अतः किसी भी दशा में इसे विकृत, क्षतिग्रस्त या इसके कोने गुड़े हुए नहीं होने चाहिए।

7. चूंकि परीक्षा की अधिकतम निर्धारित अवधि 2:00 घण्टा है, इसलिए अभ्यर्थी को सलाह दी जाती है कि वह पहले 1 घण्टा 30 मिनट प्रश्नों को हल करने में तथा शेष 30 मिनट ओ. एम. आर. उत्तर पत्र भरने में लगाये।

8. अभ्यर्थी प्रवेश पत्र के अतिरिक्त कोई भी छपा हुआ, लिखा हुआ या कोरा फालतू कागज, मोबाइल फोन, कैलकुलेटर इत्यादि अपने साथ परीक्षा भवन के भीतर नहीं लायेगा।

9. रफ कार्य प्रश्न पुस्तिका के आखिरी पन्नों पर किया जा सकता है।

**टिप्पणी :** ओ. एम. आर. उत्तर पत्र में प्रश्नों की उत्तर संख्या भरने से पहले प्रश्न पुस्तिका में हल किये गये सभी प्रश्नों की उत्तर संख्याओं की अच्छी प्रकार जाँच कर लें। ओ. एम. आर. उत्तर पत्र भरने का निर्देश उसके पृष्ठ पर दिया गया है। इसे सावधानीपूर्वक पढ़ें और उसके अनुसार भरें। ओ. एम. आर. उत्तर पत्र को भरने के लिए केवल काले/नीले बॉल पेन का प्रयोग करें। फेन्सिल या स्थायी वाली पेन का प्रयोग नहीं करना है।