Roll No. ....

O. M. R. Serial No. ☐☐☐☐☐☐☐☐

B. C. A. (Fourth Semester) EXAMINATION, 2022-23

COMPUTER GRAPHICS & ANIMATION

Paper Code						
B	C	A	4	0	0	1

Time : 1:30 Hours]

[Maximum Marks : 75

Instructions to the Examinee :

1. Do not open the booklet unless you are asked to do so.

2. The booklet contains 100 questions. Examinee is required to answer 75 questions in the OMR Answer-Sheet provided and not in the question booklet. All questions carry equal marks.

3. Examine the Booklet and the OMR Answer-Sheet very carefully before you proceed. Faulty question booklet due to missing or duplicate pages/questions or having any other discrepancy should be got immediately replaced.

(Remaining instructions on the last page)

परीक्षार्थियों के लिए निर्देश :

1. प्रश्न-पुस्तिका को तब तक न खोलें जब तक आपसे कहा न जाए।

2. प्रश्न-पुस्तिका में 100 प्रश्न हैं। परीक्षार्थी को 75 प्रश्नों को केवल दी गई OMR आन्सर-शीट पर ही हल करना है, प्रश्न-पुस्तिका पर नहीं। सभी प्रश्नों के अंक समान हैं।

3. प्रश्नों के उत्तर अंकित करने से पूर्व प्रश्न-पुस्तिका तथा OMR आन्सर-शीट को सावधानीपूर्वक देख लें। दोषपूर्ण प्रश्न-पुस्तिका जिसमें कुछ भाग छपने से छूट गए हों या प्रश्न एक से अधिक बार छप गए हों या उसमें किसी अन्य प्रकार की कमी हो, तो उसे तुरन्त बदल लें।

(शेष निर्देश अन्तिम पृष्ठ पर)

(Only for Rough Work)

1. A transformation that slants the shape of objects_____.

   (A) rotation

   (B) shear

   (C) reflection

   (D) translation

2. For reducing the size of the object we set both scale factor :

   (A) Less than 0

   (B) Greater than 1

   (C) Equals to 1

   (D) In between 0 and 1

3. The representations for surface modeling include :

   (A) Polygon mesh

   (B) Parametric surfaces

   (C) Quadratic surfaces

   (D) All of the above

4. If two curve segments join together the curve has :

   (A) G 1 continuity

   (B) G 0 continuity

   (C) G 2 continuity

   (D) G 3 continuity

5. Spline curve can be either :

   (A) Bezier curve

   (B) B-spline

   (C) Both (A) and (B)

   (D) None of the above

6. Which of the following is not a synthetic entity ?

   (A) Hyperbola

   (B) Bezier curve

   (C) B-spline curve

   (D) Cubic curve

7. When the curve passes through all the data points, then the curve is known as :

   (A) Approximation curve

   (B) Pitch curve

   (C) Data curve

   (D) Interpolant curve

8. The major contents of multimedia services _____.

   (A) Multimedia hardware

   (B) Operating system

   (C) Multimedia software

   (D) None of the above

9. The multimedia disadvantages is :

(A) Lost of cyberspace

(B) Individualized

(C) Engrossing deep involvement

(D) None of the above

10. The example of multimedia capture device _____ .

(A) Camera

(B) Microphone

(C) Audio recorder

(D) All of these

11. The application in entertainment are :

(A) Satellite

(B) Televisions

(C) Internet

(D) All of the above

12. The combination of text, graphics art, sound, animation and video delivered by computer or other electronic devices are called :

(A) Multimedia

(B) Hypermedia

(C) Visual media

(D) None of the above

13. The people when weave multimedia into meaningful tapestries are called :

(A) Programmers

(B) Multimedia developers

(C) Software engineers

(D) Multimedia engineers

14. One of the disadvantages of multimedia :

(A) Cost

(B) Adaptability

(C) Usability

(D) Relativity

15. To receive signal, a translator is needed to decode signal and encode it again at a :

(A) High quality

(B) Lower quality

(C) Same quality

(D) Bad quality

16. How many step process for creating a 3D animation are required ?

(A) 2

(B) 3

(C) 4

(D) 5

17. Which files creates a perfect reproduction of the original images ?

   (A) Shockwave

   (B) Nx view

   (C) GIF

   (D) JPG

18. The text colour in presentation should contrast with the color of :

   (A) CPU

   (B) Frame

   (C) Stack

   (D) Background

19. Which of the following is a technique to blend two or more images to form a new image ?

   (A) Modeling

   (B) Morphing

   (C) Animating

   (D) Warping

20. How many attributes control the characteristics of sound ?

   (A) 5

   (B) 4

   (C) 3

   (D) 2

21. Moving picture experts group (MPEG) is used to compress :

   (A) Frames

   (B) Images

   (C) Audio

   (D) Video

22. MMS stands for :

   (A) Multimedia system

   (B) Multimedia messaging system

   (C) Multimedia messaging services

   (D) Multimedia services

23. JPEG stands for :

   (A) Joint Photo Experts Group

   (B) Joint Photographic Experts Group

   (C) Joint Processor Experts Group

   (D) Joint Photographic Expression Group

24. A good example of hypermedia file :

   (A) The internet

   (B) Level 1 video disc

   (C) Audiotape

   (D) Videotape

25. A multimedia file :

   (A) Is same as any other regular file

   (B) Must be accessed at specific rate

   (C) Stored on remote server can't be delivered to its client

   (D) None of the above

26. Which one of the following is the property of multimedia system ?

   (A) High storage

   (B) High data rates

   (C) Both (A) and (B)

   (D) None of the above

27. Video file format is :

   (A) Tiff

   (B) AVI

   (C) WAV

   (D) Both (A) and (B)

28. Interactive computer graphics uses various kinds of input devices such as :

   (A) Mouse

   (B) Graphic tablet

   (C) Joystick

   (D) All of the above

29. Input functions are used for :

   (A) Control the data flow from these interactive devices

   (B) Process the data flow from these interactive devices

   (C) Both (A) and (B)

   (D) None of the above

30. A graphics package contains :

   (A) no. of housekeeping task such as cleaning a display screen

   (B) no. of housekeeping task such as initializing parameters

   (C) Both (A) and (B)

   (D) None of the above

31. The interactive computer graphics involves _____ way communication between computer the user.

   (A) one

   (B) two

   (C) three

   (D) four

32. Interactive computer graphics ennables a user to customize the graphics is :

   (A) computer way

   (B) his own way

   (C) Both (A) and (B)

   (D) None of the above

33. User can make any change on image with the use of :

   (A) non-interactive graphics

   (B) interactive graphics

   (C) Both (A) and (B)

   (D) None of the above

34. The application area of computer graphics are :

   (A) political

   (B) education and textbook

   (C) CAD and entertainment

   (D) All of the above

35. How many components of interactive computer graphics are there ?

   (A) One

   (B) Two

   (C) Three

   (D) Four

36. What are the components of interactive computer graphics ?

   (A) A digital memory or frame buffer

   (B) A television monitor

   (C) An interface or display controller

   (D) All of the above

37. CAD means :

   (A) Car aided design

   (B) Computer art design

   (C) Computer aided design

   (D) None of these

38. What are the criteria for good line drawing ?

   (A) Line should be drawn rapidly

   (B) Line should be appearing straight and tenninated accurately

   (C) Line should have constant density

   (D) All of the above

39. Which of the following is not a graphical software ?

   (A) Corel draw

   (B) MAYA

   (C) Flash

   (D) None of the above

40. GIS stands for :

   (A) Geographical Information System

   (B) Graphical Information System

   (C) Graphical Interaction System

   (D) None of the above

41. The device which converts the electrical energy into light is called :

   (A) Liquid crystal displays

   (B) Non-emitters

   (C) Plasma panels

   (D) Emitters

42. 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

43. Aspect ratio means :

   (A) Number of pixels

   (B) Ratio of vertical points to horizontal points

   (C) Ratio of horizontal points to vertical points

   (D) Both (B) and (C)

44. The number of pixels stored in the frame buffer of a graphics system is known as :

   (A) Resolution

   (B) Depth

   (C) Resolution

   (D) Only (A)

45. The quality of picture obtained from a device depends on_____.

   (A) Dot size

   (B) Number of dots per inch

   (C) Number of lines per inch

   (D) All of these

46. Part of display processor :

   (A) Display file memory

   (B) Display generator

   (C) Display console

   (D) All of the above

47. _____ is not a common bitmap based file type extension.

   (A) ODT

   (B) TIFF

   (C) PNG

   (D) PCX

48. DTP means :

   (A) Drawing text picture

   (B) Desktop publishing

   (C) Dask town publishing

   (D) None of the above

49. PCBs can be drawn using the computer graphics :

    (A) In very efficient way

    (B) In a shorter time

    (C) In larger time

    (D) Both (A) and (B)

50. A display controller serves to pass the contents of :

    (A) Frame buffer to monitor

    (B) Monitor to frame buffer

    (C) Both (A) and (B)

    (D) None of the above

51. The image is passed repeatedly to the monitor in order to maintain a steady picture on the screen :

    (A) 25 times a second

    (B) 30 times a second

    (C) 30 or more times a second

    (D) None of the above

52. The display controller converts 0s or 1s into :

    (A) TV monitors

    (B) Video signal

    (C) Electrical signal

    (D) None of the above

53. Reflection of a point about x-axis, followed by a counter clockwise rotation of 90°, is equivalent to reflection about the line

    (A) $x = -y$

    (B) $y = -x$

    (C) $x = y$

    (D) $x + y = 1$

54. How many homogeneous representation are possible for one point (x, y) ?

    (A) 1

    (B) 0

    (C) 2

    (D) Infinite

55. A 2D rotation is applied to an object by :

    (A) Repositioning it along with the straight line path

    (B) Repositioning it along with circular path

    (C) Only (B)

    (D) None of the above

56. An ellipse can also be rotated about its center coordinates by rotating :

    (A) End points

    (B) Major and minor axes

    (C) Only (A)

    (D) None of the above

57. The 2D scaling equation in the matrix form is :

    (A) $P' = P + T$

    (B) $P' = S*P$

    (C) $P'P*R$

    (D) $P' = R + S$

58. Scaling of a polygon is done by computing :

    (A) The product of (x, y) of each vertex

    (B) (x, y) of end points

    (C) Center coordinates

    (D) Only (A)

59. If the scaling factor values S_x and $S_y < 1$ then :

    (A) It reduces the size

    (B) It increases the size

    (C) It stunts the size

    (D) None of the above

60. What is the use of homogeneous coordinates and matrix representation ?

    (A) To treat all 3 transformations in a consistent way

    (B) To scale

    (C) To rotating

    (D) To shear the object

61. The general homogeneous coordinates representations can also be written as :

    (A) (h.x, h.y, h.z)

    (B) (h.x, h.y, h)

    (C) (x, y, h.z)

    (D) (h, x, y)

62. The process of removal of hidden surfaces is termed as :

    (A) Clipping

    (B) Copying

    (C) Culling

    (D) Shorting

63. Which of the following can be first used to test for overlap of a curve with the clipping window ?

    (A) Edges of the curve

    (B) The centre of the curve

    (C) The boundary rectangle for the curve

    (D) Tangents to the curve

64. The B spline curve has a :

   (A) First order continuity

   (B) Second order continuity

   (C) Zero order continuity

   (D) None of the above

65. The Bezier curve is smoother than the hermite cubic spline because it has _____ order derivatives.

   (A) lower

   (B) higher

   (C) Both lower and higher

   (D) None of the above

66. In the Bezier curve, the curve is always _____ to first and last segments of the polygon.

   (A) normal

   (B) parallel

   (C) tangent

   (D) All of the above

67. _____ curves allows local control of the curve.

   (A) Analytical

   (B) Hermite cubic spline

   (C) Bezier

   (D) B-spline

68. In Bezier curve, the curve follows _____.

   (A) The control points

   (B) The shape of the defining polygon

   (C) The defining points

   (D) All of the above

69. In Bezier curve, _____ of polygon actually lie on the curve.

   (A) Only the first control points

   (B) Only the last control points

   (C) Only the first and last control points

   (D) All the control points

70. The number of control points can be added or subtracted :

   (A) In Bezier curve

   (B) In B-spline curve

   (C) In cubic spline curve

   (D) All of the above

71. The degree of the curve is independent of the number of control points in _____ .

    (A) Hermite cubic spline curve

    (B) Bezier curve

    (C) B-spline curve

    (D) Hyperbola

72. The type of spline curve is :

    (A) Open spline

    (B) Closed spline

    (C) Both (A) and (B)

    (D) None of the above

73. Cubic spline are :

    (A) Simple to corporate

    (B) Provides continuity to curves

    (C) Both (A) and (B)

    (D) None of the above

74. A spline can be defined as :

    (A) Curved strip

    (B) A smooth curve is drawn using a pencil

    (C) A flexible strip used to generate a smooth curve through a designated set of points

    (D) All of the above

75. An _____ can be considered as an extension of spherical surface.

    (A) Bezier

    (B) Ellipsoid

    (C) Shearing

    (D) All of the above

76. By which more complex objects can be constructed ?

    (A) Quadratic surfaces

    (B) Bezier curve

    (C) Composite transformation

    (D) None of the above

77. The Bezier curve obtained from the four control points called :

    (A) Square Bezier curve

    (B) Cubic Bezier curve

    (C) Hectare Bezier curve

    (D) Rectangle Bezier curve

78. The image can be transmitted to the display point by :

(A) Line

(B) Points

(C) Segments

(D) All of the above

79. The basic interactive picture construction techniques are :

(A) Positioning and pointing constraints

(B) Grid, gravity field, rubber band method

(C) Sketching, dragging, inking and pointing

(D) All of the above

80. The movement of different attributes of image would make the image dynamic and such a dynamic effect is termed as :

(A) Pictures

(B) Animation

(C) Pointing

(D) All of the above

81. On raster system, lines are plotted with :

(A) Lines

(B) Dots

(C) Pixels

(D) All of the above

82. Which algorithm is faster method for calculating pixel position ?

(A) Bresenham's line algorithm

(B) Parallel line algorithm

(C) Midpoint algorithm

(D) DDA line algorithm

83. The disadvantage of line DDA is :

(A) Time consuming

(B) Faster

(C) Neither (A) nor (B)

(D) None of the above

84. An accurate and efficient raster line generating algorithm is :

(A) DDA algorithm

(B) Mid point algorithm

(C) Parallel line algorithm

(D) Bresenham' s line algorithm

85. In Bresenham's line algorithm, if the distance $d_1 < d_2$ then decision parameter P_k is :

(A) Positive

(B) Equal

(C) Negative

(D) Both (A) and (C)

86. The mapping a world window in world coordinates system to viewport is called :

(A) Transformation viewing

(B) Viewport

(C) Clipping window

(D) Screen coordinate system

87. Coordinates of window are known as :

(A) Screen coordinates

(B) World coordinates

(C) Device coordinates

(D) Cartesian coordinates

88. Coordinates of viewport are known as :

(A) World coordinates

(B) Polar coordinates

(C) Screen coordinates

(D) Cartesian coordinates

89. The region against which an object is to clipped is called as :

(A) Clipping

(B) Clipping region

(C) Clip window

(D) None of the above

90. If extended line proceeds from the outside to the inside of the corresponding boundary line, it is denoted as :

(A) $P_h = 0$

(B) $P_h > 0$

(C) $P_h < 0$

(D) None of the above

91. If extended line proceeds from inside to the outside of the corresponding boundary line it is denoted as :

(A) $P_h = 0$

(B) $P_h > 0$

(C) $P_h < 0$

(D) None of the above

92. The second grid in DVST is called as :

(A) Phosphor

(B) Storage grid

(C) Collector

(D) None of the above

93. The term "transform" means :

(A) Change

(B) Increase

(C) No change

(D) All of the above

94. Scaling transformation is said to be homogeneous if :

(A) $S_x > S_y$

(B) $S_x < S_y$

(C) $S_x = S_y$

(D) None of the above

95. The direction of a positive angle of rotation is chosen in accordance to the :

(A) Right hand rule

(B) Left hand rule

(C) Origin

(D) None of the above

96. The basic geometric transformations are :

(A) rotation

(B) reflection

(C) shear

(D) All of the above

97. In 2D translation, a point (x, y) can move to the new position (x', y') by using the equation :

(A) x' = x + tx and y' = y + ty

(B) x' = x + tx and y = y' + ty

(C) x = x' + ty and y' = y + ty

(D) None of the above

98. Translation factor (tx, ty) is called as :

(A) translation vector

(B) shift vector

(C) Both (A) and (B)

(D) None of the above

99. To change the position of circle or ellipse we translate :

(A) center coordinates

(B) center coordinates and redraws the figure in henew location

(C) outline coordinates

(D) All of the above

100. Positive values for the rotation angle define :

(A) Counterclockwise rotations about the endpoints

(B) Counterclockwise translations about the pivot points

(C) Counterclockwise rotations about the pivot points

(D) Clockwise rotations about the pivot points

4. Four alternative answers are mentioned for each question as—A, B, C & D in the booklet. The candidate has to choose the correct answer and mark the same in the OMR Answer-Sheet as per the direction :

Example :

Question :

Q. 1 (A) ● (C) (D)
Q. 2 (A) (B) ● (D)
Q. 3 (A) ● (C) (D)

Illegible answers with cutting and over-writing or half filled circle will be cancelled.

5. Each question carries equal marks. Marks will be awarded according to the number of correct answers you have.

6. All answers are to be given on OMR Answer sheet only. Answers given anywhere other than the place specified in the answer sheet will not be considered valid.

7. Before writing anything on the OMR Answer Sheet, all the instructions given in it should be read carefully.

8. After the completion of the examination candidates should leave the examination hall only after providing their OMR Answer Sheet to the invigilator. Candidate can carry their Question Booklet.

9. There will be no negative marking.

10. Rough work, if any, should be done on the blank pages provided for the purpose in the booklet.

11. To bring and use of log-book, calculator, pager and cellular phone in examination hall is prohibited.

12. In case of any difference found in English and Hindi version of the question, the English version of the question will be held authentic.

Impt. : On opening the question booklet, first check that all the pages of the question booklet are printed properly. If there is ny discrepancy in the question Booklet, then after showing it to the invigilator, get another question Booklet of the same series.

4. प्रश्न-पुस्तिका में प्रत्येक प्रश्न के चार सम्भावित उत्तर— A, B, C एवं D हैं। परीक्षार्थी को उन चारों विकल्पों में से सही उत्तर छाँटना है। उत्तर को OMR आन्सर-शीट में सम्बन्धित प्रश्न संख्या में निम्न प्रकार भरना है :

उदाहरण :

प्रश्न :

प्रश्न 1 (A) ● (C) (D)
प्रश्न 2 (A) (B) ● (D)
प्रश्न 3 (A) ● (C) (D)

अपठनीय उत्तर या ऐसे उत्तर जिन्हें काटा या बदला गया है, या गोले में आधा भरकर दिया गया, उन्हें निरस्त कर दिया जाएगा।

5. प्रत्येक प्रश्न के अंक समान हैं। आपके जितने उत्तर सही होंगे, उन्हीं के अनुसार अंक प्रदान किये जायेंगे।

6. सभी उत्तर केवल ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर ही दिये जाने हैं। उत्तर-पत्रक में निर्धारित स्थान के अलावा अन्यत्र कहीं पर दिया गया उत्तर मान्य नहीं होगा।

7. ओ. एम. आर. उत्तर-पत्रक (OMR Answer Sheet) पर कुछ भी लिखने से पूर्व उसमें दिये गये सभी अनुदेशों को सावधानीपूर्वक पढ़ लिया जाये।

8. परीक्षा समाप्ति के उपरान्त परीक्षार्थी कक्ष निरीक्षक को अपनी OMR Answer Sheet उपलब्ध कराने के बाद ही परीक्षा कक्ष से प्रस्थान करें। परीक्षार्थी अपने साथ प्रश्न-पुस्तिका ले जा सकते हैं।

9. निगेटिव मार्किंग नहीं है।

10. कोई भी रफ कार्य, प्रश्न-पुस्तिका के अन्त में, रफ-कार्य के लिए दिए खाली पेज पर ही किया जाना चाहिए।

11. परीक्षा-कक्ष में लॉग-बुक, कैलकुलेटर, पेजर तथा सेल्युलर फोन ले जाना तथा उसका उपयोग करना वर्जित है।

12. प्रश्न के हिन्दी एवं अंग्रेजी रूपान्तरण में भिन्नता होने की दशा में प्रश्न का अंग्रेजी रूपान्तरण ही मान्य होगा।

महत्वपूर्ण : प्रश्नपुस्तिका खोलने पर प्रथमतः जाँच कर देख लें कि प्रश्न-पुस्तिका के सभी पृष्ठ भलीभाँति छपे हुए हैं। यदि प्रश्नपुस्तिका में कोई कमी हो, तो कक्षनिरीक्षक को दिखाकर उसी सिरीज की दूसरी प्रश्न-पुस्तिका प्राप्त कर लें।