Enrollment No.....................................

Faculty of Engineering
End Sem (Even) Examination May-2018
CS3CO04 Computer Graphics & Multimedia

Programme: B.Tech.   Branch/Specialisation: CSE

Duration: 3 Hrs.   **Maximum Marks: 60**

Note: All questions are compulsory. Internal choices, if any, are indicated. Answers of Q.1 (MCQs) should be written in full instead of only a, b, c or d.

Q.1　i.　The quality of a picture obtained from a device depends on　**1**
(a) Dot size　(b) Number of dots per inch
(c) Number of lines per inch　(d) All of these

ii.　Which algorithm is a faster method for calculating pixel positions?　**1**
(a) Bresenham's line algorithm
(b) Parallel line algorithm
(c) Mid-point algorithm
(d) DDA line algorithm

iii.　The selection and separation of a part of text or image for further operation are called　**1**
(a) Translation(b) Shear　(c) Reflection　(d) Clipping

iv.　The rectangle portion of the interface window that defines where the image will actually appear are called　**1**
(a) Transformation viewing　(b) View port
(c) Clipping window　(d) Screen coordinate system

v.　Which of the following is not a property of perspective transformations?　**1**
(a) Parallel lines appear to converge in a vanishing point
(b) Object size reduces as distance from the centre of projection increases
(c) Foreshortening of lines depends on both orientation and distance
(d) The shape of the object is preserved

P.T.O.

vi. The types of parallel projections are: **1**
(a) Orthographic projection and quadric projection
(b) Orthographic projection and oblique projection
(c) Oblique projection and quadric projection
(d) None of these

vii. The Bezier curve obtained from the four control points is called a: **1**
(a) Square Bezier curve   (b) Cubic Bezier curve
(c) Hectare Bezier curve   (d) Rectangle Bezier curve

viii. The intersection of three primary RGB colour produces **1**
(a) White colour   (b) Black colour
(c) Magenta colour   (d) Blue colour

ix. One of the disadvantages of multimedia is: **1**
(a) Cost   (b) Adaptability
(c) Usability   (d) Relativity

x. A smaller version of an image is called a: **1**
(a) Clipart   (b) Bitmap
(c) Portable network graphic (d) Thumbnail

Q.2 i. What is Scan Conversion? **2**
ii. Define Boundary fill and Flood fill algorithms. **3**
iii. Scan convert the line with end points (10,5) and (15,9) using Bresenham's Line drawing algorithm. **5**
OR iv. Explain Bresenham's circle drawing algorithm with an example. **5**

Q.3 i. Explain the need for Homogeneous coordinate system. **2**
ii. Perform a 45° rotation of triangle A(0,0), B(1,1) and C(5,2); **8**
(a) About origin   (b) About the point P(-1, -1)
OR iii. Let the Window-port be (5,25) and (10,30). Clip a quadrilateral ABCD with corner coordinates A (10,22), B (18,22), C (30,32) and D (10,42) using Cohen Sutherland algorithm. **8**

Q.4 i. Explain different types of 3D projections. **3**
ii. What is hidden surface elimination? Why do we need it? Write the algorithm for Z Buffer. **7**

OR iii. Translate the unit cube by 2 units in each of the x, y and z directions from the origin. **7**

Q.5 i. What is a Colour Model? Explain any one. **4**
ii. Compare and contrast Bezier curve with B-splines. **6**
OR iii. Explain Phong shading & Gouraug shading. **6**

Q.6 Attempt any two:
i. Explain Multimedia File Formats. **5**
ii. What is animation? What are its advantages and uses? **5**
iii. What is Digital Audio? How are digital audio and Video Synchronised? **5**

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Marking Scheme
CS3CO04 Computer Graphics & Multimedia

Q.1 i. The quality of a picture obtained from a device depends on **1**
(d) All of these

ii. Which algorithm is a faster method for calculating pixel positions? **1**
(d) DDA line algorithm

iii. The selection and separation of a part of text or image for further operation are called **1**
(d) Clipping

iv. The rectangle portion of the interface window that defines where the image will actually appear are called **1**
(b) View port

v. Which of the following is not a property of perspective transformations? **1**
(d) The shape of the object is preserved

vi. The types of parallel projections are: **1**
(b) Orthographic projection and oblique projection

vii. The Bezier curve obtained from the four control points is called a: **1**
(b) Cubic Bezier curve

viii. The intersection of three primary RGB colour produces **1**
(a) White colour

ix. One of the disadvantages of multimedia is: **1**
(a) Cost

x. A smaller version of an image is called a: **1**
(d) Thumbnail

Q.2 i. Scan Conversion **2**

ii. Boundary fill and Flood fill algorithms. **3**

iii. Scan convert the line with end points (10,5) and (15,9) using Bresenham's Line drawing algorithm. **5**

OR iv. Bresenham's circle drawing algorithm — 3 marks **5**
Numerical example. — 2 marks

Q.3 i. Need for Homogeneous coordinate system. **2**

ii. Perform a 45° rotation of triangle A(0,0), B(1,1) and C(5,2); **8**
(a) About origin — 4 marks
(b) About the point P(-1, -1) — 4 marks

OR iii. Let the Window-port be (5,25) and (10,30). Clip a quadrilateral ABCD with corner coordinates A (10,22), B (18,22), C (30,32) and D (10,42) using Cohen Sutherland algorithm. **8**

Q.4 i. Different types of 3D projections. **3**

ii. Hidden surface elimination — 1 mark **7**
Need — 2 marks
Algorithm for Z Buffer. — 4 marks

OR iii. Translate the unit cube by 2 units in each of the x, y and z directions from the origin. **7**

Q.5 i. Colour Model — 2 marks **4**
Explain any one — 2 marks

ii. Compare and contrast Bezier curve with B-splines. **6**

OR iii. Phong shading & Gouraug shading. **6**

Q.6 Attempt any two:

i. Multimedia File Formats At least 3 types **5**

ii. Animation and its advantages with uses **5**
Basic principles and processes — 3 marks
Advantages & usage — 2 marks

iii. Digital Audio — 1 mark **5**
Synchronisation of digital audio and Video — 4 marks

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