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Total No. of Pages : 02

Total No. of Questions : 18

**B.Tech (CSE) (Sem.-5)**  
**COMPUTER GRAPHICS**  
**Subject Code : BTCS-515-18**  
**M.Code : 78325**

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. **SECTION-A** is **COMPULSORY** consisting of **TEN** questions carrying **TWO** marks each.
2. **SECTION-B** contains **FIVE** questions carrying **FIVE** marks each and students have to attempt any **FOUR** questions.
3. **SECTION-C** contains **THREE** questions carrying **TEN** marks each and students have to attempt any **TWO** questions.

**SECTION-A****Write briefly :**

- 1) What is aspect ratio of display devices? What is its importance?
- 2) What is the Phong's shading?
- 3) What are the limitations of Z-buffer algorithm for hidden surface removal?
- 4) Why are transformations required?
- 5) What is importance of homogeneous co-ordinates?
- 6) What do you mean by viewing?
- 7) What are Cartesian and homogeneous coordinate systems?
- 8) What is meant by the image resolution and image's aspect ratio?
- 9) What do you mean by clipping?
- 10) Why homogeneous co-ordinates are used in the graphics transformations?

**SECTION-B**

- 11) What is the basic architecture of Cathode ray tube? Discuss in detail the random and raster scan displays.
- 12) Write Bresenham's circle drawing algorithm with example.
- 13) Write the Cohen-Sutherland outcode algorithm.
- 14) What are properties of light? Explain intuitive color and chromaticity concepts.
- 15) What are fractals? How are they represented? What are their applications? Explain.

**SECTION-C**

- 16) Derive the transformation matrices for the following transformations :
  - a) Reflection about X-axis.
  - b) Reflection about Y-axis.
  - c) Reflection about origin.
  - d) Reflection about line  $Y = X$ .
  - e) Reflection about line  $Y = -X$ .
- 17) Explain Z-buffer algorithm in detail.
- 18) How the 3D images are represented on 2D plane in computer graphics? Explain.

**NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.**