

**B.TECH SEM – V (2007 COURSE) (INF. TECH.) : SUMMER -  
2018**

**SUBJECT: PROCEDURAL ELEMENTS OF COMPUTER GRAPHICS**

Day: **Thursday**  
Date: **24/05/2018**

**S-2018-2677**

Time: **10.00 AM TO 01.00 PM**  
Max Marks: 80

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**N.B.:**

- 1) **Q.No.1 and Q.No.5 are COMPULSORY.** Out of the remaining questions attempt **ANY TWO** questions from each section.
  - 2) Answers to both the sections should be written in the **SEPARATE** answer books.
  - 3) Figures to the right indicate **FULL** marks.
  - 4) Assume suitable data if necessary.
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**SECTION – I**

- Q.1** a) Describe Random Scan/Raster Scan displays. [05]  
b) Explain Text clipping with example. [05]  
c) Write about active and passive transformations. [04]
- Q.2** a) What is Computer Graphics? List and discuss major categories of applications of Computer Graphics. [07]  
b) Calculate the pixel location approximating the first octant of a circle having centre at (6, 4) and radius 4 units using Bresenham's circle algorithm. [06]
- Q.3** a) How boundary fill algorithm works explain with example? [07]  
b) State and explain Sutherland-Hodgeman polygon clipping algorithm with an example. [06]
- Q.4** a) Obtain 2D transformation matrix for rotating an object about a specified pivot point. [07]  
b) With suitable examples explain all 3D transformations. [06]

**SECTION – II**

- Q.5** a) Define z buffer algorithm. [05]  
b) Compare Flat shading and Smooth shading with respect to their characteristics and types. [05]  
c) Illustrate concepts of MS Windows related to Graphical User Interface (GUI). [04]
- Q.6** a) List and explain the different raster techniques and transformation associated with it. [07]  
b) State and explain Warnock algorithm with example. [06]
- Q.7** a) Discuss Fractal in detail. Write about random fractals. [07]  
b) Elaborate the process of Ray tracing. Explain how it is used to create Reflection and Transparency. [06]
- Q.8** a) Write different OpenGL primitives, explain each primitive with an example. [07]  
b) Summarize on Digital image. Enlist types of digital Images File Formats and explain any two in detail. [06]