

B.TECH SEM – VI (2007 COURSE) (MECHANICAL ENGG.) :
WINTER - 2017
SUBJECT: COMPUTER AIDED DESIGN

Day: **Friday**
Date: **24/11/2017**

W-2017-2528

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

N.B

- 1) **Q.No. 1 and Q.No. 5 are COMPULSORY**
- 2) Out of the remaining solve **ANY TWO** questions.
- 3) Both the sections should be written in **SEPARATE** answer books.
- 4) Assume suitable data. If necessary.
- 5) Use of non-programmable pocket calculator is **ALLOWED**.

SECTION - I

- Q.1** a) Compare vector (random) scan display & Raster scan display. **(05)**
- b) Write down the Bresenham's Line Algorithm. **(05)**
- c) How do you perform shear in two dimensions? **(04)**
- Q.2** a) Write a short note on BMP file format. **(07)**
- b) What are the important characteristics of video display devices? **(06)**
- Q.3** a) Explain the various approaches used to represent polygons. **(07)**
- b) Consider the line (0, 0) to (-6, -6). Use simple DDA algorithm to rasterize the line. **(06)**
- Q.4** a) Scale a polygon with co-ordinates A(2,5) B(7,11) & C (11,3) by 3 units in X direction & 4 units in Y direction. **(07)**
- b) Write down the various transformation matrix for reflections (any four). **(06)**

SECTION - II

- Q.5** a) How do you perform Rotation in 3D? **(05)**
- b) Write a note on Viewing transformation. **(05)**
- c) What is surface modeling? **(04)**
- Q.6** A triangle is defined by 3 vertices A (0,2,1) B (2,3,0) & C (1,2,1) Find the final co-ordinates after it is rotated by 45° around a line joining the points (2,2,2) & (1,1,1). **(13)**
- Q.7** Use the Cohen-Sutherland algorithm to clip two lines $P_1 (40,15) - P_2 (75,45)$ and $P_3 (70,20) - P_4 (100,10)$ against a window A (50,10) B (80,10) C (80,40) & D (50,40). **(13)**
- Q.8** a) Write a note on surface entities. **(07)**
- b) What do you understand by boundary representation? **(06)**

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