



RN-6843

B. E. - III (Sem. V) (I.T.) Examination

May / June - 2010

Multimedia Systems (IT 502 IT)

Time : 3 Hours]

[Total Marks : 100

Instructions :

(1)

नीचे दशांश देव निशानीवाणी विगतो उत्तरवडी पर अवश्य लपवी.
Fillup strictly the details of signs on your answer book.

Name of the Examination :
B. E. (Sem. 5) (I.T.)

Name of the Subject :
Multimedia Systems (IT 502 IT)

Subject Code No. : 6 8 4 3 Section No. (1, 2,.....): 1&2

Seat No. :
[] [] [] [] [] []

Student's Signature

- (2) Use **separate** answer sheet for separate section
(3) Make assumptions whenever required.
(4) Numbers on the right indicate marks.

SECTION - I

- 1 (a) Define following terms : 10
- (i) Define: Resolution
(ii) Define : Persistence
(iii) Define : Aspect ratio
(iv) Define : Super Sampling
(v) Define : Refresh Buffer.
- (vi) The Shadow-mask method is commonly used in _____ systems.
(vii) Intensity of the electron beam is controlled by _____.
(viii) LCD stands for _____.

- (ix) PET stands for _____.
- (x) _____ consists of small, vertical lever mounted on a base that is used to steer cursor around.
- (b) How long would it take to load a 640 by 480 frame buffer with 12 bits per pixel, if 10^5 bits can be transferred per second? How long would it take to load a 24 bits per pixel frame buffer with a resolution of 1280 by 1024 using the same transfer rate? **6**
- (c) Explain the Odd-Even Rule and Non-Zero winding rule. **4**
- 2** (a) (i) Explain line attributes. **10**
(ii) Discuss Properties of light.

OR

- (a) (i) Explain colour CRT in detail.
(ii) Explain RGB Colour Model.
- (b) Differentiate Raster Scan displays and Random Scan displays. **5**
- 3** (a) Explain the Cohen-Sutherland Line Clipping Algorithm. **7**
(b) Explain Bresenham's line Drawing Algorithm. **8**

OR

- (b) Discuss : Standard Primaries and the chromaticity diagram. **8**

SECTION - II

- 4** (a) Do as directed : **10**
- (i) The viewing transformation consists of _____.
- (ii) How many matrices are required to rotate an object about a point (x,y)?
- (iii) Define the following terms (each carry one mark):
- (a) Parallel projection
- (b) Vanishing point
- (c) Perspective projection

- (iv) The 2D shearing matrix about y-axis_____.
- (v) Give conditions for cavalier projection and cabinet projection. 3
- (vi) 3D rotation along x-axis matrix_____.
- (b) Derive the equation of parallel projection onto the xy plane in the direction of projection : 10
 $V = aI+bJ+cK$.
- 5** (a) Explain view volumes in detail. 5
- (b) Explain 3D reflection matrix thru arbitrary plane. 10
- OR**
- (b) Derive the transformation matrix for 3D rotation about an axis parallel to any axis. 10
- 6** Attempt any **three** : 15
- (i) Prove that uniform scaling ($s_x = s_y$) and rotation form a commutative pair of operation but in general scaling and rotation are not commutative operation.
- (ii) Derive 2D transformation matrix for rotation about any arbitrary point.
- (iii) We have triangle ABC with vertices A (3,4) B (7,4) and C(5,8) on the screen. What is the transformation if the triangle is to be magnified twice its size keeping A(3,4) fixed? Obtain new vertices of the triangle 208.
- (iv) Explain viewing transformation.
- (v) Derive the reflection matrix about line $y = X+2$.