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SB-4325

M. C. A. (Sem. III) (ATKT) Examination

March / April - 2011

305 - Interactive Computer Graphics

(Old & New Course)

Time : **3** Hours] [Total Marks : **70**

Instruction :

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ M. C. A. (SEM. 3) (ATKT)

Name of the Subject :

☛ 305 - INTERACTIVE COMPUTER GRAPHICS (OLD & NEW)

☛ Subject Code No. : 4 3 2 5 ☛ Section No. (1, 2,.....) : NIL

Seat No. :

Student's Signature

1 Do as directed : **14**

(a) Answer the following question in short : (any seven) **7**

(i) What do you mean by uniform scaling ?

(ii) Define specular reflection and transparency.

(iii) What do you mean by antialiasing ?

(iv) What do you mean by morphing ?

(v) What is eight-way symmetry of circle ?

(vi) What are segments in GKS ?

(vii) What is the initial decision parameter for BRASENHAM circle drawing algorithm ?

(viii) Why circle equation is not used in generating circle in raster graphics ?

(ix) Define slope of line. Give the slope-intercept form of the equation for the line passing through the points (0,2.5) and (–1,3.5)

(b) Trace DDA line drawing algorithm for the line end points (152, 136) to (156, 127). 4

(c) Consider three raster systems with resolution of 640 × 480, 1280 × 1024 and 2560 × 2048. What size frame buffer (in bytes) needed for each of these systems to store 300 colors/pixel. 3

OR

(c) Give advantages of computer graphics in the field of visualization. 3

2 Do as directed : **14**

(a) Write short note on following : (any two) **6**

(i) Random Scan System

(ii) Plasma Panel

(iii) Graphics Standards.

(b) Differentiate between bitmap and stroke method of character generation. Give there advantages and limitations. 4

(c) Explain non zero winding number rule and find interior point with illustration. 4

3 Do as directed : **14**

(a) Which algorithm is used in implementing bucket tool of MS Paint ? Write advantages and limitation of that algorithm. 7

(b) What do you mean by transformation ? Obtain transformation matrix for alter the location of the 2D object. 7

OR

(b) Obtain rotation transformation matrix for 2D object. 7

4 Do as directed : **14**

(a) Explain any one polygon clipping algorithm with appropriate example. 7

OR

(a) Explain mid-point subdivision algorithm for line clipping. **7**

(b) "Clipping polygon can be achieved through clipping lines of the polygon." Justify with proper example. **4**

(c) What is the result of negative unit fixed point scaling in x and y direction ? Explain with example. **3**

OR

(c) How do you achieve mirror image using transformation ? **3**

5 Do as directed : **14**

(a) Write steps to obtain rotation transformation matrix for 3D object with respect to arbitrary axis. **6**

(b) What do you mean by animation ? Write steps to create animation sequence. **4**

(c) What is goal directed system ? Give examples. **4**

OR

(c) How do you achieve zooming effect ? **4**
