

Total number of printed pages – 8

B. Tech

BCSE 3302

FIFTH SEMESTER EXAMINATION – 2005

Full Marks – 70

Time : 3 Hours

*Candidates are required to answer either Section–A (Multimedia Technology) completely or Section–B (Computer Graphics & Multimedia) completely. They are not allowed to answer partly from Section–A and Section–B.*

SECTION – A

MULTIMEDIA TECHNOLOGY

*The figures in the right hand margin indicate full marks for the questions.*

*Answer Q. No. 1 which is compulsory and any five questions out of the remaining questions.*

1. Answer the following questions : 2×10
  - (a) Suggest the standard for each of these

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multimedia applications :

- (i) Digital Audio
- (ii) Color Video
- (iii) Virtual Reality
- (iv) Photographs (Still Pictures).

(b) Expand the following abbreviations :

GIF, JPEG, SECAM, CMY.

- (c) List out some of the important Quality of Service parameters defined for multimedia data transmission.
- (d) List out some popular file formats for information exchange. Which one out these format do you think is the most important ?
- (e) What are the different modes of operations defined to tune a channel by MIDI ?
- (f) Distinguish between Multimedia and Hypermedia.
- (g) What are the various categories of Multimedia Software tools ?

(h) What do you mean by Multimedia Authoring ?

(i) What is Raster Scanning Principle ?

(j) List out the different color models used in digital video.

2. (a) Explain in brief about the QOS architecture of multimedia system. 6

(b) Suggest a Multimedia conferencing model. 4

3. (a) Explain about the process of computer representation of sound. 4

(b) Discuss about the MIDI devices and MIDI messages. 3+3

4. (a) Explain about the different color encoding schemes used for color video. 6

(b) What are the different aspects of video performance measurement ? 4

5. Why MPEG standard is used in Multimedia ?

Explain about the different types of frames (still image) defined by MPEG and what is their use ?

10

6. (a) What are the operating system support required for multimedia application ? 5

(b) What are the User Interface requirements for multimedia application ? 5

7. (a) Compare and contrast between the traditional file system and multimedia file system. 6

(b) Explain about the mechanism of presentation of multimedia application. 4

8. Write short notes on any two : 5×2

(a) Digital Audio

(b) Authoring Tools

(c) Presentation services

(d) Distributed multimedia system.

SECTION - B

COMPUTER GRAPHICS & MULTIMEDIA

The figures in the right hand margin indicate full marks for the questions.

Answer Q. No. 1 which is compulsory and any five questions out of the remaining questions.

1. Answer the following questions : 2×10

(i) What is the role of homogenous co-ordinates in Computer Graphics ?

(ii) Define object space and image space.

(iii) Mention two properties of Bezier' curves.

(iv) What is the relation between Window and Viewport co-ordinates ?

(v) What is composite transformation ?

(vi) Write the matrix for 3D-rotation in xy-plane, about z-axis, by an angle  $\theta$ .

(vii) Mention two disadvantages of DDA line drawing algorithm.

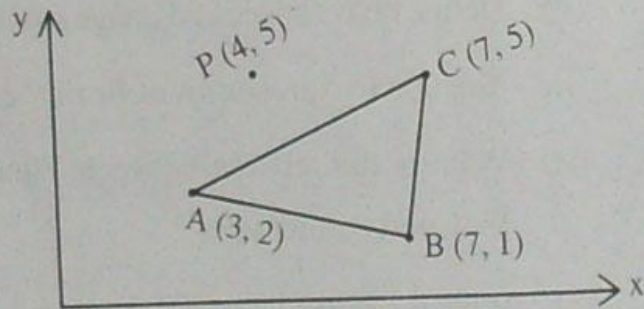
(viii) What are the components of MIDI hardware ?

(ix) Specify the role of computer animation in multimedia applications.

(x) Name three multimedia authoring tools.

2. (a) Deduce the matrix for 2D rotation in homogeneous co-ordinates. 4

(b) For a given triangle  $\Delta ABC$  find out its new position  $\Delta A'B'C'$  after its rotation about point P by  $45^\circ$ . 6

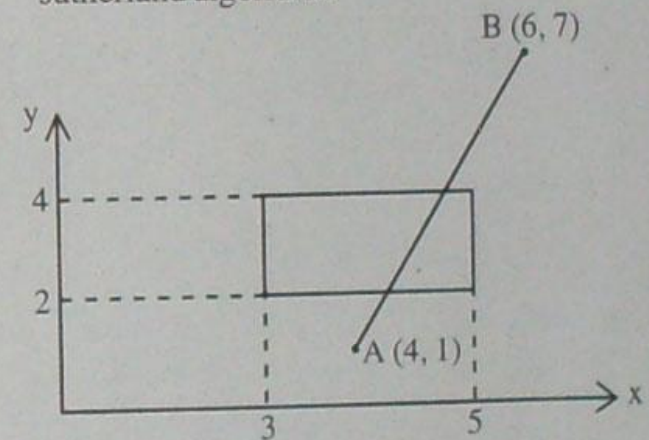


3. Deduce the mid point algorithm for scan conversion of an ellipse. 10

4. (a) What is Ray tracing, how does it help in visible surface detection ? 3

(b) Explain z-buffer algorithm for hidden surface elimination, how does it differ from A-buffer algorithm. 7

5. (a) Clip the given line segment  $\overline{AB}$ , with respect to the specified clipping window, using cohen-sutherland algorithm. 7



(b) Compare midpoint subdivision algorithm for line clipping, with Cohen-Sutherland line clipping algorithm. 3

6. (a) Explain the hierarchy of projections. 7

(b) Determine the orthographic projection of a triangle  $\Delta ABC$ , using the corresponding matrices. 3

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7. Explain the functions of MPEG standard for delivery of digital Audio & Video. 10
8. Explain the function of MIDI standard in multi-media. 10

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