8. Write notes on the following : 15

(a) B-spline curve

(b) Fractals

(c) Coefficient of reflection and halfway vector

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DD681

M.C.A. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

MCA502

COMPUTER GRAPHICS

Time : 3 Hours] [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Indicate which raster location would be chosen by Bresenham's algorithm when scan-converting a line from pixel coordinate (1, 1) to pixel coordinate (8, 5). **8**

   (b) Write the step required to plot a line whose slope is between 0° and 45° using the slop-intercept equation. **7**

2. Explain the architecture of Raster Scan Display. Give the various applications of computer graphics. **15**

Unit II

3. (a) Perform a 45° rotation of triangle A(0, 0), B(1, 1), C(5, 2) :

   (i) About the origin

   (ii) About P(–1, –1) **8**

   (b) Write the general form of a 3D scaling matrix with respect to a fixed point P(h, k). **7**

4. Derive the window-to-viewport transformation matrix :

   (a) First translating window to viewport then scaling the window to the size of the viewport. **8**

   (b) First scaling the window to the size of the viewport then translating window to viewport. **7**

Unit III

5. Explain the various types of projections. Provide some examples of oblique projection. **15**

6. Write notes on the following : **15**

   (a) Z-buffer algorithm

   (b) Scanline algorithm

Unit IV

7. (a) Explain Bezier method of curve drawing. **8**

   (b) Describe methods of polygon shading. **7**

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M.C.A. EXAMINATION, May 2019

(Fourth Semester)

(B Scheme) (Main & Re-appear)

MCA504

JAVA PROGRAMMING

Time : 3 Hours] [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain objects and classes in java with suitable examples. **20**

2. List and explain the features of java programming language. **20**

Unit II

3. Explain the packages in java. How explicit packages in java are created ? **20**

4. Explain exception handling in java. **20**

Unit III

5. Explain the filter streams in java with the help of suitable example. **20**

6. Explain the concept of multithreading in java. List advantages of multithreading. **20**

Unit IV

7. Explain the event handling in java using AWT. **20**

8. Write notes on the following : **20**

   (a) Applet life cycle

   (b) J-Frame.

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M.C.A. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

MCA506

COMPUTER NETWORKS

Time : 3 Hours] [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit.

Unit I

1. State and explain model OSI with functions, services and protocols of each layer in detail. **15**

2. (a) What is vertual Circuit Packet Switching ? Explain. **8**

   (b) What is Traffic Management ? Discuss the various congestion control techniques. **7**

Unit II

3. (a) What is Sliding Window Techniques ? Explain. **8**

   (b) State and explain CSMA. **7**

4. (a) Differentiate between FDMA and TDMA. **8**

   (b) State and explain statistical multiplexing. **7**

Unit III

5. (a) What is user datagram Protocol ? Explain its significance. **8**

   (b) Differentiate between ARP and RARP. **7**

6. (a) What is IP Addressing ? Explain IPv6. **8**

   (b) What is DHCP ? What are its features ? Also explain reliable stream service ? **7**

Unit IV

7. (a) What is DQDB ? Explain its features. **8**

   (b) Discuss the "Quality of Service" in network management. **7**

8. (a) What is ATM ? Also discuss frame relay. **8**

   (b) What are Remote Monitoring techniques ? Explain in brief. **7**

8. (a) Explain principles of Natural Language Processing. **(7.5)**

(b) Explain current trends in AI and its application to robotics. **(7.5)**

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M.C.A. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

MCA508

ARTIFICIAL INTELLIGENCE

Time : 3 *Hours*] [*Maximum Marks :* 75

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) What is Greedy Best First Search ? Explain with an example the different stages of Greedy Best First search. **(7.5)**

   (b) What is A* search ? Explain various stages of A* search with an example. **7.5**

2. What are the four basic types of agent program in any intelligent system ? Explain how did you convert them into learning agents ? **7.5**

Unit II

3. (a) Define the steps of converting arbitrary wff to conjunction of clause. **7.5**

   (b) Illustrate the use of first-order logic to represent knowledge. **7.5**

4. (a) Define resolution in predicate logic. **7.5**

   (b) How categories are useful in knowledge representation ? **7.5**

Unit III

5. (a) Describe Dempstershafer theory. **7.5**

   (b) What are the disadvantages of Closed World Assumption (CWA) ? How will you overcome it ? **7.5**

6. (a) Discuss Heuristic methods with example. **7.5**

   (b) Give resolutuion proof for example problem statement :

   (i) "West is a criminal"

   (ii) Curiosity killed the cat **7.5**

Unit IV

7. Define and explain :

   (a) Planning in situational calculas

   (b) Learning by analogy

   (c) Reinforcement learning **15**

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M. C. A. EXAMINATION, May 2019

(Fourth Semester)

(B Scheme) (Main & Re-appear)

MCA556

NETWORK SECURITY AND MANAGEMENT

Time : 3 *Hours*] [*Maximum Marks* : 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Write short notes on the following with examples :
   (i) Stream Cipher
   (ii) Block Cipher
   (iii) Confusion method in Cryptography
2. Explain Statistical theory of cipher system.

Unit II

3. Explain Digital Signatures with DSA.
4. Describe the following ciphers :
   (i) Rotor Based Systems
   (ii) Shift Register Based Systems

Unit III

5. Explain Cryptology of speech signals.
6. Explain Digital System of Speech Encryption.

Unit IV

7. Explain Transport Layer Security
8. Explain secure Electronic Transactions.