DD681

M.C.A. EXAMINATION, 2020

(Fourth Semester)

(B Scheme)

(Main & Re-appear)

MASTER OF COPUTER APPLICATIONS

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. Write and explain Bresenham's algorithm for digitizing a line.   **15**

2. Write mid-point circle drawing algorithm and explain with suitable example.   **15**

Unit II

3. Write and explain Sutherland-Hodgeman line clipping algorithm.   **15**

4. Explain the following :   **15**
   (a) 2-D Reflection
   (b) 3-D Reflection
   (c) 2-D Rotation

Unit III

5. What is Z-buffer algorithm for hidden surface removal ? Explain. **15**

6. Derive the general form of matrix for prespective projection on to YZ plane. **15**

Unit IV

7. Write short notes on the following : **15**

    (a) Bezier Curve and their properties

    (b) B-Spline curves and their properties.

8. Explain any *one* Shading Model in detail. **15**

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MASTER OF COMPUTER APPLICATIONS

MCA504

Java Programming

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

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

Unit I

1. Describe the features of Java in details.   **15**

2. (a) Define fully qualified name in java with example.   **5**

   (b) What is this pointer in Java ? Explain with example.   **5**

   (c) How multiple inheritance is implemented in Java ? Discuss with example.   **5**

Unit II

3. Discuss the exception hierarchy in Java. Also write the names of ten commonly used exceptions in Java with their usage.   **15**

4. (a) What are Inner Classes ? What are their utilities in Java ? Explain. **7**

(b) With the help of examples demonstrate Super and Abstract classes in Java. **8**

Unit III

5. Write a program in Java using I/O streams that will open a text file and count the number of total lines, words and vowels in that text file. **15**

6. What is a thread ? What are the various ways to create a thread in Java ? Discuss the methods of inter-thread synchronization. **15**

Unit IV

7. Discuss the life-cycle of an Applet. Also give an example to show parameter passing to an applet. **15**

8. Write short notes on the following : **15**

(a) JFrame

(b) JDBC.

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MASTER OF COMPUTER APPLICATION

MCA506

Computer Network

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

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Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks. Explain your answer with proper sketch wherever required.

Unit I

1. (a) Explain Computer Network and Network Topologies.   **8**

   (b) Write any *two* methods of error detection and correction with examples.   **7**

2. Explain the following :

   (a) Routing Algorithms   **8**

   (b) X.25.   **7**

Unit II

3. Explain the following :

(a) ARP **3**

(b) Sliding Window **5**

(c) RTP **4**

(d) Statistical Multiplexing. **3**

4. Explain the following :

(a) CSMA/CD **8**

(b) Slotted ALOHA. **7**

Unit III

5. Write short notes on the following :

(a) ICMP **5**

(b) IPv6 **5**

(c) DHCP. **5**

6. Write short notes on the following :

(a) ARP **5**

(b) RARP **5**

(c) Multicast Routing. **5**

Unit IV

7. Explain ATM and Frame Relay. **15**

8. Explain the following :

(a) Remote Monitoring Techniques. **8**

(b) Windows NT/2000. **7**

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(Fourth Semester)

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(MCA)

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, taking at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. Explain the following uninformed search strategies with examples :
   (a) Breadth First Search.
   (b) Uniform Cost Search
   (c) Recursive Best First Search (RBFS).   **15**

2. What are the *four* basic types of agent program in any intelligent system ? Explain, how did you convert them into learning agents ?   **15**

Unit II

3. (a) Define the syntactic elements of first-order logic.   **7½**
   (b) Illustrate the use of first-order logic to represent knowledge. **7½**

4. Define constraint satisfaction problem (CSP). How is CSP formulated as a search problem ? Explain with an example. **15**

Unit III

5. (a) Describe Bayes theorem. **7½**

(b) What are the disadvantages of Closed World Assumption (CWA). How will you over come it ? **7½**

6. (a) Discuss symbolic reasoning under uncertainty. **7½**

(b) Give resolution proof for example problem statement :

(i) "Wast is a criminal"

(ii) Curiosity killed the cat. **7½**

Unit IV

7. Define and explain : **15**

(a) Supervised learning

(b) Unsupervised learning

(c) Reinforcement learning.

8. (a) Explain partial order planning algorithm. **7½**

(b) Explain current trends trends in AI and its application to robotics. **7½**

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(Fourth Semester)

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MASTER OF COMPUTER APPLICATIONS

MCA556

NETWORK SECURITY AND MANAGEMENT

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

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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 example :

    (a) Substitution Cipher

    (b) Stream Cipher

    (c) Block Cipher.

2. Explain Playfair Ciphers with suitable example.

Unit II

3. Explain Authentication and Digital Signature.

4. Describe Knapsack Cryptosystems.

Unit III

5. Explain Cryptology of speech signals.

6. Discuss Analog and Digital Systems of Speech Encryption.

Unit IV

7. Explain any data compression technique in detail.

8. Write short notes on the following :
   (a) Encapsulating Security Payload
   (b) Web Security
   (c) PGP.