No. of Printed Pages : 03 Roll No. .....

DD-681

M.C.A. EXAMINATION, May 2018

(Fourth Semester)

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

(MCA)

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.

Unit I

1. (a) What is computer Graphics ? Explain its hardware and software requirements. 7

(b) Write and explain DDA line drawing algorithm. Also draw a line using DDA algorithm between points (0, 0) and (4, 4). **8**

2. (a) Derive and explain mid-point circle drawing algorithm. **8**

(b) Explain the steps involved in scanline algorithm for polygon filling. **7**

Unit II

3. (a) Explain Cyrus Beck line clipping Algorithm. **7**

(b) Write and explain Sutherland-Hodgeman polygon clipping algorithm in detail. **8**

4. What do you mean by transformation ? Explain composition of 2-D transformation matrix for rotation, reflection, translation and scaling. **15**

Unit III

5. Define Projection. Explain various type of projections in detail. **15**

6. Write short notes on the following :

(a) Z-buffer algorithm for hidden surface elimination

(b) Area sub-division algorithm. **15**

Unit IV

7. (a) What is an image ? Explain filtering and image processing. **7**

(b) What do you mean by shading model ? Explain any *one* shading model. **8**

8. Explain the following :

(a) Benzier Curves

(b) Parametric representation of surfaces. **15**

No. of Printed Pages : 03 Roll No. .....

DD-682

M.C.A. EXAMINATION, May 2018

(Fourth Semester)

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

(MCA)

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. (a) What features of Java make it widely used language ? 7

   (b) What is JVM ? How does it work for Java ? Explain. 8

2. (a) What is an Object ? How does it different from a class ? Explain. 8

   (b) Write a program in Java to calculate average marks of the students of the class, where number of the students would be provided by user. 7

Unit II

3. (a) With the help of code in Java, explain usage of the abstract class and super class. 7

   (b) What is a Wrapper class ? Illustrate with an example. 8

4. What is an exception ? What are the different constructs available in Java for exception handling ? Explain working of each. 15

Unit III

5. (a) What is a thread ? How multi-threading is implimented in Java ? 8

   (b) What are various methods to get input in Java ? Discuss in detail. 7

6. (a) Write a program in Java using multi-threading concept to demonstrate thread synchronization. 7

   (b) Discuss concept of object serialization. 8

Unit IV

7. By using event driven programming and AWT write a program to design a basic calculator in Java. 15

8. Write short notes on the following :

   (a) JButton

   (b) Applets. 15

No. of Printed Pages : 03 Roll No. .....

DD-683

M.C.A. EXAMINATION, Dec. 2018

(Fourth Semester)

(B. Scheme) (Re-appear Only)

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. All questions carry equal marks.

Unit I

1. (a) What is Network ? Give its types. Explain Layered architecture of networks. **8**

   (b) What is Priority Queue ? Explain. **7**

2. (a) How can you detect error and correct it ? Explain. **8**

   (b) What is a datagram ? Also explain structure of switch. **7**

Unit II

3. (a) What is HDLC ? Explain. **8**

   (b) State and explain slotted ALOHA. **7**

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

   (b) What is PPP ? Explain PPP Protocols. **7**

Unit III

5. (a) What is addressing ? Explain subnet addressing ? **8**

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

6. (a) What is ICMP ? Give its features. **8**

   (b) State and explain internet routing protocols. **7**

Unit IV

7. (a) What is SDH ? Explain. **8**

   (b) What are Proxy Servers ? What is their significance ? Explain. **7**

8. (a) Discuss Frame Relay in detail. **8**

   (b) What is class of service in network management ? Also explain quality of service. **7**

Unit IV

7. List and explain the steps in Natural Language Processing. **15**

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

   (a) Planning

   (b) AI applications to robotics.

No. of Printed Pages : 04 Roll No. .....

DD-684

M.C.A. EXAMINATION, Dec. 2018

(Fourth Semester)

(B. Scheme) (Re-appear Only)

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) Explain, how AI problems are different from conventional problems.

   (b) Write game playing algorithm. **15**

2. Solve the following crypt-arithmetic problem :

   SEND + MORE = MONEY. **15**

Unit II

3. Consider the following axioms :

   (a) Every child loves Santa.

   (b) Everyone who loves Santa loves any reindeer.

   (c) Rudolph is a reindeer, and Rudolph has a red nose.

   (d) Anything which has a red nose is weird or is a clown.

   (e) No reindeer is a clown.

   (f) Scrooge does not love anything which is weird.

   (g) (Conclusion) Scrooge is not a child.

   Represent these axioms in predicate calculus; skolemize as necessary and convert each formula to clause form. (Note. 'has a red nose' can be a single predicate. Remember to negate the conclusion.) Prove that unsatisfiability of the set of clauses by resolution. **15**

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

   (a) Modus Ponens and Modus Tollens rules.

   (b) Knowledge representing issues.

Unit III

5. Explain the Dempster-Shafer theory in detail. **15**

6. State and explain in detail the Bays' theorem. **15**

No. of Printed Pages : 03 Roll No. 1700854100 3

DD687

M.C.A. EXAMINATION, Dec. 2018

(Fourth Semester)

(B Scheme) (Re-appear Only)

MCA556

NETWORK SECURITY & MANAGEMENT

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 short notes on the following with example :
   (i) Polyalphabetic cipher
   (ii) Vigenere Cipher
   (iii) Hill Cipher

2. Discuss complexity theory of crypto systems.

Unit II

3. Explain Diffie Hellman Key Exchange Algorithm with example.

4. Describe Digital Signature with suitable example of a standard.

Unit III

5. Explain Analog and Digital Systems of Speech Encryption.

6. Explain cryptology of speech signals considering wide band system.

Unit IV

7. Describe Hash Functions and their usage in security.

8. Write short notes on the following :
   (i) MIME
   (ii) Firewall
   (iii) IP Security.