

No. of Printed Pages : 03

Roll No. 28

DD-681

M.C.A. EXAMINATION, May 2017

(Fourth Semester)

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

COMPUTER GRAPHICS

MCA-502

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.

(2-24) M-DD-681

P.T.O.

Unit I

1. Define Computer Graphics. List its applications. Write and explain DDA algorithm for digitizing a line. 15
2. Write Bresenham's circle drawing algorithm and explain with suitable example. 15

Unit II

3. Write and explain Cyrus-Beck parametric line clipping algorithm. 15
4. Explain the following : 15
 - (i) 2-D Rotation
 - (ii) 3-D Rotation
 - (iii) 2-D Reflection.

Unit III

5. What is Projection ? Explain its different types. 15
6. Derive the general form of matrix for perspective projection on to XY plane. 15

Unit IV -

7. Write notes on the following :
 - (i) Bezier curve
 - (ii) B-Spline curves. 15
8. What is Image ? Explain Phong's Shading Model. 15

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Roll No.1014.....

DD-682

M.C.A. EXAMINATION, May 2017

(Fourth Semester)

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

JAVA PROGRAMMING

MCA-504

Time : 3 Hours

[Maximum Marks : 75

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

(2-24) M-DD-682

P.T.O.

Unit I

1. (a) What is JVM ? Write their advantages and disadvantages. 8
- (b) List the basic data types used in Java. Give examples. 7
2. (a) Elaborate the features of Java in detail. 8
- (b) Write a program to computer the sum of digits of a given integer number. 7

Unit II

3. (a) Discuss the different levels of access protection available in Java. 7
- (b) Discuss the significance of Packages and Interfaces. 8
4. What do you mean by exception handling ? Also explain the concept of exception hierarchy with an example. 15

Unit III

5. Explain the concept of multithread programming with an example. Also list its performance issues and advantages. 15
6. (a) Write a program that will count the number of words in a file. 7
- (b) What is a stream class ? How stream classes are classified ? 8

Unit IV

7. What are Applets ? Briefly explain the life-cycle of an Applet. Also write a program fragment to create an applet that displays the current time, and this time is updated once per second ? 15
8. Write short notes on the following : 5+5+5
 - (i) JApplet
 - (ii) JFrame
 - (iii) AWT Layout and Component Managers.

6. (a) Explain Dempstershafer theory, with the help of a suitable example. 8
(b) Explain, how to represent knowledge in an uncertain domain ? 7

Unit IV

7. (a) Give the basics of partial order planning. Also give its advantages over state-space search based planning. 8
(b) Explain learning by examples. 7
8. (a) Explain, how a typical artificial neural network is trained with the help of teacher or supervisor component ? 7
(b) Write about Network Transition Grammar and Augmented transmission Grammar used for processing syntactic analysis of natural languages. 8

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M.C.A. EXAMINATION, May 2017

(Fourth Semester)

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

ARTIFICIAL INTELLIGENCE

MCA-508

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. (a) What are the components of Intelligence ?
Explain Turing test. 8
- (b) Explain Hill Climbing Search strategy. 7
2. (a) What do you mean by state space search,
explain using 8-puzzle problem ? 7
- (b) Explain min-max game playing algorithm. 8

Unit II

3. (a) What do you mean by a fact and its
representation ? Convert the following
facts into predicate logics : 3,4
- (i) Man is a mammal
- (ii) Delhi is bigger than Kanpur
- (iii) All the students of 6th semester who
have passed all semester upto 5th
can opt for either industrial project
or in house training.
- (iv) Geeta speaks every language which
Ramesh does not, except Hindi.

- (b) What do you mean by resolution ? Give
algorithm for Unification process used in
the resolution of predicates. 8
4. (a) What are characteristics of a good
knowledge representation scheme ? 4
- (b) Explain, what is the basis of resolution. 3
- (c) Check whether two statements given
below are logically equivalent or not :
S1 : Good food is not cheap
S2 : Cheap food is not good. 8

Unit III

5. (a) Explain, what are those uncertain
situations in which an intelligent agent
has take decisions. 2
- (b) What is Bayes Rule and explain how a
Bayesian network can be used for exact
inferences. 8
- (c) Explain symbolic reasoning. 5

8. (a) What is the use of NAT ? How does it takes place ? Illustrate with example. 9
- (b) Identify two web based applications for which SSL is appropriate and two applications for which it is not appropriate. In each case explain clearly why is it appropriate or why it is not ?

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DD-687

M.C.A. EXAMINATION, May 2017

(Fourth Semester)

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

NETWORK SECURITY AND MANAGEMENT

MCA-556

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 the components of symmetric and asymmetric encryption system. 9
- (b) List three advantages and three disadvantages of stream ciphers. 6
- 2. (a) What is access control ? How is it different from availability ? 5
- (b) Write and discuss any *five* principles of network security. 10

Unit II

- 3. Differentiate between : 15
 - (a) Authentication and authorization
 - (b) Password based authentication and two factor authentication
 - (c) Digital Signatures and digital certificates.
- 4. Consider the field, $F(19)$ and Elliptic Curve, $y^2 = x^3 + 3x^2 + 1$ over $F(19)$.
 - (i) List all the points on this curve

- (ii) Compute $-(17, 14)$
- (iii) Compute $(8, 9) + (12, 13)$
- (iv) Compute $2 \times (17, 14)$
- (v) Use the double and add technique to compute $13 \times (11, 14)$.

Unit III

- 5. Describe the operation of any *two* speech scramblers. 15
- 6. Differentiate between :
 - (i) Narrow band and wide band systems for speech encryption 7.5
 - (ii) Analog and digital systems for speech encryption. 7.5

Unit IV

- 7. (a) What is the use of digital certificate ? Explain the meaning of all the fields of X.509 digital certificate format. 2,6
- (b) Explain, how cryptographic hash is used to provide message authentication and message integrity. 7