(DMCA 101)

M.C.A. DEGREE EXAMINATION, DECEMBER – 2015

First Year

Paper - I : INFORMATION TECHNOLOGY

Time : 3 Hours **Maximum Marks: 70**

SECTION-A *(3 ×15 =45)*

Answer Any Three of the following

1) What is MIS? Explain role of MIS in an organisation.

2) Explain in detail about input and output technologies.

3) Discuss about various types of personal application software.

4) Explain about various topologies of LAN and WAN architectures.

5) What is WWW? Differentiate between intranet and internet.

SECTION-B *(5 × 4 = 20)*

Answer Any Five of the following

6) What is the role of computers in payroll processing.

7) What are the functions of modems.

8) Write a note on applications of software.

9) Write a short notes on e-mail.

10) What is a memory? Write about their types.

11) Write about the traditional file management system and its advantages.

12) Write a note on different organization levels.

13) How a http works in the URL.

SECTION-C *(5×1=5)*

(Answer all of the following)

14) What is a file.

15) What is a processor.

16) Define system support program.

17) What is team ware.

18) What are cookies.

◀▶◀▶◀▶

(DMCA 102)

M.C.A. DEGREE EXAMINATION, DECEMBER – 2015

(First Year)

Paper - II : PROGRAMMING WITH C++

Time : 3 Hours **Maximum Marks: 70**

SECTION-A *(3 ×15 =45)*

Answer Any Three questions

1) Explain the control structures in C++ using examples for each.

2) Generate the types of data with operators in detail.

3) a) Write a program for passing an array to the function & find the sum of array elements.

b) Discuss about arrays in detail.

4) Explain in detail about constructor of overloading constructor with program.

5) How to program with templates? Explain with suitable example.

SECTION-B *(5 × 4 = 20)*

Answer Any five questions

6) Explain Data Encapsulation & data abstraction.

7) Explain functions with example.

8) Explain the parts of C++ program. Write a program to find factorial of a given number.

9) What is scope access operator? Write a program to use scope access operator.

10) Explain about default parameter & parameter casting.

11) How to overload main () function? Explain .

12) What is Recursive constructor?

13) Give some exception handling mechanisms.

SECTION-C *(5×1=5)*

Answer all Questions

14) What is destructor?

15) What is virtual function?

16) Define inheritance & give its type.

17) Define container class.

18) Give the difference between vector & list.

◀▶◀▶◀▶

(DMCA 103)

M.C.A. DEGREE EXAMINATION, DECEMBER – 2015

First Year

Paper - III : COMPUTER ORGANIZATION

Time : 3 Hours **Maximum Marks: 70**

SECTION-A *(3 ×15 =45)*

Answer Any Three of the following

1) What is a system BUS? Describe its architecture with a neat diagram.

2) Describe the structure of magnetic disk and tape.

3) Explain different types of interrupts with examples.

4) Explain the internal structure of CPU with a neat diagram.

5) Discuss about the processor organization.

SECTION-B *(5 × 4 = 20)*

Answer Any Five of the following

6) Give the structure of computer system with a neat diagram.

7) Explain the different states of an instruction execution.

8) Explain the functions of ALU.

9) Explain about secondary storage devices.

10) What is stored program organization.

11) Explain about Instruction cycle.

12) Explain about floating point addition and subtraction.

13) Explain about the different types of registers.

SECTION-C *(5×1=5)*

(Answer all Questions)

14) What is a memory

15) What is a bus ? List out different types.

16) What is PC and IR .

17) Write a note on peripheral devices.

18) What is seek time.

◀▶◀▶◀▶

(DMCA 104)

M.C.A. DEGREE EXAMINATION, DECEMBER – 2015

First Year

Paper - IV : DATA STRUCTURES

Time : 03 Hours **Maximum Marks : 70**

SECTION-A *(3 x 15 = 45)*

Answer Any Three of the following

1) a) Describe the stack and queue along with the operations defined on them.

b) Write a procedure to convert a given infix expression to prefix.

2) a) What is a circular linked list? Explain the operations on a circular linked list.

b) Write an algorithm for polynomial addition using singly linked lists.

3) Define a Binary tree and explain various representations of a Binary Tree.

4) Explain the Quick sort method.

5) Explain different Tree traversal methods.

SECTION-B *(5 x 4 = 20)*

Answer Any Five of the following

6) What is a Sparse matrix? Explain how is it represented.

7) Explain the Binary search algorithm.

8) Represent the following expression in Binary Tree format.

E = (a - b) / (c * d + e)

9) Convert the following infix expression into postfix form:

A / B ** C + D * E – A * C

10) What is an algorithm? How do you estimate the time complexity of an algorithm?

11) Write a Procedure to insert an element in to a doubly linked list.

12) Explain Binary Search Trees.

13) Explain Hashing.

SECTION-C

(5 x 1 = 5)

Answer All of the following

14) Define a data structure.

15) What is an Abstract Data Type?

16) What is a Tree?

17) What is linear search?

18) What is the Height of a Tree?

●●●●●

(DMCA 105)

M.C.A. DEGREE EXAMINATION, DECEMBER - 2015

First Year

Paper – V : Operating Systems

Time : 03 Hours **Maximum Marks : 70**

SECTION - A

Answer any THREE of the following ***(3 × 15 = 45)***

1) Describe the process state transition diagram with one and two states.

2) Write short note on deadlock avoidance. Explain the Bankers algorithm for deadlock avoidance.

3) What is 'Dining Philosophers Problem'? Give the solution for it.

4) Explain about hardware I/O organization.

5) Discuss about different program related threats.

SECTION - B

Answer any FIVE of the following ***(5 × 4 = 20)***

6) Write short notes on different types of operating systems.

7) Explain the process scheduling criteria.

8) Describe the Test And Set instruction.

9) Show that the Peterson's algorithm satisfies the requirements of a mechanism to control acess to a critical section.

10) What is segmentation? Write about segmentation with paging.

11) Explain the concept of file locking and blocking.

12) Write about storage disks.

13) Explain various approaches to intrusion detection.

SECTION - C

Answer ALL questions ***(5 × 1 = 5)***

14) What is boot sector?

15) What is the use of buffering?

16) Define synchronization.

17) What is file mapping?

18) What is monitor?

(DMCA 106)

M.C.A. DEGREE EXAMINATION, DECEMBER – 2015

(Examination at the end of First Year)

Paper - VI : DATA BASE MANAGEMENT SYSTEMS

Time : 3 Hours **Maximum Marks: 70**

SECTION-A

(3 × 15 = 45)

Answer Any Three Questions

1) Describe one-to-many and many-to-many recursive associations with an illustrative example.

2) What is binary tree? Write an algorithm to create a binary tree data structure. Apply the algorithm on the data 102, 106, 104, 101, 110, 109, 107, 103, 108, 105.

3) What is the role of normalization in database design? Explain BCNF with an example.

4) Explain the following PC-FOCUS commands.

a) FILETALK b) AUTOMOD c) TABLETALK

5) List different commands of relational algebra and explain them in brief.

SECTION-B

(5 × 4 = 20)

Answer Any Five questions

6) What are the components of database management system?Explain them in detail.

7) Illustrate the construction of an indexed sequential file with a suitable example.

8) What are the three types of network data models? Explain them with an example.

9) What is stack? Explain stack data structure.

10) What is conceptual data model? What are its inputs and outputs.

11) What are the symbols used in database action diagram? Explain them in brief.

12) Decrypt the following stream of data using the tree with a degree of 2 and three levels.

(a, b, d, h, i, e, j, k, c, f, l, m, g, n, o).

13) Give the skeleton of DDL program of IDMA.

SECTION-C

(5 × 1 = 5)

Answer ALL questions

14) What is decision support system?

15) What is a ring data structure?

16) What is LAM?

17) What is the use of the command GET NEXT?

18) What is timestamp?

(DMCA 107)

M.C.A. DEGREE EXAMINATION, DECEMBER - 2015

First Year

Paper – VII : ACCOUNTS & FINANCE

Time : 03 Hours **Maximum Marks : 70**

SECTION - A

Answer any THREE of the following ***(3 × 15 = 45)***

1) Explain the rules relating to double entry system of accounting.

2) State the techniques employed to manage working capital.

3) Bring out the nature and significance of finance function.

4) Classify costs with suitable examples.

5) How do you draw balance sheet of a corporate body?

SECTION - B

Answer any FIVE questions ***(5 × 4 = 20)***

6) Matching concept.

7) Subsidary books.

8) Trial balance.

9) Flexible budget.

10) Profitability ratios.

11) Funds flow statement.

12) Horizontal analysis.

13) Errors of commission.

SECTION - C

Answer ALL questions ***(5 × 1 = 5)***

14) Journal proper.

15) Cost centre.

16) Wealth maximisation.

17) Cash from operations.

18) Net working capital.

☛ ☛ ☛

(DMCA 108)

M.C.A. DEGREE EXAMINATION, DECEMBER - 2015

First Year

Paper – VIII : DISCRETE MATHEMATICS

Time : 03 Hours **Maximum Marks : 70**

SECTION - A

Answer any THREE of the following ***(3 × 15 = 45)***

1) a) Explain different methods of proof with example.

b) Prove on disprove the validity of the following argument using Quantified proposition

All men are falliable

All kings are men

Three fore all kings are falliable.

2) a) Prove that $\exists x \; P(x) \wedge Q(x) \Rightarrow \exists x \; P(x) \wedge \exists x \; Q(x)$.

b) State all the rules of Logical Inference.

3) a) Find the Recurrence Relation satisfying $Y_n = A(3)^n + B(-4)^n$.

b) Write a brief note on Recursive Algorithms

4) Make logic circuits for the following Boolean Expressions.

a) $A'B + ABC + C' + B'$

b) $\overline{wyz} + wz + \bar{y}z + xyz$

5) a) Show that the sum of all vertex degree is equal to twice the no.of edges.

b) Explain Travelling Salesman problem.

SECTION - B

Answer any FIVE questions ***(5 × 4 = 20)***

6) Define strong Mathematical Induction.

7) Define Recursive subroutine.

8) Define Equivalence Relation.

9) Define order of the Recurrane Relation.

10) Let A be a set Define P(A) the power set of A Find P(A) when A = {1, 2, 3}.

11) What is Ackerman's function?

12) Explain the concept of graph Isomorphism.

13) Show that every planar graph is 5-olarable.

SECTION - C

Answer ALL questions ***(5 × 1 = 5)***

14) Define Tautology.

15) What is Recursion?

16) What is Hasse diagram?

17) Define biparite graph.

18) What Eulerian path.

☛ ☛ ☛