(DMCA 101)

M.C.A. DEGREE EXAMINATION, MAY - 2014

First Year

Paper - I : INFORMATION TECHNOLOGY

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

Section - A

(3 x 15 = 45)

Answer any Three of the following

1) Define computer. Explain the Block Diagram of computer with a neat sketch.

2) What is the role of Information technology in modern era?

3) What is software and Hardware? Explain indetail.

4) Define Operating System. Write about the functions and features of Operating System.

5) Write about the following:

a) CRT.

b) ISDN.

c) Language Translators.

Section - B

(5 x 5 = 25)

Answer any Five of the following

6) What is Internet? Explain about the applications of Internet.

7) Write about the following:

a) Keyboard. b) Printer.

8) Write the functions of DBMS.

9) Write about TCP/IP?

10) Differentiate between language and package.

11) What is the process of connecting to Internet?

12) Write about the types of computers.

13) Write about the storage devices.

Section - C

(5 x 1 = 5)

Answer all questions of the following

14) What is UZC?

15) What is FTP?

16) Define Artificial Intelligence.

17) What is Compiler?

18) What is a Web Server?

(DMCA 102)

M.C.A. DEGREE EXAMINATION, MAY - 2014

First Year

Paper - II : PROGRAMMING WITH C++

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

Section - A

(3 x 15 = 45)

Answer any THREE questions

1) a) Describe the structure of C++ program.
b) Discuss about user-defined data types.

2) Explain about recursive functions and in-line functions.

3) Explain the concept of operator overloading. Write a program to overload new and delete operators.

4) Explain the concept of passing one function as the argument to another function with an example.

5) What is stream? Discuss about different types of I/O streams.

Section - B

(5 x 5 = 25)

Answer any FIVE questions

6) Explain dynamic memory location.

7) Write about static members and static functions.

8) Write a C++ program which passes arrays to functions.

9) Explain the difference between constructors and destructors.

10) Explain about various file mode operations of C++.

11) Write a program to sort a set of n-numbers in ascending order.

12) Write short note on abstract classes.

13) Write a template function min ( ) for finding in a list.

Section - C

(5 x 1 = 5)

Answer ALL questions

14) Why do we use relational operators?

15) Write syntax of switch statement.

16) What is call by value?

17) What is friend function?

18) What is container class?

(DMCA 103)

M.C.A. DEGREE EXAMINATION, MAY - 2014
First Year
Paper - III : COMPUTER ORGANIZATION

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

Section - A

(3 x 15 = 45)

Answer any Three of the following

1) Explain briefly the function and structure of a computer.

2) Explain the interconnection structures B/W computer modules.

3) Write about Cache design parameters.

4) Explain the concept of floating point arithmetic.

5) What is pipelining? Explain intel 8086 pipelining structure.

Section - B

(5 x 5 = 25)

Answer any Five of the following

6) What is Cache memory? Explain about Cache memory organization.

7) Explain about encoding of machine instructions.

8) Explain about the different addressing modes with example and diagram.

9) Write in detail about Hardwired control.

10) Explain Multiple Bus organization with diagram.

11) Explain pipelined processor organization.

12) Briefly explain Micro programmed control unit.

13) Write a short note on optical memory.

Section - C

(5 x 1 = 5)

Answer All questions

14) What is multiprocessor?

15) What is addressing mode?

16) What is PCI?

17) What is virtual memory?

18) What is DMA?

(DMCA 104)

M.C.A DEGREE EXAMINATION, MAY - 2014

First Year

Paper - IV : DATA STRUCTURES

Time : 03 Hours **Maximum Marks : 75**

Section – A

Answer any Three questions. ***(3 × 15 = 45)***

1) Explain about the complexity of algorithm. Write the linear search algorithm and discuss its complexity.

2) Write bubble sort algorithm and apply it on the array :

32, 51, 27, 85, 66, 23, 13, 57

3) Define the concept of linked list. Explain about different operations performed on linked list with suitable examples.

4) Build a heap tree of the elements 44, 30, 50, 22, 60,55, 77, 55 and use heap sort process to sort it.

5) Write merge sort algorithm and apply it on the data :

66, 33, 40, 22, 55, 88, 60, 11, 80, 20, 50, 44, 77, 30.

Section - B

Answer any Five questions. ***(5 × 5 = 25)***

6) Explain about different control structures.

7) Describe the first pattern matching algorithm with an illustrative example.

8) What is multidimensional array? Explain about its representation.

9) Using stack find the equivalent post fix expression of the arithmetic expression :

A + (B * C – (D / E $\uparrow$ F) * G) * H.

10) Explain the concept of priority queue.

11) Describe the binary tree traversals with suitable example.

12) Define binary search tree. Draw the binary search tree of the elements :
50, 33, 44, 22, 77, 35, 60, 40.

13) Define hashing function. Illustrate different hashing functions.

Section - C

Answer all questions. ***(5 × 1 = 5)***

14) What is string concatenation?

15) Define sparse matrix.

16) Define Ackerman function.

17) What is extended binary tree?

18) Differentiate queue and dequeue.

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(DMCA 105)

M.C.A DEGREE EXAMINATION, MAY - 2014

First Year

(Paper - V) : OPERATING SYSTEMS

Time : 03 Hours **Maximum Marks : 75**

Section - A

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

1) What is an operating system? Discuss different types of operating systems.

2) Explain about the components of operating system and its services.

3) Explain about the differenecs between segmentation and paging.

4) What is deadlock? What are the conditions for deadlock.

5) Explain about the File system Architecture in detail.

Section - B

Answer any Five of the following. ***(5 × 5 = 25)***

6) Write a note on memory management requirements.

7) Explain about various file allocation methods.

8) Write a note on stegnography.

9) Explain about various device drivers.

10) What is an Interrupt? Explain different types of Interrupts.

11) Write a note on virus and a worm.

12) Write a note on Cache memory.

13) Write a note on CPU schedulers in detail.

Section - C

Answer all of the following. ***(5 × 1 = 5)***

14) Define multiprogramming.

15) What is Inter process communication.

16) Define Throughput

17) What is fragmentation.

18) List out different types of viruses.

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(DMCA 106)

M.C.A DEGREE EXAMINATION, MAY - 2014

First Year

Paper - VI : DATABASE MANAGEMENT SYSTEMS

Time : 03 Hours **Maximum Marks : 75**

Section - A

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

1) What is hashed file organization? Write the remainder algorithm for hashing and give an illustrative example.

2) Explain hierarchical and network data models with an example.

3) Discuss the guidelines for mapping a conceptual data model into a relational data model.

4) Explain different DML commands with suitable example.

5) List and explain the traditional set operators and special relational operators.

Section - B

Answer any Five of the following. ***(5 × 5 = 25)***

6) What is a conventional file processing system? Discuss about its drawbacks.

7) Explain different associations between files with suitable examples.

8) What are the types of pointer? Explain them in brief.

9) Explain fourth and fifth normal forms with appropriate examples.

10) What are the main steps of database design? Explain them in brief.

11) Write short notes on PC-FOCUS commands. FILETALK, AUTOMOD.

12) Explain DROP VIEW command of interactive SQL with an example.

13) Explain the tree based encryption technique with an example.

Section - C

Answer all of the following. ***(5 × 1 = 5)***

14) What is metada?

15) Define address sequential connection.

16) What is internal model?

17) Illustrate the use of GET UNIQUE.

18) What is transaction log?

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(DMCA 107)

M.C.A DEGREE EXAMINATION, MAY - 2014

First Year

Paper - VII : ACCOUNTS AND FINANCE

Time : 03 Hours **Maximum Marks : 75**

Section - A

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

1) Describe the significance of finance function.

2) What are the managerial uses of funds flow analysis ?

3) State the different kinds of subsidary books maintained by a firm.

4) What are the uses of preparing bank reconciliation statement?

5) Classify costs with examples.

Section - B

Answer any Five of the following. ***(5 × 5 = 25)***

6) State the roles of double entry system of accounting.

7) Why is it necessary to prepare suspense account?

8) What are the essentials of budgetary control?

9) Explain current ratio.

10) Distinguish between networking capital and gross working capital.

11) List out the factors that influence financial decision making.

12) What do you mean by cost accounting.

13) Bring out accounting cycle.

Section - C

Answer all of the following. ***(5 × 1 = 5)***

14) Cash book.

15) Trail balance

16) Quick ratio

17) Vertical analysis

18) Cost unit

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(DMCA 108)

M.C.A DEGREE EXAMINATION, MAY - 2014

First Year

Paper - VIII : DISCRETE MATHEMATICS

Time : 03 Hours **Maximum Marks : 75**

Section - A

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

1) a) Show that $\{(p \Rightarrow (Q \vee R)) \wedge (\neg Q)\} \Rightarrow (P \Rightarrow R)$ is in Tautology.

b) Construct truth tables for the following .

2) a) State all rules for Logical Inference.

b) Symbolize the following argument S and check validity

All doctors are college not graduates
Some doctors are not golfers
Hence, some goffers are not college Greduates

3) a) State and explain. The Tower's of Honoi problem.

b) Solve the recurrence relation
$a_{n+2} + 4\, a_{n+1} + 5a_1 = 0,\ n \geq 0;\ a_0 = 2\ a_1 = 8$

4) a) Solve the recurrence relation
$a_n - 7\, a_{n-1} + 16\, a_{n-2} - 12\, a_{n-3} = 0$, *for* $n \geq 3$ with $a_0 = 1\ a_1 = 4\ a_2 = 8$

b) Solve the recurrence relation
$a_n - 5\, a_{n-1} + 6a_{n-2} = 0$ where $a_0 = 2$ and $a_1 = 5$

5) Prove that the transitive closure of a relation R equals the connectivity relation R.

Section - B

Answer any Five of the following. ***(5 × 5 = 25)***

6) Define power set of a set and show that the cardinality of the power set of A, P(A) is 2^n if cardinality of A is n.

7) Show that $p \rightarrow (Q \cup R) \Leftrightarrow (P \rightarrow Q) \cup (P \rightarrow R)$.

8) What is PCNF and PDNF? Explain.

9) Define Homogenious recurrence Relation.

10) Explain pigeon holo principle.

11) Define order of the recurrence relation.

12) Define Equivalence relation. Explain with example.

13) Explain primitive recursive function with suitable example.

Section - C

Answer all of the following. ***(5 × 1 = 5)***

14) Define set.

15) What is transitive relation.

16) What is Monoid.

17) Define finite state machine

18) What is DPDA.

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