

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA
Course Title: Discrete Mathematics

Subject Code : MCA/PGDCA
Course Code : MCA-1.1(O)/
MCA-01(N)

अधिकतम अंक : 30
Maximum Marks: 30

Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18
Maximum Marks: 18

- 1.a) Construct truth tables for
 - (i) $[(P \Rightarrow Q) \wedge (Q \Rightarrow R)] \Rightarrow (P \Rightarrow R)$
 - (ii) $\sim (P \Rightarrow Q) \vee [(-P) \wedge Q] \vee Q.$
- b) Prove that $\sqrt{2}$ is irrational by giving a proof of contradiction.
- 2.a) Find the logic networks corresponding to Boolean expression.
 - (i) $x'y'z + y'yz + xyz' + xy'$
 - (ii) $(A+B)(A'+C) + B(B'+C)$
- b) Write short notes :
 - (i) Regular graph
 - (ii) Bipartite graph
 - (iii) Hamiltonian graph.
3. a) Show that the relation $(x,y) R (a,b) \Leftrightarrow x^2 + y^2 = a^2 + b^2$ is an equivalence relation on the plane. Also describe the equivalence classes.
- b) Describe Dijkstra's Algorithm for shortest path in weighted graphs.

Section - B

खण्ड - ब

अधिकतम अंक : 12
Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

1. Write negation of the statement : For all real numbers x , if $x > 3$ then $x^2 > 9$.
2. What is Lattice? Explain the properties of Lattice.
3. What is planar graph? Also explain Euler's formula.
4. Show that $n^2 > 2n+1$ for $n \geq 3$ by mathematical induction.
5. Define Cartesian product of two sets and prove that $A \times (B \cap C) = (A \times B) \cap (A \times C)$.
6. Let R and S be two relations on a set A . Then if R and S are reflexive then prove that $R \cap S$ is reflexive.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Problem solving and
Programming through C

Course Code : MCA-1.2 (O) /
MCA-02 (N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Write an algorithm and program in C to swap the values of two variables using pointers concepts.
2. Write an algorithm and programme to insert and delete a node from a doubly-linked list.
3. Write a program in C to sort list of n integers, using any of the sorting algorithms.

Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are the rules for naming variables in C?
5. Write a program to calculate the first smallest divisor of a number using break statement.
6. What is call by value? Give example.
7. Explain Function Prototypes with an example for each.
8. Explain recursion program with a suitable example.
9. What is a BST?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Computer Organisation

Course Code : MCA-1.3 (O)/

And Assembly Language

MCA-03(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What do you mean by Flip-Flop? Discuss the functions and circuit diagram of different type of flip flop?
2. What do you understand by hardware interrupt and software interrupt?
3. Draw the connections between memory module and processor and explain how data transfer takes place between them.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is PLA?
5. Draw the circuit diagram of Half address and full address..
6. List the type of addressing mode.
7. What do you mean by segment?
8. What do you mean by type of instruction set?
9. What are the functions of Assembles?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Computer Architecture

Course Code : MCA-E1(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What are the similarities and distinctions between multiprocessor and multicomputer system? Explain the classification of multiprocessor system.
2. Explain the Pipeline scheduling in detail.
3. Discuss the utility of RISC and CISC Architecture by comparing their various features.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are the different types of Roms? Discuss.
5. Explain the concept of virtual memory.
6. What is hit ratio.
7. What is the data transfer show in RAID level scheme?
8. What is Dynamic Scheduling?
9. What do you mean by Multicore Processor?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Microprocessor and
Its Application

Course Code : MCA-E2(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. List the components of computers and explain each in brief. What is the difference between a microprocessor and a CPU
2. Discuss the features of 8085 interrupts. Also explain the SIM and RIM formats.
3. Explain the following.
 - i. Data Bus.
 - ii. Address Bus.
 - iii. Control Bus.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What do you understand by DMA?
5. What is the function of SI and Di Registers?
6. What do you mean by Conditional Flag?
7. What do you understand by Addressing mode?
8. What are the advantages of segmentation?
9. List the feature of 8086 Microprocessor?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Data ware house
and mining

Course Code: MCA-E3(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section – A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. what is data mining (D.M.)? Define and describe relation ship and pattern detected in data minning .What is the scop of data mining.
- 2.Explain structure of the data warehouse? Discuss in aDetail all the steps involve in making a data ware house.
3. Explain OLTP and OLAP and also dicuss difference between them?

Section – B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are the requirements of cluster analysis?
5. What type of processing takes place in a data ware house?
6. what are the various types of metadata? Explain in detail?
7. what do you mean by knowledge discovery process?
8. what is Classification?
9. What do you mean by data cleaning?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: System Analysis and Design.

Course Code : MCA-1.4(O)/MCA-E4(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is an information System? Explain classification of systems in brief. Also explain the need of SDLC for proper development of a system.
2. What is SRS? Briefly explain any four characteristics of SRS. Develop an SRS for Library Management System. Make appropriate assumptions.
3. What is CASE tool? Categories various types of CASE tools.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is a decision tree? Draw a decision tree for a system of your choice.
5. What is the need of system maintenance?
6. Give levels and components of MIS. Who are the key persons at all the levels of MIS?
7. Differentiate between coupling and cohesion.
8. What do you mean by internal information, external information and turnaround document?
9. What activities are performed during design phase? Explain them.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Data Communication
and Network.

Course Code : MCA-1.5 (O)/
MCA-10(N)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Give the ISO-OSI ref. model for Data Communication and explain the function of each layer in brief. How it is different than TCP/IP model?
2. What is the difference between a frame and a packet? Why framing is required? What is the significance of padding used in some of frame format? Explain.
3. Write the short note on following:
i) Multiplexing ii) TCP Congestion Control Techniques.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Give the classification of IPV-4 addressing scheme.
5. How BGP is different from other distance vector routing protocols?
6. What do you mean by digital signature?
7. What are the various type of Network?
8. What do you mean by Band rate? How is it different from Bit rate?
9. What is Attenuation?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: object oriented programming
C++

Course Code MCA-05(N)

30

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Maximum Marks: 30

Section - A

खण्ड - अ

अधिकतम अंक : 18

Max. Marks: 18

Note: Long Answer Questions. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

1. What is operator overloading? Illustrate Operator overloading concept to concatenate strings.
2. Explain why do we need to use constructors? Explain a copy constructor with an example.
3. What are the different forms of inheritance supported by C++ ? Explain with examples.

Section—B

Maximum Marks : 12

अधिकतम अंक : 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. Answer all questions. All questions are compulsory.

- 4- What do you mean by “this” function?
5. What are pure virtual function?
6. What do you mean by container classes?
7. What is a Use case? Also explain with example.
8. What is reusability ? Which things can be reused.
9. Discuss on Jacobson et al. Methodologies.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Database Management System

Course Code : MCA-2.1 (O) / MCA-06(N)

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions. All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is entity and attribute? Give some examples of entities and attributes in a manufacturing environment. Why are relationships between entities important?
2. What do you mean by data redundancy? What is the difference between controlled and uncontrolled redundancy? What is data independence?
3. Identify the entities and relationships for this organization and construct an ER diagram. From the E-R diagram, write the scripts for creating a schema.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Discuss on the various ways in which we can arrive at a good database design.
5. Explain the various ways in which concurrency control can be implemented in a database.
6. What is data? What do you mean by information? What are the differences between data and information?
7. Who is a DBA? What are the responsibilities of a DBA?
8. What is a transaction? Which are the properties of a transaction and explain each.
9. What is a database trigger? Which are the different kinds of triggers?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA Subject Code : MCA/PGDCA
Course Title: Object Oriented Techno- Course Code : MCA-2.2 (O)/
logy and Java programming MCA-11(N)

अधिकतम अंक : 30
Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18
Maximum Marks: 18

1. What is inheritance? Explain two benefits of inheritance, with an example of each. 6
2. What is a constructor? Write a Java program to explain how super class constructors are called in their subclasses. 6
3. What is multithreading? Explain this with an example of how interthread communication takes place in Java. 6

Section - B

खण्ड - ब

अधिकतम अंक : 12
Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is a global variable? 2
5. What is encapsulation? 2
6. What is multithreaded programming ? Explain how threads are created in Java. 2
7. What is JDBC? 2
8. What is an exception? 2
9. What is an instance variable? Explain how an instance variable of a class can have different value for each object of that class. 2

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Software Engineering

Course Code : MCA-2.3 (O)

MCA-09(N)

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What are project metrics? Explain different types of project metrics with an example for each.
2. What is prototyping? Explain the problems and advantages of prototyping in detail.
3. Explain various testing techniques.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is data dictionary?
5. What are the steps involved in software project estimation?
6. How is software configuration management done in software?
7. What do you mean by Coupling?
8. Discuss the Waterfall Model.
9. What do you mean by Software crisis?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA/PGDCA

Subject Code : MCA/PGDCA

Course Title: Operating System

Course Code : MCA-2.4

Concepts & Networking

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is an operating system? Discuss the functions and classifications of advanced operating system.
2. What do you mean by Transmission media? Discuss the advantage and disadvantage of different type of Transmission media.
3. Write short note of following:
(i) Routers (ii) Gateways

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are different states of a Linux operating system?
5. Find out how to set the system date. Why do you think only the super user is allowed to do this?
6. What happens if a user logs out after you have started writing to him?
7. What is Active Directory?
8. How will you secure guest account?
9. What do you understand by Windows 2000 DNS?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : Mathematics
Course Title: Advance Discrete
Mathematics

Subject Code : MCA
Course Code : MCA-3.1 (New)

अधिकतम अंक : 30
Maximum Marks: 30

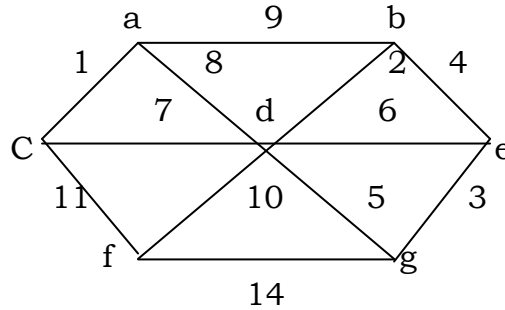
Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18
Maximum Marks: 18

- 1.a) Find the generating function for the sequence $1, 9, 9^2, 9^3, \dots$ Where 9 is a fixed constant.
- b) Solve the recurrence $9_n = 9_{n-1} + 29_{n-2}$ $n \geq 2$ with the initial conditions $9_0 = 0, 9_1 = 1$.
2. Show the Kruskal's algorithms find a minimal spanning tree of the graph



3. Define the following terms:
 - (i) Regular graph
 - (ii) Chromatic number
 - (iii) Isomorphic graph
 - (iv) Degree of Vertex.

Section - B

खण्ड - ब

अधिकतम अंक : 12
Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Prove that the number of vertices of odd degree in a graph is always even.
5. A simple connected graph with n vertices and m edges is Hamiltonian if $m \geq \frac{1}{2}(n-1)(n-2) + 2$.
6. Show that a planar graph G is 5 colorable.

7. Show that the maximum number of edges in a simple graph with n vertices is $\frac{n(n-1)}{2}$.
8. Solve the recurrence relation
$$a_n = a_{n-1} + 2 \quad n \geq 2.$$
9. Using recursion define the multiplication function $*$ given by $g(x,y) = x * y$.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Communication Skill

Course Code : MCA-3.2

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. "Communication is the heart of Management" Explain.
2. How minutes of a meeting is prepared?
3. Explain various negotiation skills?

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are various media of expression?
5. Highlight the various steps needed for conducting a successful meeting?
6. Explain Memos?
7. Discuss various barriers of communication ?
8. What are various steps of Report writing?
9. Differentiate between written & oral communication?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Data File and Structure

Course Code : MCA-3.3

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Write an algorithm to perform each of the following operations on Circular singly linked list using header node.
 - 1) add node at the end
 - 2) add node at beginning
 - 3) delete a node which contain element x
 - 4) insert a node containing x after node having address p
2. Write an algorithm to implement ascending priority queue using singular linear linked list which has insert () function such that queue remains ordered list. Also implement remove () function.
3. Construct a tree for the given inorder and postorder traversals.
Inorder DGBAHEICF
Postorder GDBHIEFCA

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What are the advantages and disadvantages of stack and queue implemented using linked list over array?
5. Give the classification of data types.
6. Write an algorithm to insert new node at the beginning, at middle position and at the end of a Singly Linked List.
7. What are Linear and Non linear data structures? Give two examples of each.

8. Explain application of Stack in recursive functions with example.
9. Explain the concept of priority queue with suitable example.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Object Oriented

Course Code : MCA-3.4

Analysis and Design

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Describe in detail the major and minor elements of object model. Give suitable examples.
2. What are the approaches used for identification of classes and attributes? Explain.
3. What is the relationship between cohesion and coupling? Identify the type of coupling in the following. How can it overcome?

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Name the UML diagrams used for the following:
 - a) modeling behaviour of an object.
 - b) interaction between groups of objects.
5. How does object relational database differ from object databases?
6. Mention the design axioms applied to object-oriented design.
7. Give the sequence diagram for making a telephone call.
8. Describe how class diagram, object diagram and generalization are represented with UML Diagram.
9. Describe the activities involved in an ATM transaction.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Design and Analysis
Of Algorithms.

Course Code : MCA-4.1

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

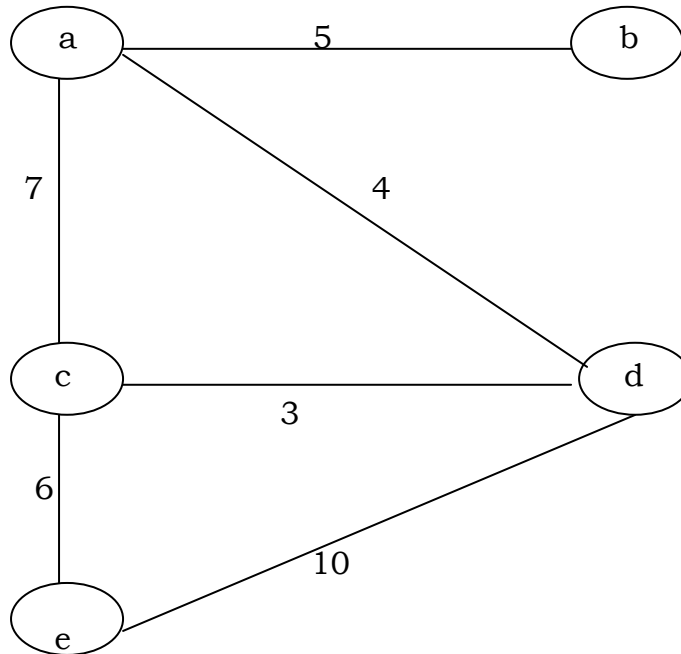
Section - A

खण्ड - अ

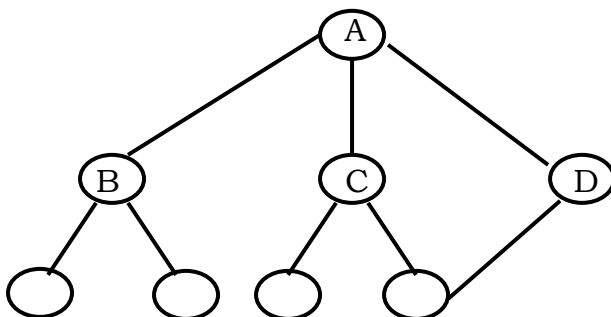
अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the essential idea of Dynamic Programming. How does Dynamic Programming differ from Divide and conquer approach for solving problems?
2. Apply each of (i) Prim's and (ii) Kruskal's algorithms one at a time to find minimal spanning tree for the following graph



3. For the graph given in Figure below, use (i) BFS (ii) DFS to visit various vertices. The vertex B is taken as the starting vertex and, if there are more than one vertices adjacent to a vertex, then the adjacent vertices are visited in lexicographic order.



Section - B

खण्ड - ब

अधिकतम अंक : 12
Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Write a recursive procedure for the product of first n natural numbers.
5. Arrange the following growth rates in increasing order:
 $O(n \log n)$, $O(n^2)$, $O(35n)$, $O(35n^2 + 11)$, $O(1)$, $O(n \log n)$
6. In respect of understanding a problem for solving it using a computer, explain “analyzing the problem” step.
7. What do you mean by Best case analysis of algorithms?
8. Is there a greedy algorithm for every interesting optimization problems? Justify your Claim.
9. What do mean by Halting Problem?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Operating System

Course Code : MCA-4.2

अधिकतम अंक : 30 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is the difference between process and thread? Explain the steps in Process switching and thread switching. 6
2. Explain the concepts of shared memory, distributed memory and distributed shared memory. 6
3. Explain the structure of UNIX and Windows Operating Systems. 6

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is thrashing? 2
5. What is Mutual Exclusion? 2
6. What is necessary and sufficient conditions for the occurrence of the deadlock? 2
7. Explain the) Access Matrix security models 2
8. What is semaphore? 2
9. What do you mean by Paging? 2

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Advanced DBMS

Course Code : MCA-4.3

अधिकतम अंक : 30 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Compare and contrast Relational DBMS with Object Relational DBMS and Object Oriented DBMS. Suggest one application for each of these DBMS.
2. Explain join-Dependency with the help of an example. With which normal form is it associated? Functional dependency and Multivalued dependency are special types of join dependencies. Justify.
3. What are cursors, stored procedures and triggers? Give SQL syntax for each and discuss the utility aspect of each.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. How do UM diagrams help in designing the database?
5. How does data granularity affect the performance of concurrency control?
6. What are semantic databases?
7. What is shadow paging?
8. What is a data warehouse?
9. What are data marts? Briefly discuss the method of creating the data marts.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Advanced Internet
Technology

Course Code : MCA-4.4

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the life cycle of Servlet. Write a code for demo Servlet to explain all the three stages of Servlet life cycle.
2. What are the advantages of XML over HTML? Explain the need/use of entities of XML document. Describe all three types of entities with the help of an example.
3. How does Session Bean differ from the Entity Bean in terms of object sharing, object state and failure recovery?

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Differentiate between validating and non-validating parser..
5. What are the different types of system vulnerabilities?
6. Explain different types of restrictions on EJB.
7. Explain the different development goals of XML document.
8. What is a well formed tag?
9. List the different types of services offered by EJB container.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Computer Graphics
And Multimedia

Course Code : MCA-5.1

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is Raster Scan and how is it different from Random Scan? 6
2. What are the benefits of Bresenham's line drawing algorithm over DDA algorithm? 6
3. What is shearing transformation? Explain x-shearing-shearing with suitable example. 6

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Explain the specular Reflection with the help of suitable diagram. 2
5. Define the term parallel projection. Categorise various types of parallel projection. 2
6. Write any three properties of Bezier curve. What are the limitation of Bezier curve? 2
7. What are the differences between the GIF and JPEG? 2
8. What is video conferencing? 2
9. What do you mean by Animation? List the all Animation Tools. 2

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Artificial Intelligence

Course Code : MCA-5.2

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Represent following sentences using symbolic logic:
A drunker is enemy of himself.
Father of John loves to mother of Merry
All students like a good teacher.
Fruits and vegetables are nutritions.
2. Write notes on any four of the following:
(i) Speech recognition (ii) List manipulation features in LISP
(iii) Program structure in PROLOG
3. What is Expert System? Explain its various parts.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What is heuristic search? Explain with example.
5. Explain seven problem characteristics with suitable examples.
6. Explain generate and test algorithm by giving its advantages and disadvantages.
7. Explain syntactic analysis with suitable example.
8. Describe the different application of AI.
9. What Hill Climbing method?

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Numeral and Statistical
Computing.

Course Code : MCA-5.3 (New)

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. a) Using the Gauss elimination method solve the following linear system of equations:

$$X + y + z = 3$$

$$4x + 3y + 4z = 8$$

$$9x + 3y + 4z = 7$$

- b) Explain Regula Falsi method with suitable examples.
2. a) Find a real root of the equation $x \sin x + \cos x = 0$ between (2,3) by Bisection method.
- b) Using Newton – Raphson method find an iterative scheme to compute the cube root of a positive number.
3. a) What do you mean by Binomial Distribution. Explain with suitable example.
- b) Define lines of Regression. Derive the formula for angle between two lines of regression.
- c)

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Explain floating point representations with suitable examples.
5. Evaluate the integral $\int_0^2 \frac{1}{1+x} dx$ by using Simpson 3/8 rule with $h=1/3$.
6. Show that the mean and Variance of the poisson distribution are each equal to the parameter λ .
7. Explain Runge-Kutta method for fourth order.

8. Given $\frac{dy}{dx} = \frac{y-x}{y+x}$ with $y = 1$ for $x = 0$. Find y approximately for $x = 0.1$ by Euler's method.
9. Define the followings :
- i) Coefficients of Kurtosis.
 - ii) Moments about mean.
 - iii) Coefficients of Skewness.
 - iv) Skewness of a distribution.

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अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Parallel Computing

Course Code : MCA-5.4

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. Explain the basic concepts of dataflow computing and describe various applications of parallel computing. 6
2. Explain the Amdahl's law for measuring speed up performance with the help of an example. 6
3. Define array processing. Why are array processors called as SIMD Array computers? With the help of a Block diagram. Explain the architecture of an SIMD array processor.

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. What do you mean by the concept of multithreading?
5. Explain Hypercube Network with properties.
6. Define Cluster computing.
7. List the classification of vector instruction.
8. Explain the concept of permutation Network with an example.
9. What is Bens Network?

उत्तर प्रदेश राजर्षि टण्डन मुक्त विश्वविद्यालय, इलाहाबाद

अधिन्यास (Assignment)

2015-2016

Master of Computer Applications (MCA)

Subject : MCA

Subject Code : MCA

Course Title: Accountancy and
Financial Management

Course Code : MCA-5.5

अधिकतम अंक : 30

Maximum Marks: 30

Note. Answer should be given in 800 to 1000 words. Answer all questions.
All questions are compulsory.

Section - A

खण्ड - अ

अधिकतम अंक : 18

Maximum Marks: 18

1. What is the scope of Accounting? Explain its Emerging role.
2. Explain Ratio Analysis?
3. Explain how future value of money is determine?

Section - B

खण्ड - ब

अधिकतम अंक : 12

Maximum Marks: 12

Note: Short Answer Questions. Answer should be given in 200 to 300 words. All questions are compulsory.

4. Describe Accounting cycle.
5. Elaborate with example any two Accounting concept.
6. Explain conservative working capital strategy?.
7. What are reasons for holding inventory?
8. Explain ABC Analysis?
9. What is Treasury Management?