Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-101**	Course Title: Computer Fundamentals and Its Organization	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Convert the following Number System.

 a) (534)8 = (?)16

b) (101011)2 = (?)8

 c) (624)8 = (?)2

 d) (11101)2 = (?)8

e) (3B1)16 = (?)2

 f) (AC2)16 = (?)8

2. Draw a block diagram of a computer. Explain the function of each of the blocks. Explain input and output devices.

3. What are the various objectives and functions of Operating systems? . What are the major activities of an operating systems with regard to process management?

Section - B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words.

4.What is Cache Memory? How it reduce the mismatch of processor and main memory speed?

5. Explain the magnetic Disk storage organization.

 6.Explain the storage organization of Compact Disk ROM.

7. What is difference between Magnetic disk & Magnetic Tape?

8.What is the difference between multitasking and multiprogramming operating system?

 9.What is input-output Device? Explain the role of input-output device in computer system.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-102**	Course Title: **Discrete Mathematics**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is the proposition? Explain different logical connectives used in propositions with the help for example

2. Draw a Venn diagram to represent followings: (3)
    i) (A ∩ BU C) ~A
    ii) (A U B U C) ∩ (B ∩ C)

3. Explain the following types of relations with the help of suitable examples.

    a. Reflexive

    b. Anti symmetric

    c. Transitive
    d. Equivalence

Section - B
Short answer questions   Maximum marks: 12

 Note: Write the answer of four questions in 200 to 300 Words.

4. Express the Boolean expression $xyz' + y'z + xz'$ in a sum of product form.

5. Construct the logic circuit and obtain the logic table for the expression $x1$ v (x'2 A x'3)

6. How many numbers are there between 100 and 1000 such that 7 is in the unit's place ?

7. Verify that the proposition p v (P A Q) is a tautology.

8. How many permutations are there for the word ASSOCIATION ?

9. Prove De Morgan's laws using truth table.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-103**	Course Title: **C Programming**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What are different basic data types in C ? Explain the need of different numeric data types with example of each.

2. What is an array ? Write a C program using array to find largest and smallest number from a list of 100 given numbers

3. What is union ? How it is different from structure ? Explain. How a union is declared in C ? Also write a program in C to show use of union.

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

4. Explain the differences between static and auto variables, with example of each.

5. Differentiate between call by value and call by reference using example program.

6. Explain the syntax of do-while statement.Also differentiate do-while from while Statement

7. What is recursion?

8. What are the logical operators in C ?

9. Differentiate between call by value and call by reference using example program.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-104**	Course Title: **Numerical Analysis**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Describe the merits of Newton's method of iterations. State the Newton Raphson formula and the criteria for convergence

2. Solve by Gauss Elimination method x + y =2 and 2x + 3y = 5. State the condition for Convergence of Iteration method.

3. Which is better Taylor's method or R. K. Method?(or) State the special advantage of Runge-Kutta method over taylor series method. .Compare Runge-Kutta methods and predictor –corrector methods for solution of initial value problem.

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

4. What is the order of convergence of Newton-Raphson methods if the multiplicity of the root is one.

5. State the principle used in Gauss-Jordan method.

6. State the Lagrange's. interpolation formula. What are the advantages of L agrange'sformula?

7. What are the errors in Trapezoidal rule of numerical integration?

8. State the third order R.K method algorithm to find the numerical solution of the first order differential equation.

9. State the disadvantages of Taylor series method.

Course Code: **MCA-105**	Course Title: Computer Organization	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What are logic gates? Explain the different types of logic gates with truth table and logic circuit diagram. Explain Boolean algebra with law

2. What is binary adder? Explain its type also. Explain half adder circuit diagram and truth table.

3. Explain the following 8085 microprocessor instruction with the help of an example Each.
   DAA
   PUSH
   LDS
   STD
   XCHG

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words.

4. Explain Memory hierarchy with suitable diagram.
5. Explain the functionality of RAM
6. Explain any five characteristics of RISC Machine

7. What is flip fop? Explain at least two flip-flops with excitation table.

8. What do you understand by floppy disks?

9. Differentiate between asynchronous sequential circuits and synchronous sequential circuits

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-107**	Course Title: Data Structures	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is stack? Why it is known as LIFO? Write algorithm of PUSH and POP operation on stack.
2. What is queue? Why it is known as FIFO? Write an algorithm to insert and delete an element from a simple queue.
3. What is tree traversal. Explain the in-order, preorder and post-order traversal.

Section - B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Explain recursion. Write a recursive algorithm to calculate factorial of a number.
5. What is data structure? Explain various types of data structure.
6. Explain circular queue? Write an algorithm to insert and delete an element from a circular queue.
7. What is minimum spanning tree. Write algorithm to find the minimum spanning tree.
8. What is an algorithm? Discuss the different steps in the development of analgorithm?
9. Distinguish between primitive and non-primitive data structures.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-108**	Course Title Organisational behavior	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is organisational behaviour? Explain its concept. "Organisational behaviour is interdisciplinary in nature ". Explain
2. How has globalization affected organisations and what is the impact on behavior of employees?.
3. Discuss the Principles of scientific management and Contingency theory of management. Do you think the knowledge of OB is required by a manager? Justify with examples..

Section - B
Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. What is the concept of perception? How is it formed?
5. What is attitude? Explain its components..
6. What are values? Differentiate between personal and organisational values..
7. Discuss the different types of motivation.
8. What is personality? Describe factors affecting it.
9. What is job satisfaction? Briefly outline the factors affecting it.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-109**	Course Title : Software Engineering	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Write the IEEE definition of software engineering. Demonstrate your understanding of umbrella activities of a Software process. If you have to develop a word processing software product, what process model will you choose? Justify your answer and examine.

2. What do mean by software Testing? Differentiate verification and validation. Give an example.

3. What are SDLC in water fall model? .List two deficiencies in waterfall model. Which process model do you suggest to overcome each deficiency?

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. .List the characteristics of software contrasting it with characteristics of hardware.

5. Explain How do we create a process that can manage unpredictability?

6. Identify the human factors considered for an agile software development
7. Is it possible to realize Win-Win spiral model for software. Analyse
8. Summarize the pros and cons of iterative software development model.
9. Define agile process .Give any two agile principles.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-110**	Course Title : C++ and Object Oriented Programming	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain, with suitable examples, the advantage of object oriented language over structured programming language.

2. What is Inheritance? Explain its advantages. Also explain with example how a subclass is derived from a super class in C++
.
3. What is constructor? Explain constructor overloading in C++ with an example.

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words

4. Differentiate between method overloading and method overriding with an example

5. What is Polymorphism ?

6. Write a C++ program to find the length of a given string.

7. What is Friend function in C++ ?

8. What do you mean by dynamic binding? How it is useful in OOP?

9. What do mean by abstract class and container class?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-111**	Course Title : **Data Communication & Computer Network**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain the OSI reference model with neat diagram.

2. Explain the various types of multiplexing

3. How does BGP resolve count to infinity problem?. Explain the operation of hierarchical routing though illustration

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Discuss any two benefits of SSL.

5. What is spread spectrum? What are the two types of spread spectrum used in wireless data network? Elaborate.

6. What is silky windows syndrome?

7. Find the net id and host id of the following IP addresses.
   114 . 35 . 2 . 7
   133 . 57 . 6 . 8
   207 . 34 . 54 . 12

8. What is microwave transmission?

9. For n devices in a network, what is the number of cable links, number of full duplex channels for a mesh topology?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-113**	Course Title : **Web Technology**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is HTML file and ASP file? List the advantages and limitation of HTML. State the benefits and drawback of ASP.

2. What is IIS? Explain different features of IIS.

3. Why HTTP is called state less protocol? Enlist various methods for state management and also give advantages and disadvantages of each method

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Explain Architecture of WWW in detail.

5. Write short note on the "Fundamental ASP Objects".

6. What is JavaScript? How to develop JavaScript? Explain with example

7. State the difference between JavaScript and Java.

8. Explain AJAX briefly

9. What is client side scripting? Explain with suitable example

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-114**	Course Title : **Operating system**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Define Operating Systems and discuss its role from different perspectives. List out different services of Operating Systems and explain each service

2. What is a process? Draw and explain process state diagram

3. What is paging and swapping? Explain the paging hardware?

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. What is demand paging? Explain

5. What are protection goals and principles

6. What do you mean by a address binding? Explain with the necessary steps, the binding Of instructions and data to memory addresses

7. Explain the resource allocation graph

8. Explain the methods for deadlock prevention

9. What are threads

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-115**	Course Title : **JAVA PROGRAMMING**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is JDBC ? Explain how JDBC connectivity is established ? Give an example of preparing and executing SQL statements using JDBC.

2. What is Java beans ? Explain its features. Also, illustrate the difference between a Java bean and an instance of a normal Java class.

3. What is Inheritance ? Explain its advantages. Also explain with example how a subclass is derived from a super class in Java.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. What is the use of class path ? How it helps in the execution of a java program ?

5. What is File class ? Explain its use with an example program

6. Explain advantage of exception

7. Explain two uses of "final" keyword with the help of example

8. Discuss servlet life cycle.

9. What is multithreading ? Explain how does it help Java in its performance ?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

| Course Code: **MCA-116** | Course Title : **Multimedia Technology** | Maximum Marks : 30 |

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is multimedia? Explain the applications of multimedia in business. Explain the five elements of Multimedia Systems.
2. What is digital video? Explain the use of digital video in developing multimedia applications.
3. Explain about the three Video Signal Formats. Write a short note on MIDI function.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. What is Hypertext and Hypermedia
5. What is Sound? Explain the characteristics of Sound.
6. What is Sound Card? Explain the basic components of sound card.
7. Explain various types of DVD
8. What do you mean by Animation?
9. Explain properties of Magnetic Storage Devices.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-117**	Course Title : **Microprocessor and its Application**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain different parts of microprocessor in detail

2. Explain the timing of the instruction cycle of 8085 microprocessor, Discus with example the iterative branching instructions of 8085?

3. What he various flags available in 8085 microprocessor? What are general purpose registers? Name the various general purpose registers. Explain the pin diagram of 8085 microprocessor

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words

4. How do you classify the memory in a computer system.

5. What is ROM? Explain its various types.

6. What are the rules for adding two binary numbers? Illustrate with an example.

7. Explain the timing of the instruction cycle of 8085 microprocessor,

8. Define machine language?

9. Define timing diagram.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-119**	Course Title : Database Management System	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Draw and explain the detailed system architecture of DBMS. What are the advantages of DBMS?

2. Explain in detail about various key constraints used in database system. Explain the importance of Null values in Relational Model

3. Discuss the ACID properties of a database transaction with appropriate examples. Draw transaction state diagram and describe each state that a transaction goes through during its execution.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words
4. What is DBA? Mention the functionalities of DBA

5. How are views created and dropped? Explain, how the views are implemented and updated
6. Discuss 3-tier architecture with necessary diagram and suggest an example application

7. Explain in detail about internal hashing Techniques.

8. Discuss in detail about cluster and Multilevel indexes.

9. State BCNF. How does it differ from 3NF?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-120**	Course Title : **Theory of Computation**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Define regular language and regular expressions. Find regular expression for the Language of all string that do not end with 01.

2. .Find context free grammar generating following language {aibjck | i = j or i = k} 2. Show that CFG S a|Sa|bSS|SSb|SbS is ambiguous

3. Write short notes on the following:

   a. The Primitive Recursive Functions.

   b. The Sets P, NP, P Space and NP Space

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words
4. Write TM to accepting Palindrome

5. Discuss about Top Down Parsing And Bottom Up Parsing

6. Differentiate the NP Hard and NP Complete Problems

7. What is Halting Problem. ?

8. Discuss about Chomsky Normal Form(CNF).

9. Define Pumping Lemma for Regular Languages

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-121**	Course Title : **System Analysis and Design**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Draw a Data Flow Diagram (DFD) **till** second level depicting various processes,data flow and data repositories for a"Library Management System". Follow the conventions.

2. Define a Structure Chart. Draw a Structure Chart for a Payroll Processing System. Also,explain the symbols used in the chart.

3. Define modularity. Describe the ways and means to achieve modularity. Explain with the help of an example.

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words

4. Write the importance of quality in software development.

5. Define CASE tools. Explain their role
.
6. With the help of an example, explain a sequence diagram

   Write short notes on the following :

7. Participatory Design

8. Test Design Document

9. Coupling

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-122**	Course Title : Python Programming	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain the different string formats available in Python with examples. Discuss the int(), float(), str(), chr() and complex() type conversion functions with examples.

2. Write Python program to sort words in a sentence in decreasing order of their length. Display the sorted words along with their length

3. Discuss the following methods associated with the file object
   a) read()

   b) readline()

   c) readlines()

   d) tell()

   e) seek()

   f) write()

Section – B

Short answer questions   Maximum marks: 12

   Note: Write the answer of four questions in 200 to 300 Words

4. Describe the different access modes of the files with an example

5. Write Python program to calculate the Arc Length of an Angle by assigning values to the radius and angle data attributes of the class Arc Length.

6. Write Python Program to simulate a Bank Account with support for deposit Money, withdraw Money and show Balance Operations.

7. Discuss inheritance in Python programming language.

8. Write a Python program to demonstrate the use of super() function.

9. **Write a** Program to demonstrate the Overriding of the Base Class method in the Derived Class.

Uttar Pradesh Rajarshi Tandon Open University Prayagraj

School of Computer and information science, Assignment session 2021-22

Course code:MCA123	Course Title: Client server Technology	Maximum Marks:30

Section-A

Long Answer Question   **Maximum marks:18**

Note: Write answer of all questions. Each question should be answer in 800 to 1000 words.

1. What is client server architecture? Differentiate File Server Vs Client Server Database Deployment
2. Explain distributed computing with examples. Mention the challenges in distributed computing.
3. What is the significance of DHTML over HTML? List out important tags used in DHTML and explain any five in detail.

Section-B

Long Answer Question   **Maximum marks:12**

Note: Write answer of all questions. Each question should be answer in 200 to 400 words.

4. Explain the ASP.NET page Lifecycle.
5. What are the advantages and disadvantages of Client Server Architecture?
6. List the advantage of AJAX.
7. What are the networking issues for distributed System?
8. How do you deploy Client Server architecture Using Component?
9. Define Scalability.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-125**	Course Title : **Design and Analysis of Algorithm**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is meant by Divide – and – Conquer approach? Write Divide – And – Conquer recursive Merge sort algorithm and derive the time complexity of this algorithm. Write the General method of Divide – And – Conquer approach.

2. What is a Hamiltonian Cycle? Explain how to find Hamiltonian path and cycle using backtracking algorithm

3. Explain the properties of an algorithm with an example. Give the algorithm for matrix multiplication and find the time complexity of the algorithm using step – count method. Differentiate between Bigoh and omega notation with example

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. State the Greedy Knapsack Problem.

5. Distinguish between Prim's and Kruskal's Spanning tree algorithm

6. Draw all possible binary search trees for the identifier set (do, if, stop).

7. Define Chromatic number & Give the state space tree for 4 – coloring problem.

8. Distinguish between Dynamic Programming and Greedy method.

9. What is a Backtracking and give the 4 – Queens's solution.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

| Course Code: **MCA-126** | Course Title : **Computer Graphics** | Maximum Marks : 30 |

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Explain the following transformation with the matrix representations. Give suitable diagram for illustration.
    Translation
    Scaling.
    Rotation.

2. Define the following.
    Window
    Viewing transformation
    Point clipping

3. Write a short note on working of raster scan display system and random scan display system

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Explain working of Video controller.
5. Explain Shadow mask and beam penetration method.
6. Explain flat-panel display in detail.
7. Explain DDA line drawing algorithm with its drawbacks. .
8. Explain midpoint Circle algorithm.
9. Explain midpoint ellipse algorithm.

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-127**	Course Title : **Soft Computing**	Maximum Marks : 30

Section 'A'
Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. Outline the differences between hard computing and soft computing . Draw and explain artificial neural network architecture.

2. Define Fuzzy logic with example. Write comparison between fuzzy logic and crisp logic.Compare classical and fuzzy sets.

3. What is the role of fitness function in genetic algorithm. Explain the genetic operators and fitness functions in respect of evolutionary computing.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Draw and explain Mathematical Models of Neurons.
5. Define and explain concept of Fuzzy subsets and membership Function.
6. Describe limitations of fuzzy systems.
7. What are the Problem Characteristics of Artificial Intelligence?
8. Describe briefly the applications of AI.
9. Differentiate the DFS and BFS with merits and demerits

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-128**	Course Title : **Unix and Shell Programming**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1) Explain be architecture of UNIX operating system with a neat diagram.

2) Explain internal and external commands with example.

3) What are the different modes of vt editor ? Explain with a diagram

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4) Explain the three standard files with respect to UNIX operating system.

5) Explain the mechanism of process creation using system calls in UNIX

6) Explain grep command with all options.

7) Briefly explain the different ways of addressing used in sed with example.

8) What is AWK? Explain any three built-in functions in AWK.

9) Explain with an example 'while' and 'for' loop in shell programming

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code: **MCA-EA**	Course Title : **Information and Network Security**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What is cryptanalysis? What is encryption and decryption? Draw block diagram that shows encryption and decryption.

2. Explain one time pad and why it is secure? Describe two types of cryptographic algorithms.

3. What is the difference between authentication, integrity, confidentiality and nonrepudiation? What are the issues in information security and network security? How they can be solved?

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Explain the types of attacks.

5. Describe various security approaches.

6. What is digital certification? How it can be achieved?

7. What are the security aspects attached to Electronic money.

8. Explain the need and types of firewall.

9. What is virtual private network?

Uttar Pradesh Rajarshi Tandon Open University

School of Science, Assignment Session 2021-22

Course Code : MCA-EB	Course Title : **Data Mining**	Maximum Marks : 30

Section 'A'

Long answer questions   Maximum marks: 18

Note: Write answer of three questions. Each question should be answered in 800 to 1000 Words.

1. What are the different characteristics of a Data Warehouse?

2. Explain Hierachical Clustering methods.

3. Explain Classification Algorithms.

Section – B

Short answer questions   Maximum marks: 12

Note: Write the answer of four questions in 200 to 300 Words

4. Explain the role of Meta data in a data warehouse.

5. Define multidimensional and multilevel association mining.

6. What do you mean by Web mining.?

7. What is Supervised learning?

8. Define Snowflake Schema

9. Discuss K-Means Clustering.