UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 101(N)	**Course Name: Computer Fundamental & Its Organization**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is input-output Device? Explain the role of input-output device in computer system.	2
2	What are the difference between multitasking and multiprogramming operating system?	2
3	What are the differences between Magnetic disk & Magnetic Tape?	2
4	Explain the storage organization of Compact Disk ROM.	2
5	Explain the magnetic Disk storage organization.	2
6	What is Cache Memory? How it reduce the mismatch of processor and main memory speed?	2
	Long answer type question (approx. 500 -800 words)	**6*3=18 marks**
7	Draw a block diagram of a computer. Explain the function of each of the blocks. Explain input and output devices	6
8	What are the various objectives and functions of Operating systems? . What are the major activities of an operating systems with regard to process management?	6
9	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	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 102(N)	**Course Name:** Discrete Mathematics

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	Prove De Morgan's laws using truth table.	2
2	How many permutations are there for the word ASSOCIATION ?	2
3	Verify that the proposition p v (P A Q) is a tautology.	2
4	How many numbers are there between 100 and 1000 such that 7 is in the unit's place?	2
5	Construct the logic circuit and obtain the logic table for the expression *x1* v (x'2 A x'3)	2
6	Express the Boolean expression *xyz′+ y′z+ xz′* in a sum of product form.	2
	Long answer type question (approx. 500 -800 words)	**6*3=18 marks**
7	Explain the following types of relations with the help of suitable examples. • Reflexive • Anti symmetric • Transitive • Equivalence	6
8	What is the proposition? Explain different logical connectives used in propositions with the help for example	6
9	Draw a Venn diagram to represent followings: i) (A ∩ BU C) ~A ii) (A U B U C) ∩ (B ∩ C)	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 103(N)	**Course Name: C Programming**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	Explain the differences between static and auto variables, with example of each.	2
2	Differentiate between structure and Union by using example	2
3	Explain the syntax of do-while statement. Also differentiate do-while from while Statement	2
4	What is recursion?	2
5	What are the logical operators in C ?	2
6	Differentiate between call by value and call by reference using example program	2
	Long answer type question (approx. 500 -800 words)	**6*3=18 marks**
7	What are different basic data types in C ? Explain the need of different numeric data types with example of each.	6
8	What is an array? Write a C program using array to find largest and smallest number from a list of 100 given numbers	6
9	What is function ? Explain. How a function is Called in C ?	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 104(N)	**Course Name: Numerical Analysis**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is the order of convergence of Newton-Raphson methods if the multiplicity of the root is one	2
2	State the principle used in Gauss-Jordan method.	2
3	State the Lagrange's. interpolation formula. What are the adv antages of Lagrange's formula?	2
4	What are the errors in Trapezoidal rule of numerical integration	2
5	State the third order R.K method algorithm to find the numerical solution of the first order differential equation	2
6	State the disadvantages of Taylor series method.	2
	Long answer type question (approx. 500 -800 words)	**6*3=18 mark**
7	Describe the merits of Newton's method of iterations. State the Newton Raphson formula and the criteria for convergence	6
8	Solve by Gauss Elimination method x + y =2 and 2x + 3y = 5. State the condition for Convergence of Iteration method.	6
9	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.	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 105(N)	**Course Name:** Computer Organization

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is flip fop? Explain at least two flip-flops with excitation table.	2
2	Differentiate between asynchronous sequential circuits and synchronous sequential circuits	2
3	Explain Memory hierarchy with suitable diagram.	2
4	Explain the functionality of RAM	2
5	What do you understand by floppy disks?	2
6	Explain any five characteristics of RISC Machine	2
	Long answer type question (approx. 500 -800 words)	6*3=18 marks
7	What are logic gates? Explain the different types of logic gates with truth table and logic circuit diagram. Explain Boolean algebra with law	6
8	What is binary adder? Explain its type also. Explain half adder circuit diagram and truth table.	6
9	Explain the following 8085 microprocessor instruction with the help of an example Each DAA PUSH LDS STD XCHG	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA-OBN	**Course Name:** Organizational Behavior

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is job satisfaction? Briefly outline the factors affecting it.	2
2	What is the concept of perception? How is it formed?	2
3	What is attitude? Explain its components..	2
4	What are values? Differentiate between personal and organisational values.	2
5	What is personality? Describe factors affecting it.	2
6	Discuss the different types of motivation.	2
	Long answer type question (approx. 500 -800 words)	**6*3=18 marks**
7	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..	6
8	How has globalization affected organisations and what is the impact on behavior of employees?.	6
9	What is organisational behaviour? Explain its concept. "Organisational behaviour is interdisciplinary in nature ". Explain	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 107(N)	**Course Name:** Data Structures

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	Distinguish between primitive and non-primitive data structures.	2
2	What is an algorithm? Discuss the different steps in the development of an algorithm?	2
3	Explain circular queue? Write an algorithm to insert and delete an element from a circular queue.	2
4	What is data structure? Explain various types of data structure.	2
5	Explain recursion. Write a recursive algorithm to calculate factorial of a number.	2
6	What is minimum spanning tree. Write algorithm to find the minimum spanning tree.	2
	Long answer type question (approx. 500 -800 words)	6*3=18 marks
7	What is tree traversal. Explain the in-order, preorder and post-order traversal.	6
8	What is stack? Why it is known as LIFO? Write algorithm of PUSH and POP operation on stack.	6
9	What is queue? Why it is known as FIFO? Write an algorithm to insert and delete an element from a simple queue	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 108(N)	**Course Name: Operating System**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What are threads?	2
2	What do you mean by a address binding? Explain with the necessary steps, the binding Of instructions and data to memory addresses.	2
3	Explain the resource allocation graph.	2
4	Explain the methods for deadlock prevention	2
5	What is demand paging? Explain	2
6	What are protection goals and principles	2
	Long answer type question (approx. 500 -800 words)	6*3=18 marks
7	What is paging and swapping? Explain the paging hardware?	6
8	What is a process? Draw and explain process state diagram.	6
9	Define Operating Systems and discuss its role from different perspectives. List out different services of Operating Systems and explain each service	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 109(N)	**Course Name: Software Engineering**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	List the characteristics of software contrasting it with characteristics of hardware.	2
2	How do we create a process that can manage unpredictability?	2
3	Identify the human factors considered for an agile software development	2
4	Is it possible to realize Win-Win spiral model for software. ?	2
5	Summarize the pros and cons of iterative software development model.	2
6	Define agile process .Give any two agile principles.	2
	Long answer type question (approx. 500 -800 words)	6*3=18 mark
7	What do mean by software Testing? Differentiate verification and validation. Give an example.	6
8	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.	6
9	What are SDLC in water fall model? .List two deficiencies in waterfall model. Which process model do you suggest to overcome each deficiency?	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 110(N)	**Course Name: C++ and Object Oriented Programming**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is Friend function in C++ ?	2
2	Differentiate between method overloading and method overriding with an example	2
3	What do mean by abstract class and container class?	2
4	What is Polymorphism ?	2
5	Write a C++ program to find the length of a given string.	2
6	What do you mean by dynamic binding? How it is useful in OOP?	2
	Long answer type question (approx. 500 -800 words)	6*3=18 ma
7	What is Inheritance? Explain its advantages. Also explain with example how a subclass is derived from a super class in C++	6
8	What is constructor? Explain constructor overloading in C++ with an example.	6
9	Explain, with suitable examples, the advantage of object oriented language over structured programming language.	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 111(N)	**Course Name:** Data Communication & Computer Network

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	What is microwave transmission?	2
2	What is spread spectrum? What are the two types of spread spectrum used in wireless data network? Elaborate.	2
3	Find the net id and host id of the following IP addresses. 114 . 35 . 2 . 7 133 . 57 . 6 . 8	2
4	What is silky windows syndrome?	2
5	Discuss any two benefits of SSL.	2
6	For n devices in a network, what is the number of cable links, number of full duplex channels for a mesh topology?	2
	Long answer type question (approx. 500 -800 words)	6*3=18 mark
7	Explain the various types of multiplexing	6
8	How does BGP resolve count to infinity problem?. Explain the operation of hierarchical routing though illustration	6
9	Explain the OSI reference model with neat diagram.	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA-E1	**Course Name: Web Technology**

Q. No.	Short answer type question (approx. 200 -300 words)	2*6=12 marks
1	Explain Architecture of WWW in detail.	2
2	Write short note on the "Fundamental ASP Objects".	2
3	What is JavaScript? How to develop JavaScript? Explain with example	2
4	State the difference between JavaScript and Java.	2
5	What is client side scripting? Explain with suitable example	2
6	Explain AJAX briefly	2
	Long answer type question (approx. 500 -800 words)	6*3=18 mark
7	What is IIS? Explain different features of IIS.	6
8	Why HTTP is called state less protocol? Enlist various methods for state management and also give advantages and disadvantages of each method	6
9	What is HTML file and ASP file? List the advantages and limitation of HTML. State the benefits and drawback of ASP.	6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA-E2	**Course Name:** Java Programming

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**What is the use of class path ? How it helps in the execution of a java program ?**	**2**
2	**What is multithreading ? Explain how does it help Java in its performance ?**	**2**
3	**What is File class ? Explain its use with an example program**	**2**
4	**Explain advantage of exception**	**2**
5	**Explain two uses of "final" keyword with the help of example**	**2**
6	**Discuss servlet life cycle.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**Marks**
7	**What is Inheritance ? Explain its advantages. Also explain with example how a subclass is derived from a super class in Java.**	**6**
8	**What is JDBC ? Explain how JDBC connectivity is established ? Give an example of preparing and executing SQL statements using JDBC.**	**6**
9	**What is Java beans ? Explain its features. Also, illustrate the difference between a Java bean and an instance of a normal Java class.**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 113(N)	**Course Name: python programming**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**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**	**2**
2	**Describe the different access modes of the files with an example**	**2**
3	**Write Python Program to simulate a Bank Account with support for deposit Money, withdraw Money and show Balance Operations.**	**2**
4	**Discuss inheritance in Python programming language.**	**2**
5	**Write a Program to demonstrate the Overriding of the Base Class method in the Derived Class.**	**2**
6	**Write a Python program to demonstrate the use of super() function.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Write Python program to sort words in a sentence in decreasing order of their length. Display the sorted words along with their length**	
8	**Discuss the following methods associated with the file object** **a) read()** **b) readline()** **c) readlines(),**	**6** **6**
9	**Explain the different string formats available in Python with examples. Discuss the int(), float(), str(), chr() and complex() type conversion functions with examples.**	

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 114(N)	**Course Name: Design and Analysis of Algorithms**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**State the Greedy Knapsack Problem.**	**2**
2	**Distinguish between Prim's and Kruskal's Spanning tree algorithm**	**2**
3	**Define Chromatic number & Give the state space tree for 4 – coloring problem**	**2**
4	**Draw all possible binary search trees for the identifier set (do, if, stop).**	**2**
5	**Distinguish between Dynamic Programming and Greedy method.**	**2**
6	**What is a Backtracking and give the 4 – Queens's solution.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**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.**	**6**
8	**What is a Hamiltonian Cycle? Explain how to find Hamiltonian path and cycle using backtracking algorithm**	
9	**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**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 115(N)	**Course Name: Data Base Managment**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**What is DBA? Mention the functionalities of DBA**	**2**
2	**Explain in detail about internal hashing Techniques.**	**2**
3	**How are views created and dropped? Explain, how the views are implemented and updated**	**2**
4	**Discuss in detail about cluster and Multilevel indexes.**	**2**
5	**State BCNF. How does it differ from 3NF?**	**2**
6	**Discuss 3-tier architecture with necessary diagram and suggest an example application**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Draw and explain the detailed system architecture of DBMS. What are the advantages of DBMS?**	**6**
8	**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.**	**6**
9	**Explain in detail about various key constraints used in database system.** **Explain the importance of Null values in Relational Model**	

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 116(N)	**Course Name: Multimedia Technology**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**What is Hypertext and Hypermedia**	**2**
2	**What is Sound? Explain the characteristics of Sound.**	**2**
3	**What is Sound Card? Explain the basic components of sound card.**	**2**
4	**Explain various types of DVD**	**2**
5	**What do you mean by Animation?**	**2**
6	**Explain properties of Magnetic Storage Devices.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**What is multimedia? Explain the applications of multimedia in business. Explain the five elements of Multimedia Systems.**	
8	**What is digital video? Explain the use of digital video in developing multimedia applications.**	**6**
9	**Explain about the three Video Signal Formats. Write a short note on MIDI function**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 117(N)	**Course Name: Microprocessor and its Application**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**How do you classify the memory in a computer system.**	**2**
2	**Define timing diagram**	**2**
3	**What is ROM? Explain its various types.**	**2**
4	**Explain the timing of the instruction cycle of 8085 microprocessor,**	**2**
5	**Define machine language?**	**2**
6	**What are the rules for adding two binary numbers? Illustrate with an example.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Explain different parts of microprocessor in detail**	
8	**Explain the timing of the instruction cycle of 8085 microprocessor, Discus with example the iterative branching instructions of 8085?**	**6**
9	**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**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- E3(N)	**Course Name: Client Server Technology**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Write short note on the "Fundamental ASP Objects".**	**2**
2	**Explain AJAX briefly**	**2**
3	**What is JavaScript? How to develop JavaScript? Explain with example**	**2**
4	**What is client side scripting? Explain with suitable example**	**2**
5	**State the difference between JavaScript and Java.**	**2**
6	**What is FTP?**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**What is HTML file and ASP file? List the advantages and limitation of HTML. State the benefits and drawback of ASP.**	
8	**What is IIS? Explain different features of IIS.**	**6**
9	**Why HTTP is called state less protocol? Enlist various methods for state management and also give advantages and disadvantages of each method**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- E4(N)	**Course Name: System Analysis and Design**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Write the importance of quality in software development.**	**2**
2	**Write short notes on Test Design Document**	**2**
3	**Define CASE tools. Explain their role**	**2**
4	**Write short notes on. Coupling**	**2**
5	**With the help of an example, explain a sequence diagram**	**2**
6	**Write short notes on Participatory Design**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**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.**	
8	**Define modularity. Describe the ways and means to achieve modularity. Explain with the help of an example.**	**6**
9	**Define a Structure Chart. Draw a Structure Chart for a Payroll Processing System. Also,explain the symbols used in the chart.**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- E5(N)	**Course Name: Information and network security**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Explain the types of attacks.**	**2**
2	**What are the security aspects attached to Electronic money.**	**2**
3	**Describe various security approaches.**	**2**
4	**Explain the need and types of firewall.**	**2**
5	**What is digital certification? How it can be achieved?**	**2**
6	**What is virtual private network?**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**What is cryptanalysis? What is encryption and decryption? Draw block diagram that shows encryption and decryption.**	
8	**Explain one time pad and why it is secure? Describe two types of cryptographic algorithms**	**6**
9	**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**	**6**

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- E6(N)	**Course Name: Data Mining**

	SECTION -A	**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**1. Explain the role of Meta data in a data warehouse.**	**2**
2	**1. What is Supervised learning?**	**2**
3	**2. Define multidimensional and multilevel association mining.**	**2**
4	**1. Define Snowflake Schema**	**2**
5	**2. What do you mean by Web mining.?**	**2**
6	**Discuss K-Means Clustering**	**2**
	SECTION -B	**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**What are the different characteristics of a Data Warehouse?**	
8	**Explain Hierachical Clustering methods.**	
9	**Explain Classification Algorithms**	**6**
		6

UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 119(N)	**Course Name: Theory of Computation**

	SECTION -A	**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**1. Write TM to accepting Palindrome**	**2**
2	**1. What is Halting Problem. ?**	**2**
3	**2. Discuss about Top Down Parsing And Bottom Up Parsing**	**2**
4	**1. Discuss about Chomsky Normal Form(CNF).**	**2**
5	**2. Differentiate the NP Hard and NP Complete Problems**	**2**
6	**1. Define Pumping Lemma for Regular Languages**	**2**
	SECTION -B	**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Define regular language and regular expressions. Find regular expression for the Language of all string that do not end with 01.**	
8	**.Find context free grammar generating following language {aibjck | i = j or i = k} Show that CFG S a|Sa|bSS|SSb|SbS is ambiguous**	**6**
9	**Write short notes on the following:** **a. The Primitive Recursive Functions.** **b. The Sets P, NP, P Space and NP Space**	**6**

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SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 120(N)	**Course Name: soft computing**

	SECTION -A	**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Draw and explain Mathematical Models of Neurons.**	**2**
2	**Define and explain concept of Fuzzy subsets and membership Function.**	**2**
3	**Describe limitations of fuzzy systems.**	**2**
4	**What are the Problem Characteristics of Artificial Intelligence?**	**2**
5	**Describe briefly the applications of AI.**	**2**
6	**Differentiate the DFS and BFS with merits and demerits**	**2**
	SECTION -B	**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Outline the differences between hard computing and soft computing . Draw and explain artificial neural network architecture.**	
8	**What is the role of fitness function in genetic algorithm. Explain the genetic operators and fitness functions in respect of evolutionary computing.**	**6**
9	**Define Fuzzy logic with example. Write comparison between fuzzy logic and crisp logic.Compare classical and fuzzy sets.**	**6**

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SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 121(N)	**Course Name: Computer Graphics**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Explain working of Video controller.**	**2**
2	**Explain Shadow mask and beam penetration method.**	**2**
3	**Explain flat-panel display in detail.**	**2**
4	**Explain DDA line drawing algorithm with its drawbacks. .**	**2**
5	**Explain midpoint Circle algorithm.**	**2**
6	**Explain midpoint ellipse algorithm.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Write a short note on working of raster scan display system and random scan display system**	
8	**Define the following.** **Window** **Viewing transformation** **Point clipping**	**6**
9	**Explain the following transformation with the matrix representations. Give suitable diagram for illustration.** **Translation** **Scaling.** **Rotation**	**6**

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SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-211021

ASSIGNMENT QUESTION PAPER

Session: 2026-27	**Max. Marks: 30**
Program Name: Master of Computer Application (MCA)	
Course Code: MCA- 122(N)	**Course Name: Unix and shell Programming**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	**Explain the three standard files with respect to UNIX operating system.**	**2**
2	**Briefly explain the different ways of addressing used in sed with example.**	**2**
3	**Explain the mechanism of process creation using system calls in UNIX**	**2**
4	**What is AWK? Explain any three built-in functions in AWK.**	**2**
5	**Explain with an example 'while' and 'for' loop in shell programming**	**2**
6	**Explain grep command with all options.**	**2**
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**6**
7	**Explain be architecture of UNIX operating system with a neat diagram.**	
8	**What are the different modes of vt editor ? Explain with a diagram**	**6**
9	**Explain internal and external commands with example.**	**6**