UTTAR PRADESH RAJARSHI TANDON OPEN UNIVERSITY

SHANTIPURAM, SECTOR-F, PHAPHAMAU, PRAYAGRAJ-2110021

ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 101N	**Course Name: Discrete Mathematical Structure**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Find using Karnaugh maps a minimal form for the boolean function. a. f (x, y, z) = xyz + xyz' + x'yz' + x'y'z'.	**2**
2.	Define tautologies and contradictions with examples.	**2**
3.	Construct the truth table for p v (q ^ r) ⇔ q^ (p v r).	**2**
4.	What is planar graph? Also explain Euler's formula.	**2**
5.	Let R and S be two relations on a set A. Then if R and S are reflexive then prove that R∩S is reflexive.	**2**
6.	Find using Karnaugh maps a minimal form for the boolean function. f (x, y, z) = xyz + xyz' + x'yz' + x'y'z'.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**

7.	Rewrite the following arguments using qualifiers, variables and predicate symbols: a. All birds can fly b. Some men are genius. c. Some numbers are not rational d. There is a student who likes mathematics but not geography.	**6**
8.	a) Explain what it means for two sets to be equal. b) Describe as many of the ways as you can to show that two sets are equal. c) Show in at least two different ways that the sets $A - (B \cap C)$ and $(A - B) \cup (A - C)$ are equal.	**6**
9.	Determine whether the relation R on the set of all Web pages is reflexive, symmetric, antisymmetric, and/or transitive, where $(a, b) \in R$ if and only if a) everyone who has visited Web page a has also visited Web page b. b) There are no common links found on both Web page a and Web page b. c) There is at least one common link on Web page a and Web page b. d) There is a Web page that includes links to both Web page a and Web page b.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 102N	**Course Name:** C++ and Object-oriented programming

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	What do you mean by "this" function? What are the applications of "this" pointer?	**2**
2.	List the features of Object oriented programming.	**2**
3.	What is reusability? Which things can be reused?	**2**
4.	What is friend function? How it is implemented in C++ ?	**2**
5.	A library function, islower(), takes a single character (a letter) as an argument and returns a nonzero integer if the letter is lowercase, or zero if it is uppercase. This function requires the header file CTYPE.H. Write a program that allows the user to enter a letter, and then displays either zero or nonzero, depending on whether a lowercase or uppercase letter was entered.	**2**
6.	Write a function called reversit() that reverses a C-string (an array of char). Use a for loop that swaps the first and last characters, then the second and next-to-last characters, and so on. The string should be passed to reversit() as an argument.	**2**

SECTION -B		6*3=18 marks
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Write a temperature-conversion program that gives the user the option of converting Fahrenheit to Celsius or Celsius to Fahrenheit. Then carry out the conversion. Use floating-point numbers. Interaction with the program might look like this: Type 1 to convert Fahrenheit to Celsius, 2 to convert Celsius to Fahrenheit: 1 Enter temperature in Fahrenheit: 70 In Celsius that's 21.111111	**6**
8.	Explain why do we need to use constructors? Explain a copy constructor with an example.	**6**
9.	Write a C++ Program to implement a class Account. An account has member data balance,functions deposit() to deposit money, withdraw() to withdraw money, and inquiry() to view the current balance.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name:	**Master of Computer Science (M.Sc. CS)**
Course Code: MCS 103N	**Course Name: Data Structures**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Explain different ways of analyzing algorithm.	**2**
2.	Formulate the recursive function for evaluating the least common multiplier (LCM).	**2**
3.	Write a 'C' function to find out the maximum and second maximum number from an array of integers.	**2**
4.	Write a 'C' function to compute the product of two sparse matrices, represented with two-dimensional arrays.	**2**
5.	Define algorithm and design an algorithm to find out the total number of even and odd numbers in a list of 100 numbers.	**2**
6.	What is time and space complexity for the algorithm?	**2**

SECTION -B		6*3=18 marks
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	There are two linked lists A and B containing the following data: A: 2, 5, 9, 14, 15, 7, 20, 17, 30 B:14, 2, 9, 13, 37, 8, 7, 28 Write programs to create : (i) A linked list C that contains only those elements those are common in linked list A and B. ii) A linked list D which contains all elements of A as well as B ensuring that there is no repetition of elements.	**6**
8.	i) What is a circular queue? Write a C program to insert an element in the circular queue. Write another C function f or printing elements of the queue in reverse order. ii) Given the circular queue of with F = 6 and R = 2, give the values of R and F after each operation in the sequence: insert, delete, delete, insert and delete.	**6**
9.	i)Write an algorithm which upon user's choice, either pushes or Pops an element from the stack implemented as an array (the element should not shifted after the push or pop). ii)Convert the expression (A + B) / (C - D) into postfix expression and then evaluate it for A = 10 B = 20 C = 15 D = 5 Display the stack status after each operation.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 106N	**Course Name:** Computer Organization

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Explain the working of JK flip flop with its truth table.	**2**
2.	Convert the following binary numbers to octal and hexadecimal numbers. a. 10111011 b. 010110.10101 C. 110010.011 d. 100011.101	**2**

3.	Implement the following Boolean functions to circuit using logic gates. i) ab + a * b' ii) (a+b).(a + b')	**2**
4.	What is the difference between a direct and an indirect address instruction? How many references to memory are required for each type of instruction to bring an operand into a processor register?	**2**
5.	What is instruction cycle? What are the sub-phases of an instruction cycle	**2**
6.	What is a difference between register mode and auto-increment/auto-decrement mouse? Compare index address mode with base register addressing mode.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Implement the following Boolean expression with only NAND gates. i) (AB' + CD')E + BC(A+B) ii) w(x + y + z) + xy	**6**
8.	Simplify the following Boolean functions with k maps. i) F(A,B,C)=(1,3,6,7) ii) F(P, Q, R, S) = Sigma(0, 2, 5, 7, 8, 10, 13, 15)	**6**
9.	Implement the following functions with multiplexer i) C=Σ (3,5,6,7) ii) F(p,q,r)= pq + pq's + q'r's'	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 108N	**Course Name:** Data Communication and Computer Networks

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Explain the term multiplexing. How many types of multiplexing techniques available in computer network?	**2**
2.	What is token ring? Why do we need token ring? Elaborate your answer.	**2**
3.	Describe all three types of HDLC frames.	**2**
4.	Explain Stop and Wait ARQ Retransmission due to timer expiry	**2**
5.	Explain ARP, RARP and ICMP protocols	**2**
6.	What do you understand by ATM in computer networks	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**

7.	Explain the function of each layer of ISO ref. model for Data Communication. How it is different than TCP/IP model?	**6**
8.	What is the difference between a frame and a packet? Why framing is required? Explain the significance of padding used in some of frame format?	**6**
9.	Explain pure ALOHA and its throughput and characteristics. Why is slotted ALOHA needed? Differentiate between pure and slotted aloha.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025 -26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 109N	**Course Name:** Database Management System

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Differentiate between the following: a. Single valued attribute vs multivalued attribute b. Simple attribute vs composite attribute	**2**
2.	Briefly explain redundant schema during reduction to relational schema from ER diagram.	**2**
3.	Write short notes on following relational algebra operations: i. Selection ii. Projection iii. Rename	**2**
4.	Explain differences between left outer join, right outer join and full join with a suitable example.	**2**
5.	Explain with example how SQL evaluates nested query and correlated nested query	**2**
6.	How do you determine whether the decomposed relations satisfy lossless and dependency preserving decomposition or not?	**2**

SECTION -B		6*3=18 marks
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	i)What are various advantages of DBMS over traditional file processing systems? ii)Explain the Three-Schema Architecture. What are the purposes of physical data independence and logical data independence?	**6**
8.	i) Explain referential integrity constraints with a suitable example. ii)How does DBMS deal when a deletion of a tuple causes violation of referential integrity constraints?	**6**
9.	i) Find the minimal functional dependency set of {PQ-->R, PR-->Q, Q--->S,QR--->P, PQ--->T}. ii)Consider a relation R(ABCDE) with functional dependencies A--- >BCDE, BC-->ADE and D--->E. Check whether it is in third normal form or not. If not, decompose it into third normal form.	**6**

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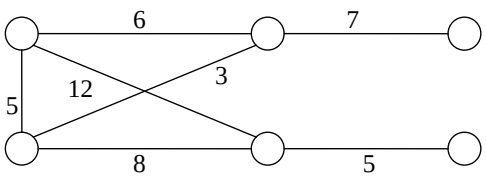
ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 111N	**Course Name:** Design and Analysis of Algorithm

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
10.	In what ways do Big-O, Omega, and Theta notations describe an algorithm's performance, and how do they relate to best-case versus worst-case scenarios?	**2**
11.	What is the role of asymptotic notations in expressing the upper, lower, and tight bounds of an algorithm's running time?	**2**
12.	Write the recursive and iterative algorithms for finding the reverse of a given string and analyze time and space complexities.	**2**
13.	In what ways does the DFS algorithm use recursion or an explicit stack to traverse data structures? Provide an example to illustrate this process.	**2**
14.	What are the fundamental differences between breadth-first search and depth-first search in terms of data structures and traversal order?	**2**
15.	Find the minimum spanning tree using Prims algorithm for the following graph. 	**2**

SECTION -B		6*3=18 marks
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
16.	a) Show the steps of heapsort algorithm for following order of input data: 30, 50, -100, 200, 50, 30, 60, 80, 200 b) Solve the following recurrence : T(I) = 1 T(n) = 4T (n/3) + n^2; for x <= 2	**6**
17.	i) What do you understand by the divide and conquer algorithm? Explain any two applications of a divide and conquer algorithm. ii) What is a binary search algorithm? Explain working of binary search with a suitable example.	**6**
18.	i) Explain advantages of dynamic programming over divide and conquer. Describe two applications of dynamic programming. ii) What do you understand by time complexity of an algorithm? Explain how we perform performance analysis of an algorithm.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 112N	**Course Name:** Java Programming

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Describe the uses of final and super keywords with respect to inheritance.	**2**
2.	What are the differences between interface and abstract class?	**2**
3.	What is the difference between Overloading and Overriding? Is it possible to override inner classes?	**2**
4.	What is a constructor? Write a Java program to explain how super class constructors are called in their subclasses.	**2**
5.	List all the AWT Controls with examples.	**2**
6.	What is JDBC? Write the JDBC connectivity steps.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**

7.	i) Explain the steps involved in creating and executing a java program. ii) What is package in Java? How packages are created and accessed in Java.	**6**
8.	i) Write down a java program to display number in word format, for Example: 123 will be shown as “One Two Three”. ii) How Access Control Mechanism is implemented in Java? What Method does subclass inherit from superclass.	**6**
9.	i) What is an instance variable? Explain how an instance variable of a class can have different values for each object of that class. ii) What is static method? Explain why main method in java is always static.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 113N	**Course Name:** Operating System

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	What is the main disadvantage of semaphore based solution to critical section problem? How does it is removed?	**2**
2.	What are the advantages and disadvantages of user-level threads over kernel-level threads?	**2**
3.	What are the minimum requirements that should be satisfied by a solution to critical section problem?	**2**
4.	What are the schemes used in operating system to handle deadlocks?	**2**
5.	What is a TLB? How does it improve effective access time of data?	**2**
6.	What is the purpose of Unix Inode? Describe the structure of Unix Inode.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Assume that there are 3 page frames which are initially empty. If the page reference string is 1, 2, 3, 4, 2, 1, 5, 3, 2, 4, 6, what is the number of page faults using the optimal replacement policy?	**6**

8.	For the processes listed in the following table, which of the following scheduling schemes will give the lowest average turnaround time?	**6**

Process	Arrival Time	Processing Time
A	0	3
B	1	6
C	4	4
D	6	2

a) First Come First Serve b) Non – preemptive Shortest Job First c) Shortest

9.	An operating system uses the Banker's algorithm for deadlock avoidance when managing the allocation of three resource types X, Y, and Z to three processes P0, P1, and P2. The table given below presents the current system state. Here, the Allocation matrix shows the current number of resources of each type allocated to each process and the Max matrix shows the maximum number of resources of each type required by each process during its execution.	**6**

	Allocation			**Max**		
	X	Y	Z	X	Y	Z
P0	0	0	1	8	4	3
P1	3	2	0	6	2	0
P2	2	1	1	3	3	3

There are 3 units of type X, 2 units of type Y and 2 units of type Z still available. The system is currently in a safe state. Consider the following independent requests for additional resources in the current state:

REQ1: P0 requests 0 units of X,

0 units of Y and 2 units of Z

REQ2: P1 requests 2 units of X,

0 units of Y and 0 units of Z

Whether the REQ1 can be permitted or Only REQ2 can be permitted or Both REQ1 and REQ2 can be permitted?

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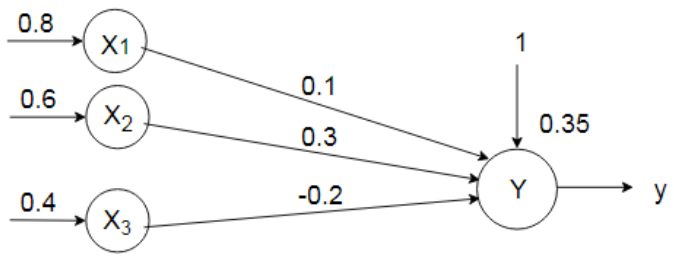
ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 117N	**Course Name:** Soft Computing

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Compare the strengths and limitations of hard computing and soft computing approaches in real-world applications.	**2**
2.	Obtain the output of neuron Y in following network using activation functions as: i) Sigmoid ii)Rectified Linear Unit (ReLU) 	**2**
3.	What is Roulette Wheel Selection, and how does it ensure diversity within a genetic algorithm's population?	**2**
4.	What role do activation functions play in determining the learning capability of a neural network? Compare different activation functions (e.g., ReLU, sigmoid, tanh) in terms of benefits and drawbacks?	**2**
5.	In what ways has deep learning, particularly through CNNs, transformed fields such as image recognition and natural language processing?	**2**

6.	How do recurrent neural networks handle sequential data compared to the spatial data processing in convolutional neural networks?	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Outline the sequential flow of the back propagation algorithm and discuss the significance of each stage? How does the back propagation process adjust the weights in a neural network, and what role does the error signal play?	**6**
8.	Compare and contrast at least two crossover strategies and two survivor selection techniques, discussing their respective impacts on convergence?	**6**
9.	Explain the overall process of a fuzzy rule-based system from fuzzification to defuzzification, highlighting key decision points?	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 116N	**Course Name:** Computer Graphics

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	What are the differences between raster scan and random scan system?	**2**
2.	What do you mean by projection? Explain various types of projection in computer graphics?	**2**
3.	Define image quantization. Explain zero memory quantizer. Is quantization process reversible? If yes, or no, justify.	**2**
4.	Why does image compression is needed?	**2**
5.	What is a curve interpolation? Define Bezier curve and explain its properties.	**2**
6.	Construct the Bezier curve of order 3 and with 4 poly-gon vertices's A(2,2), B(4,3), C(5,4) and D(6,7).	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**

7.	a) What do you understand by transformation? Explain basic transformations in computer graphics. b) Describe the matrix formulation of 2D Translation, Scaling and Rotation.	**6**
8.	(a) Explain the role of pixel and frame buffer in graphics devices. Explain the working of refresh CRT? (b) Explain the midpoint circle drawing algorithm.	**6**
9.	(a) Describe in detail Bresenham's line drawing algorithm and explain how it is better than DDA algorithm for line generation. (b) With suitable examples explain all 2D-transformations. What is the role of homogeneous coordinates in 2D-transformations?	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 114N	**Course Name:** Multimedia Technology

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	Compare the strengths and weaknesses of GIF and JPEG formats in multimedia applications.	**2**
2.	Explain the concept of animation in multimedia and list the essential features of popular animation software?	**2**
3.	What are the primary building blocks of hypertext, and how does hypertext integrate with multimedia content?	**2**
4.	What methodologies are employed during the planning of multimedia applications, and how do they influence the overall development process?	**2**
5.	In what ways does vector image storage enhance performance and maintain image integrity in multimedia projects?	**2**
6.	List and explain the major characteristics of Flash software that contribute to its effectiveness in multimedia projects?	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Briefly explain the following terms: i. Animation ii. Multimedia Protocols iii. Broadcast Video Standards	**6**

8.	a) How is animation useful in multimedia? List out the key features of all Animation Tools. b) Describe various phases of multimedia application development.	**6**
9.	What are the authoring tools? List out some silent features of a good authoring tool.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 119N	**Course Name: Information and Network Security**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	What are the key components and processes involved in establishing digital certification?	**2**
2.	What are the main security features of the DES algorithm, and what vulnerabilities does it have?	**2**
3.	How does a firewall protect a network, and what are the different types of firewall implementations?	**2**
4.	What strategies are employed to detect, prevent, and remove various types of computer viruses?	**2**
5.	What are the key features of VPN technology that enable secure remote access, and how do they function?	**2**
6.	What is digital certification? How it can be achieved?	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Generate public key and private key in case of RSA algorithm if two prime	**6**

	numbers are 5 and 7 and p=5, q=7.	
8.	i) Perform RSA encryption for the string “SECURE” using RSA algorithm by considering p = 17, q = 11 and e = 3 (for n value convert to ASCII). ii) Decode the following Caesar cipher using frequency analysis with shift +6 “KGYEZUHXKGQ”	**6**
9.	i) Explain any two classical encryption techniques in detail. ii) Define and describe different levels of controls in security Architecture.	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 104N	**Course Name:** Software Engineering

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	How coupling is different from cohesion. Explain with example.	**2**
2.	What are the steps involved in software project estimation?	**2**
3.	What is prototyping? Explain the problems and advantages of prototyping in detail.	**2**
4.	Explain four approaches to handle the software sizing problem.	**2**
5.	Why does software fail after is has passed from acceptance testing? Explain.	**2**
6.	Some people feel that "Maintenance is manageable". What is your opinion about this issue?	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	(a) Define software risk. Explain in brief the types of software risk. (b) Explain the layered approach used in software Engineering.	**6**

8.	What is Software Quality Assurance (SQA)? What are the components of SQA?	**6**
9.	(a) What do you mean by Reverse engineering? Explain with suitable diagram? (b) What do you mean by Decision Table Based Testing? Explain with suitable example?	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 107N	**Course Name:** Theory of Computation

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1.	For the grammar G defined by S → AB, A → Aa | a, B → b give derivation tree for the sentential form aab.	**2**
2.	Construct a DFA for the language 'all strings with 011 as a substring', over alphabet {0, 1}.	**2**
3.	What is Push Down Automata? Give an example of a language accepted by a PDA but not by DPDA.	**2**
4.	How to prove that a given problem is NP complete?	**2**
5.	Give an example of a language accepted by a PDA but not by DPDA.	**2**
6.	Obtain CFG for the language L = {wwR | w ϵ {a, b}* }, wR is the reversal of w }.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
7.	Design a DFA to accept the binary numbers which are divisible by 5	**6**

8.	Let G be the grammar $S \rightarrow aB \mid bA$ $A \rightarrow a$ $B \rightarrow aBB \mid bS \mid b$ For the string aaabbabbba. Find leftmost derivation, rightmost derivation and parse tree.	**6**
9.	(i). What are P, NP, NP-complete, and NP-hard? (ii). How to prove that a given problem is NP complete? (iii). What is polynomial time reduction?	**6**

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ASSIGNMENT QUESTION PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: Master of Computer Science (M.Sc. CS)	
Course Code: MCS 120N	**Course Name:** System Software

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
10.	What is the main purpose of assembler? Where does assembler stores all the names and their corresponding values?	**2**
11.	What are different code optimization techniques?	**2**
12.	Explain the operation frequently used by a Language Processor.	**2**
13.	Describe different forms of intermediate code.	**2**
14.	What are different code optimization techniques?	**2**
15.	Describe different forms of intermediate code.	**2**
SECTION -B		**6*3=18 marks**
Q. No.	**Long answer type question (approx. 500 -800 words)**	**Marks**
16.	What are the criteria for classification of Data Structures for Language Processors?	**6**

17.	What are the types of text editors? How programming environment is useful to the user?	**6**
18.	a) Differentiate between top-down parsing and bottom-up parsing. b) Explain non-recursive predictive parsing.	**6**

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ASSIGNMENT PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: M.Sc. (Statistics/Computer Science/Mathematics/ Bio chemistry/ Environmental Science)	
Course Code: PGBR-01	**Course Name: Basics in research**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	Write down the meaning and objective of research.	**2**
2	Discuss the need for reviewing literature in brief. What are the types of literature review?	**2**
3	What do you understand by google scholar, science direct?	**2**
4	What do you understand by google Scopus, web of science?	**2**
5	write short notes on the following- a) Journal abstracts b) SciFinder	2
6	Write short notes on the following- a) Citation index b) Peer review and revision.	2
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**Marks**
7	Discuss in detail about the intellectual property and intellectual property rights (IPR).	**6**
8	write short notes on the following- a) Citation index b) Peer review and revision.	**6**
9	What are the various kinds of report writing in academics and research. Explain in detail.	**6**

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ASSIGNMENT PAPER

Session: 2025-26	**Max. Marks: 30**
Program Name: M.Sc. (Statistics/Computer Science/Mathematics/ Bio chemistry/ Environmental Science)	
Course Code: PGRT-03	**Course Name: Basic research tools**

SECTION -A		**2*6=12 marks**
Q. No.	**Short answer type question (approx. 200 -300 words)**	**Marks**
1	Write down the types and methods of data collection.	**2**
2	What are the different types of sample design?	**2**
3	What do you understand by data presentation?	**2**
4	Briefly describe errors in hypothesis testing.	**2**
5	Discuss the application of ICT in research.	2
6	Discuss the application of MS office in research.	2
SECTION -B		**6*3=18 marks**
	Long answer type question (approx. 500 -800 words)	**Marks**
7	Discuss sample designing detail. What are the characteristics of a good sample design?	**6**
8	What is research hypothesis and formulation of hypothesis. Discuss the concept of hypothesis testing.	**6**
9	What do you understand by Data classification and tabulation?	**6**

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ASSIGNMENT QUESTION PAPER (2025-20256)

M.Sc. (Statistics/Computer Science/Mathematics/ Bio chemistry/ Environmental Science)

III Semester

Subject: Statistics/Computer Science/ Mathematics/ Bio chemistry/ Environmental Science
Subject Code: M.Sc. (CS)/ M.Sc. (Statistics)/M.Sc. (Mathematics)/M.Sc.(Environmental Science)
Subject Title: Entrepreneurship development
Course Code: PGED-02

Maximum Marks: 30

Section- A

Note: Long Answer Questions. Answer should be given in 800 to 1000 words each. Answer all questions. All questions are compulsory.(Six marks each)

Maximum Marks: 18

1. Explain various type of entrepreneurship.
2. What are the needs and Objectives of Entrepreneurship Development Programs. Explain eight stages of Entrepreneurship Development Cycle.
3. Explain any four all India Financial Institutions who aid toentrepreneur.

Section- B

Note: Short Answer Questions. Answer should be given in 200 to 300 words each. Answer all questions. All questions are compulsory. (Two marks each)

Maximum Marks: 12

1. What is entrepreneurship?What are the main characteristics of an entrepreneur to do entrepreneurship?
2. Differentiate between Entrepreneur, Intrapreneur &Manager.
3. What are the problems faced by women entrepreneurs in doingbusiness?
4. Explain the characteristics of projects with various types of project?
5. Highlight the need of technology for entrepreneurs.
6. What is the various assistance of financial Institutions toentrepreneurs?