Assignment for
Master in Computer Application
(5 Year Integrated)
(Through Distance Education)

For session 2016-17

Directorate of Distance Education
Guru Jambeshwar University of
Science & Technology, Hissar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: PGDCA/MCA/MSC (CS) **Course: Computer Fundamentals**

Sem.:1st **Code: MCA-101** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1. Explain Internet and WWW. 3
Q2. Explain Batch Operating System? 3
Q3. Write short note on 3*3=9
- i) Machine Language
- ii) Assembly Language
- iii) High-level Language

Prepared By: Manoj
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: PGDCA/MCA/MSC (CS) **Course: Computer Fundamentals**

Sem.:1st **Code: MCA-101** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

Q1.	Explain the Classification of Computers.	6
Q2.	Explain Multiprogramming Operating System.	3
Q3.	Convert $(1101000101)_2$ in to	2*3=6
	i) Octal	
	ii) Decimal.	
	iii) Hexadecimal.	

Prepared By: Manoj
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

Programme: Master in Computer Application **Year: 1st**
Course: Computer programming & Problem solving using C **Code: MCA-102**
Max Marks: 3*5=15

ASSIGNMENT (PART- I)

1. **Which of the following operations has right to left associatively:**
   a) && b) % c) Size of d) *
   Which associativety rule is involved in this operator? Explain the concept of left shift and right shift operator with example?
2. **What is use of getchar ( ), getche ( ) and getch ( )? Explain the functions with the help of a program?**
3. **What is major advantage of machine code? Give general syntax of conditional operators?**
4. **What is use of strcmp ( ), strlen ( ) and strcpy ( )? Explain the functions with the help of a program?**
5. **What do you mean by call by value and call by reference? Write a program to swap two numbers without using third variable?**

Max Marks: 3*5=15

ASSIGNMENT (PART -II)

1. **What is output of: -**
   printf ("%u", -1); ?
   What are the rules for declaring string constants? Write down a program to display employee record with the fields NAME, AGE, DOB, ADDRESS, EMPID, DOJ, and DESIGNATION with help of structure?
2. **Differentiate between the following with the help of suitable example:**
   a) **Logical and relational operators**
   b) **Arithmetic and logical operators**
3. **Explain two dimensional and three dimensional arrays with example? Explain the concept of row major order and column major order in two dimension array with the help of example?**
4. **What are static variables? Compare it with standard local variable? What are actual parameters and formal parameters show with the help of example?**
5. **What is file handling in C? How it is useful in C? Explain the terms eof and bof?**

Prepared By: Vinod Goyal
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: I**

Paper Code: MCA-103 **Total Marks = 15**

Nomenclature of Paper: Mathematics-I

(Assignment-I)

Important Instructions

(i) Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.

(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

1. (i) Solve the following simultaneous equations: $\sqrt{\frac{x}{y}}+\sqrt{\frac{y}{x}}=\frac{10}{3}$; $x+y=10$

   (ii) Find the equation of the line passing through (-3, 5) and perpendicular to the line joining (2, 5) and (-3, 6).

2. Find the inverse of the matrix $A=\begin{bmatrix} 1 & 1 & 3 \\ 1 & 3 & -3 \\ -2 & -4 & -4 \end{bmatrix}$ and verify that $A.A^{-1}=A^{-1}.A=I$

3. (i) Show that $\tan 75^0+\cot 75^0=4$

   (ii) Find $\frac{dy}{dx}$ for the following function given in parametric form:

   $x=2\cos\theta-\cos 2\theta$, $y=2\sin\theta-\sin 2\theta$ at $\theta=\pi/2$

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: I**

Paper Code: MCA-103 **Total Marks = 15**

Nomenclature of Paper: Mathematics-I

(Assignment-II)

Important Instructions

(i) Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.

(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

1. (i) Evaluate $\int \frac{2x\,dx}{\sqrt{1-x^2-x^4}}$

   (ii) Solve the differential equation $(x+2y^3)\frac{dy}{dx}=y$

2. State Baye's theorem. Three urns contain 6 red, 4 black; 4 red, 6 black and 5 red, 5 black balls respectively. One of the urns is selected at random and a ball is drawn from it. If the ball drawn is red, find the probability that it was drawn from the first urn using Baye's theorem.

3. Calculate the Mean, Median and Standard Deviation for the following distribution:

Marks	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45
No. of students	5	6	15	10	5	4	3	2

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

Programme: Master in Computer Application **Year: 1st**
Course: Business Flow Systems **Code: MCA-104** **Max Marks: 3*5=15**

ASSIGNMENT (PART-I)

1. **Write a short note on business environment components? Explain the concept of external business environment along with its effect?**
2. **What are various tendencies towards large size of firms? What is partnership firm and company form of organization?**
3. **Explain the term business, industry, trade and commerce? Explain the difference between all the above said terms? List out various activities included in commerce?**
4. **Write a note on**
   a) **Proprietorship**
   b) **Management planning**
5. **Do you think recent company act is relevant in changing business environment? Justify your answer?**

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. **What are various stakeholders in business and explain their roles? Explain the concept of cooperative society?**
2. **Is there any difference between ownership and top level management? Justify your answer?**
3. **What are role of manager at different level of management? Write down three major functions of management?**
4. **Write a short note on:**
   a) Public Utilities
   b) Scientific Management
5. **Mention the rights and duties of board of Director of Joint Stock Company?**

By: Dr. Rajiv
Asst. Professor
HSB,GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) **Course: Operating System - 1**

Year: 1st **Code: MCA-105** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1.	Define operating system. Discuss important functions of Operating System.	**4**
Q2.	What is the difference between Physical and Logical Addresses?	**4**
Q3.	What are advantages of Memory Segmentation? Differentiate between Contiguous and Non-Contiguous memory allocation.	**5**
Q4.	What is swapping?	**2**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) **Course: Operating System - 1**

Year: 1st **Code: MCA-105** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

Q1.	Explain different types of scheduling queues and type of scheduler	**6**
Q2.	Discuss four necessary conditions for occurrence of Deadlock. What are the best conditions to avoid a Deadlock? How it can be recovered?	**6**
Q3.	Differentiate between Multitasking and Multiprogramming OS.	**3**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

Programme: Master in Computer Application **Year: 1st**
Course: Communication & Presentation Skills **Code: MCA-106**
Max Marks: 5*3=15

ASSIGNMENT (PART-I)

1. Write down a report on "Future of IT in India"?
2. Prepare your resume accordingly for selection in any software company?
3. Elaborate different types of body movements?

Max Marks: 5*3=15

ASSIGNMENT (PART-II)

1. Make a power point presentation on any current issue related to education system?
2. Write a report on "role of social media in political system"?
3. Differentiate between Verbal and Non-verbal communication?

Note: please submit the hardcopy of your power point presentation.

By: M.R Patra
Asst. Professor
Deptt. of CMT
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course **Course: Data Structure & Algorithms**

Sem.: 2nd **Code: MCA-201**
Total Marks=15

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

(5)

1. Write an algorithm to search a particular node in a linked list which returns "FOUND" or "NOT FOUND" as outcome.

(3+2)

2. (a) Construct the binary tree which produces following preorder and inorder traversals sequences:-

Pre: A B C D E F G H J K L M P Q N
In : C D E B G H F K L P Q M N J A

(b) What are threaded binary trees. Explain inorder threading with the help of an example.

(2+3)

3. (a) What is minimum spanning tree?
(b) Write an algorithm to delete a node from a graph.

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course **Course: Data Structure & Algorithms**

Sem.: 2nd **Code: MCA-201** **Total Marks=15**

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

(5)

1. Take a doubly linked list and a pointer 'x' to one of its node is given. Write steps to delete the previous node to the pointer 'x'.

(4+1)

2. (a) Show the result of inserting J, R, D, G, T, E, M, H, P, A, F, Q into an initially empty binary search tree. Show the result of deleting the root.
   (b) Define with illustration – Complete binary tree, Heap.

(3+2)

3. (a) What is a graph? How is it represented in memory?
   (b) Describe the behavior of Quick Sort when the input is already sorted.

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) Course: Database Management System

Year: 2nd Code: MCA-202 Total Marks=15

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1.	Explain three level architecture of DBMS with the help of diagram.	**5**
Q2.	What are the responsibilities of a Database Administrator (DBA)?	**4**
Q3.	Discuss various data models of DBMS in detail.	**6**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) Course: Database Management System

Year: 2nd **Code: MCA-202** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

Q1.	What is Normalization? Why is BCNF more desirable than 3NF.	**5**
Q2.	What do you mean by Relational Model constraints? What are different types of constraints that can be specified while creating a relation in SQL?	**5**
Q3.	Give a brief overview of Concurrency Control and Recovery techniques.	**5**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

Programme: Master in Computer Application **Year: 2nd**

Course: Digital Electronics **Code: MCA-203**

Max Marks: 3*5=15

ASSIGNMENT (PART I)

1. Draw logic diagram of master slave JK flip flop?
2. Difference between synchronous and asynchronous sequential circuits? Explain the circuit of a 3-bit asynchronous binary counter?
3. What is meant by universal shift register? Explain the working of 4 bit bidirectional register?
4. Write down characteristic equation for JK flip flop, T flip flop, D flip flop?
5. Minimize and realize the following function using K-Maps
   f (A,B,C,D) = π_m(4,5,6,7,8,12) . d (1,2,3,9,11,14)

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Write short note with help of truth table:
   a) Binary half adder and full adder
   b) Binary half subtractor and full subtractor
2. Write down truth table of XNOR, NAND and NOR gate? Which gates are known as Universal gates? Show how we connect NAND gate to get an AND gate?
3. Explain operations of : a) 4 bit serial –in- serial –out shift register
   b) 4 bit serial –in parallel- out shift register
4. Write a short note on
   a) TTL
   b) CMOS logic
   c) Tri-static logic
5. Convert the following:
   a. $(110101)_2 = (?)_{10}$
   b. $(528)_{10} = (?)_{16}$
   c. $(4096)_{10}$ = Gray Code

Prepared By: Suman Dhayia
Assistant Professor
Deptt.of ECE
GJUS&T, Hisar

Programme: Master in Computer Application **Year: 2nd**
Course: Computer organization and Architecture **Code: MCA-204**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Differentiate between computer architecture and computer organization?
2. What do you mean by interrupts? Explain how interrupts are handled when they occur while an instruction is being executed?
3. Write a short note on following:
   a) ALU
   b) Arithmetic
   c) Logical
   d) Shift
4. Differentiate between Synchronous and Asynchronous Data Transfer? Explain the concept of programmed, interrupt and DMA methods of data transfer techniques?
5. What do you understand by fetch cycle, instruction cycle and machine cycle?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Explain main memory and cache memory? Explain the concept of stack organization?
2. How many memory chips of 128*8 are needed to provide memory capacity of 4096*16?
3. Explain the concept of DMA? Write a short note about DMA transfer? Also Explain block diagram of DMA controller?
4. Write short note on:
   a) Interrupt Cycle
   b) Interrupt acknowledgment
5. Explain different addressing modes with the help of example?

Prepared By: Narender
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: II**

Paper Code: MCA-205 **Total Marks = 15**

Nomenclature of Paper: Mathematics-II-Discrete Mathematical Structures

(Assignment-I)

Important Instructions

(iii) Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.

(iv) All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

1. (i) Define permutation. Write all permutations of S = {1, 2, 3, 4}. List even and odd permutations.
   (ii) Prove that arbitrary intersection of subgroups of a group G is a subgroup of G.
2. Define circuits, paths and cycle along with suitable examples.
3. What do you mean by Pre-order and Post-order tree traversal? Also find binary tree representation of the expression $(a-b)\times(c+(d\div e))$ and represent the expression in string form using Pre-order tree traversal.

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: II**

Paper Code: MCA-205 **Total Marks = 15**

Nomenclature of Paper: Mathematics-II- Discrete Mathematical Structures

(Assignment-II)

Important Instructions

(iii) Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.

(iv) All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

1. Define a lattice. Give an example. Draw the Hasse diagrams of D_{30}, D_{60}, D_{100}.
2. State and prove Associative laws and Boundedness laws of a Boolean algebra.
3. What do you mean by splitting field? Find out the splitting field of the polynomial $x^5 - 1$.

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

ASSIGNMENTS FOR MCA 2nd YEAR

COMMUNICATION SKILLS – SCIENTIFIC AND TECHNICAL ANALYSIS MCA – 206

ASSIGNMENT I

Attempt any three of the following in about 250 words each: (5X3=15)

1. Write a detailed note on the importance of communication skills in modern times.
2. "Downward channel of communication may be the one most commonly used, but it is also the one most inadequate and unsatisfactory." Do you agree?
3. Explain the characteristics of a good report.
4. What is an appraisal interview? What points should the manager keep in mind to make the appraisal interview a constructive exercise?
5. Discuss the different types of press releases in detail. Give suitable examples.
6. Discuss the characteristics of a good speech. What points should be kept in mind while drafting a speech?
7. What precautions should be taken while conducting a press conference? Discuss in detail.

ASSIGNMENT II

Attempt any three of the following in about 250 words each: (5X3=15)

1. Upward communication is very useful but very difficult; could you suggest some methods of increasing its effectiveness?
2. What do you mean by grapevine? What is its importance?
3. How should a candidate prepare for an interview?
4. What are the characteristics of a good press release? Discuss in detail.
5. Discuss the guidelines for preparing speech.
6. What kind of questions should a candidate be asked during an interview?
7. Discuss how a press conference should be organized?

By: M.R Patra
Asst. Professor
Deptt. of CMT
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course **Course: Computer Networks**

Year: 3rd **Code: MCA-301** **Total Marks=15**

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

1. What is OSI Reference Model? Explain seven layers of OSI Model. (5)
2. What are the various topologies in computer networks? Explain with advantages and disadvantages. (5)
3. Explain various Routing Algorithms. Give brief explanation of Congestion Control algorithm. (5)

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course **Course: Computer Networks**

Year: 3rd **Code: MCA-301** **Total Marks=15**

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

1. Explain two types of guided media and two types of unguided media transfer in networks. (5)

2. What is TCP/IP Reference Model? Explain with protocol used on each layer. (5)

3. What type of errors can be detected by Parity Check Code? How is it implemented? Explain with a suitable example. (5)

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

Programme: Master in Computer Application **Year: 3rd**
Course: Object Oriented Programming Using C++ **Code: MCA-302**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1.
2. Differentiate the concept between object oriented approach and procedural oriented approach in programming?
3. Write down a program to explain the concept of classes and object? How do objects interact with each other and with the external interfaces? Describe with the help of a diagram.
4. Is it necessary to pass argument in a friend function? Justify your answer with example?
5. What is Dynamism? Describe dynamic binding for object-oriented design with the help of an example.
6. Write a program to overload the + operator to concatenate two strings.

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Write short note on:
   a) Fstream objects
   b) Size of operator
   c) Bitwise operators
2. What are templates? Create a function template for a stack.
3. Why abstract classes needed? Explain with the help of example?
4. What are Macros and why are they needed? Design a macro to find the cube of a variable.
5. What is Inheritance? What are the different visibility modes observed while deriving a class from a base class?

Prepared By: Vinod Goyal
Assistant Professor
Deptt. of DDE
GJUST, Hisar

Programme: Master in Computer Application **Year: 3rd**
Course: Software Engineering **Code: MCA-303**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Maintainability can be viewed as two separate qualities (i) repairability and (ii) evolvability. Explain both of these qualities
2. Draw a diagram for pure waterfall life cycle model, and also explain it?
3. What is difference between SRS document and Design document? What are the contents we should contain in SRS documents and Design document?
4. List and explain different type of testing done during testing phase?
5. What is difference between "know risks" and "predictable risk"?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. What is purpose of DFD, ER diagrams? Explain the concept with the help of diagram?
2. What is user acceptance testing? Explain different testing in user acceptance testing, why is it necessary?
3. Write about software strategies? What is the difference between process and product? Describe any four important qualities of a s/w product?
4. Who are various stakeholders in software development? Explain their role?
5. Write a short note on:
   a) Reverse engineering
   b) Fault report

Prepared By: Narender
Assistant Professor
Deptt. of CSE
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) **Course: Internet Fundamental**

Year: 3rd **Code: MCA-304** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1.	What factors make TCP reliable?	**3**
Q2.	Explain growth of computer network and internet in brief.	**4**
Q3.	Write short note on Firewall and Telnet.	**4**
Q4.	Describe various layers in TCP/IP in brief.	**4**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) **Course: Internet Fundamental**

Year: 3rd **Code: MCA-304** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1.	What is purpose of FTP? Discuss the FTP connection mechanism between the client and server.	**5**
Q2.	Explain various addressing techniques available with IPV6.	**5**
Q3.	Briefly explain World Wide Web.	**2**
Q4.	Discuss the architecture of Electronic Mail.	**3**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: III**

Paper Code: MCA-305 **Total Marks = 15**

Nomenclature of Paper: Mathematics-III-Computer oriented numerical and statistical methods using C

(Assignment-I)

Important Instructions

(v) **Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.**

(vi) **All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.**

4. (i) Add .4567E05 to .3456E05
   (ii) Find the product of following normalized floating point representation with 4 digit mantissa.
   .4454E23 and .3456E-45
5. Use the Runge-Kutta fourth order method to solve $\frac{dy}{dx} = 1 + y^2$ with $y(0) = 0$ at x =0.2, 0.4.
6. Find the positive root of $x^3 - 5x + 3 = 0$, correct to three decimal places, using Newton-Raphson method.

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR

DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (Five Year Integrated) **Year: III**

Paper Code: MCA-305 **Total Marks = 15**

Nomenclature of Paper: Mathematics-III-Computer oriented numerical and statistical methods using C

(Assignment-II)

Important Instructions

(v) **Attempt all three questions from the assignment given below. Each question carries 5 marks and the total marks are 15.**

(vi) **All questions are to be attempted in legible handwriting on plane white A-4 size paper and to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.**

4. Evaluate $\int_0^6 \frac{dx}{1+x^2}$ using Simpson's one-third rule.

5. A die is thrown 276 times and the results of these throws are given below:

No. Appeared on die	1	2	3	4	5	6
frequency	40	32	29	59	57	59

Test whether the die is biased or not?

(Given Chi-Square for 5 degrees of freedom at 5% level of significance = 11.09)

6. Use Lagrange's Interpolation formula to find f(6) from the following data:

x:	2	5	7	10	12
f(x):	18	180	448	1210	2028

Prepared By: Ms. Renu
Assistant Professor
Deptt.of Mathematics
GJUS&T, Hisar

ASSIGNMENTS FOR MCA 3rd YEAR

Social Implications of Information Technology MCA-306

ASSIGNMENT I

Attempt any three of the following in about 250 words each: (5X3=30)

1. Discuss the changes brought about by science and technology in our homes.
2. Discuss in detail the impact of IT on the various types of institutes.
3. Discuss the benefits of convergence, interactivity, and connectivity.
4. Write in detail about the likely developments in the fields of robotics, neural networks, and fuzzy logic.
5. Discuss the economic role of IT with suitable examples.
6. Write a detailed note on the role of IT in business.
7. Organizations have under gone sea changes with the advent of IT. Discuss in detail.
8. What changes have come in the field of management because of IT?
9. Discuss the difference between the traditional learning system and the IT-based learning system. Give suitable examples.

ASSIGNMENT II

Attempt any three of the following in about 250 words each: (5X3=30)

1. Automation has become a necessity today. Elaborate.
2. List out the major developments in the field of IT and discuss their impact on society.
3. Define IT in your own words. Discuss the impact of IT on individuals.
4. How IT is changing the quality of life? Discuss.
5. What is artificial intelligence? Explain with suitable examples.
6. What is virtual reality? Discuss its potential in the entertainment field.
7. What role does IT play in the field of manufacturing? Elaborate.
8. Write a detailed note on the role of IT in retail marketing.
9. Home entertainment has under gone revolutionary changes in the last few decades. Discuss these changes in detail.

Prepared By: M.R Patra
Assistant Professor
Deptt.of CMT
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA **Course: Computer Graphics & Multimedia Graphics**

Sem.: 3rd **Code: MCA-401** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1. Explain depth buffer method for hidden surface detection. 4
Q2. What difference is between object and image space? 3
Q3. What is frame buffer? In a 1280*768 pixel, how many K bytes does a frame buffer need? Explain your answer. 4
Q4. Write integer Bresenham's algorithm and show how it draws a line whose endpoint is (4,4) and start is (-3,0). 4

ASSIGNMENT (PART-II)

1. Describe the procedure for drawing Bezier curves? Define: view up vector and point clipping?
2. What is video conferencing? Discuss the challenges related to such facilities? Explain various applications area of multimedia?
3. What steps involved for scaling in three dimensional objects with example?
4. Draw a line from (5, 6) to (15, 12) on a raster screen using DDA algorithm?
5. Explain the following terms :
   a) Resolution (Screen)
   b) Aspect Ratio
   c) Refresh rate

Prepared By: Sunil Verma
Assistant Professor
Deptt. of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 4th
Course: Artificial intelligence
Code: MCA-402

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Define artificial intelligence? Explain its various techniques?
2. Explain informed and uninformed search? What is hill climbing search? What are problems faced by hill climbing?
3. Write a short note on:
   a) Knowledge base system (KBS)
   b) Meta knowledge
   c) Mean-End Analysis
4. What do you mean by conceptual graphs? Represent the following sentence as a conceptual graph "cow has four legs and eats grass".
5. Explain any two of the following logic concepts, using suitable examples :
   a) Modus ponens
   b) Valid statement
   c) Unification principle in proposition logic

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Define constraint satisfaction problems (CSP)? How CSP is formulated as a search problem explain with example?
2. Describe following terms:
   a) Genetic algorithm
   b) Fuzzy system
   c) Conflict resolution
3. Transform the following into Disjunctive Normal Form (DNF) :
   (P--> (~ (Q--->R)))
4. How is inferencing used in deriving conclusions from the facts? Differentiate between forward chaining and backward chaining. On what factors does the decision to choose forward or backward chaining depend?
5. What do you mean by data, information and knowledge? Enumerate the Various Knowledge representation schemes. Give brief description of each scheme. Identify advantages of representation scheme over the other?

Prepared By: Darmender
Assistant Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course
Course: Analysis & Design Computer Algorithm

Year: 4th **Code: MCA-403** **Total Marks=15**

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

1. Describe the greedy approach of algorithm design. Write algorithm to solve Knapsack problem using greedy method. Solve the following instance of Knapsack problem with the greedy approach: (5)

   n = 3; m = 25; $(p_1, p_2, p_3) = (30, 29, 20)$; $(x_1, x_2, x_3) = (23, 20, 15)$

2. Write short notes on NP-hard and NP-completeness (5)

3. Solve the following recurrence equations completely: (5)

   (i) $T(n) = 2T\left(\frac{n}{2}\right) + n \lg n$

   (ii) $T(n) = 5T(n-1) - 6T(n-2)$

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA 5 year Integrated Course
Course: Analysis & Design of Computer Algorithm

Year: 4th **Code: MCA-403** **Total Marks=15**

Important Instructions

(i) Attempt all questions from the assignment given below.
(ii) All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

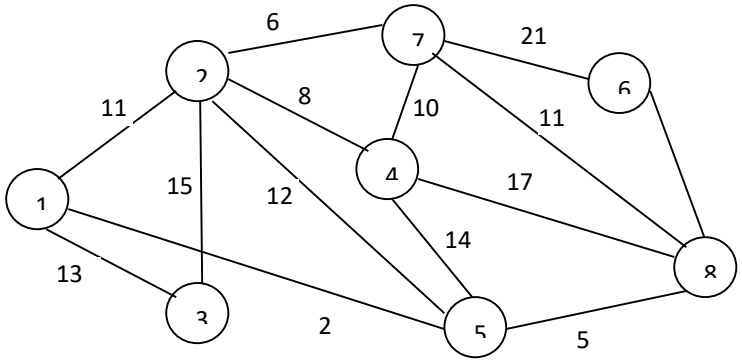
ASSIGNMENT-II

(5)

1. Compare divide and conquer with dynamic programming.

(5)

2. Write Prim's and Kruskal's algorithms for minimum cost spanning trees. Compute a minimum cost spanning tree for the graph given below:-



(5)

3. Explain graph coloring problem with the help of suitable example. Discuss the significance of 4-color conjecture.

Prepared By: Jyoti
Assistant Professor
GJUST, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) Course: Operating System - II

Year: 4th Code: MCA-404 Total Marks=15

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1. What do you mean by Disk Scheduling? Briefly define concept of Demand Paging. **4**
Q2. Explain various types of Files and their access methods. **4**
Q3. Write down silent features of UNIX operating system. **3**
Q4. Differentiate between Network operating system and Distributed operating system **4**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: MCA (5-year Integrated Course) **Course: Operating System - II**

Year: 4th **Code: MCA-404** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

Q1.	What is Inter-Processor Communication? Give its advantages.	
Q2.	Discuss various types of CPU scheduling algorithms.	**5**
Q3.	How Deadlock can be detected and avoided? Discuss methods for recovery from Deadlock.	**5**
Q4.	Describe critical section problem.	**2**

By: Abhishek Kajal
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 4th
Course: Computer Networks II **Code: MCA-405**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Why does UDP exist? Would it not have been enough to have the user processes send raw IP packets? Justify your answer?
2. Explain the concept behind Voice over IP? Does voice over IP have the same problems with firewall that streaming audio does? Discuss your answer?
3. What is switching? Explain and differentiate between circuit switching, packet switching and message switching?
4. What is MAN? Explain briefly how it is different from LAN and WAN.
5. Explain various network attacks that can access your data? List various techniques used for network security?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Is TCP an improvement over UDP? Where is it used there, any other better option than TCP?
2. Explain when the routers and bridges are required in network with diagram? Explain two types of bridges.
3. What is future of IPv6, discuss in detail? Differentiate between IPv4 and IPv6?
4. Explain various modes of communication? Which mode: simplex, half duplex, or full duplex is used by the following and why?
   a) A TV broadcast
   b) Mobile SMS
   c) Teleconferencing
   d) Walkie-Talkie communication.
5. Explain various multimedia communication networks with there services in detail. Why most networks operate in a packet mode? Hence explain why services involving audio and video are supported?

By: Jyoti
Asst. Professor
Deptt. of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 4th
Course: Management Information System **Code: MCA-406**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Define Management information system with its various features. Also explain why MIS is used as a strategic need of management today? Why do managers plan? Explain?

2. Discuss system implementation and its various implementation strategies for implementing MIS.

3. Define following terms:

a) Effective Management and Efficient Management

b) Balance

4. Explain concept of Information and types of information? Explain type of information required at different level of management?

5. Explain the process of business decision making according to Simon's model?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. List various types of feasibility that are tested in the process of new/revised system?

2. What are various development tools available at each stage of mgmt information system development process?

3. What are myths MIS?

4. What is system maintenance? What are the reasons for maintenance requirement?

5. What are the various tools available for implementation of MIS? List out the pro's and con's of traditional tool and automated tools?

By: Vinod Goyal
Asst. Professor
Deptt. of DDE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: PGDCA/MCA/MSC (CS) Course: Principles of Programming Languages

Sem.:5th Year **Code: MCA-501** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-I

Q1.	What is Object oriented programming? What are its key concepts?	6
Q2.	Define Classes and Polymorphism.	4
Q3.	What are the key concepts of Functional Programming?	5

Prepared By: Manoj
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

GURU JAMBHESHWAR UNIVERSITY OF SCIENCE & TECHNOLOGY, HISAR
DIRECTORATE OF DISTANCE EDUCATION

Programme: PGDCA/MCA/MSC (CS) **Course: Computer Fundamentals**

Sem.:5th year **Code: MCA-501** **Total Marks=15**

Important Instructions

i. Attempt all questions from the assignment given below.
ii. All questions are to be attempted in legible handwriting on plane white A-4 size paper is to be submitted to the Directorate of Distance Education for evaluation either in person or through Speed Post.

ASSIGNMENT-II

Q1.	Explain data abstraction, control abstraction and procedural abstraction.	6
Q2.	Explain Encapsulation and Inheritance.	3
Q3.	Write short note on i) CFG ii) Pushdown Automata.	3*2=6

Prepared By: Manoj
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 5th
Course: Advance Architecture and Parallel Processing
Code: MCA-502

Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Major difference between multiprocessor and multi computer? Differentiate between scalar & Vector processing?
2. Describe Flynn's classification of computers?
3. Explain message passing mechanism in details?
4. Explain requested and weak consistency model?
5. Discuss the different mapping techniques used in cache memories and their relative merit and demerits?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Explain conditions of parallelism? List the applications of parallel processing?
2. Explain PRAM and VLSI model in details?
3. Discuss in detail about type of storage devices?
4. Explain in details about back plan bus system?
5. Specify the compilers used in parallel models in details?

Prepared By: Narender
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 5th
Course: Object Oriented Design Modeling **Code: MCA-503**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. What is object oriented methodology? What is an object, class methods?
2. Write down short on:
   1. Dynamic modeling
   2. Functional modeling
3. What do you mean by DFD? Explain its various symbols?
4. Explain the concept of system concurrency?
5. Describe the task management of data resources?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. Explain the concept of object oriented and procedure oriented approach?
2. Write a short note on :
   a) Metadata
   b) Candidate Key
3. What do you mean by Events and states? With the help of example explain the concept of event state diagram?
4. Explain the concept of inheritance and reusability?
5. Elaborate the concept of implementation of programming styles in object oriented design?

Prepared By: Sunil Verma
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 5th
Course:System Simulation and Modeling **Code: MCA-504**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Explain the term system? Explain various types of system?
2. Differentiate between Verification and validation modeling procedures?
3. What do you mean by simulation process? Explain concept of simulation of a time sharing computer system?
4. Discuss the use of database in the area of modeling and simulation?
5. What are simulation languages? Explain any language in detail?

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. What are model? What do you mean by modeling process?
2. Differentiate between differential and partial differential equation model?
3. Discuss the use of AI techniques in the area of modeling and simulation?
4. Write a short note on: Combining discrete event.
5. Compare model data with real system data?

Prepared By: Sunil Verma
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar

Programme: Master in Computer Application
Year: 5th
Course: Data Mining and Data Warehousing **Code: MCA-505**
Max Marks: 3*5=15

ASSIGNMENT (PART-I)

1. Define the term data warehouse and data mining with diagram?
2. Explain when data mart is appropriate? List out the functionality of Meta data?
3. How data mining system can be integrated with data warehouse? Discuss with example?
4. Give categorization of major clustering method?
5. Write short note on:
   a) Data reduction
   b) Data Integration

Max Marks: 3*5=15

ASSIGNMENT (PART-II)

1. What are major issues related to data mining? What is DBA? Discuss role of DBA?
2. What are the types of data pre –processing techniques? Explain in details?
3. Explain association rule with mathematical notations?
4. Write a short note on Bayslan classification?
5. Briefly compare the following concept use an example to explain your points:
   a) Snowflake schema , Starnet Query model, fact constellation
   b) Data cleaning, Data Transformation, Data Refresh

Prepared By: Darmender
Assistant Professor
Deptt.of CSE
GJUS&T, Hisar