

Programme : Master of Computer Application (MCA) Semester : I
Attempt any TWO questions from the following of each subject

Subject Code : 101 Subject : Elementary Algorithmics

- Q1** Draw a flowchart and write its corresponding C-code for the problem statement: “ Finding the sum, product, maximum and minimum of a finite list of numbers.”
- Q2** Explain in detail the term ‘structured programming’, with appropriate examples.
- Q3** Explain the terms: Algorithm analysis, space complexity and performance measurement.
- Q4** What do you mean by term data communication? What are its main components?
- Q5** Write a short note on batch processing multiprogramming & multitasking.
- Q6** Consider you are getting 4 Lakh as loan for a period 4 years find out monthly installment at 8% interest rate.
- Q7** Explain the concept of structured programming with reference to C language.
- Q8** Compare and contrast Insertion sort and selection sort with its space and time complexity.
- Q9** Write a short note on the following:
a) Iteration
b) Linear search
- Q10** What is recursion? Write a recursive algorithm to find factorial of a given number and implement it using C language.

Subject Code : 102 Subject : Computer Organization and Architecture

- Q1** Draw and explain instruction cycle and interrupt cycle.
- Q2** What is mode of transfer? Explain the various modes of transfer in detail.
- Q3** What is stack organization? Explain the functioning of register and memory with suitable example.
- Q4** Discuss the logic gates with graphical symbol, Algebraic function and truth table.
- Q5** What is binary counter? Explain the functioning of binary counter with help of diagram.
- Q6** What is need of input-output processor? Explain CPU-IOP communication in detail.
- Q7** Explain interrupt cycle with help of flowchart.
- Q8** Write a note on the following:
a) Microinstruction format
b) Modes of data transfer
- Q9** Write a note on the following:
a) Floating point representation
b) CPU-IOP Communication
- Q10** Describe the general register organization in brief.

Subject Code : 103 Subject : Procedure Oriented Programming

- Q1** Write a program that inputs three integers from the keyboard and prints the nearest two among them.
- Q2** Write a program using function to swap two real numbers.
- Q3** Explain pre-processor directives and symbolic constants used in C.
- Q4** Write a C code to count number of nodes of a given tree.
- Q5** Write ANSI ‘C’ functions to add node in Single Linked List of Integers.
- Q6** Define the term
a) Tree
b) Complexity of Algorithm

Q7	Consider a message: STRUCTURE Draw Huffman Tree for the message. What kind of Tree is Huffman tree?
Q8	Construct AVL Tree with the following: PASCAL, FORTRAN, C,
Q9	Construct AVL Tree with the following: COBOL, BASIC, PROLOG
Q10	Evaluate the following postfix form: ABC+*CBA-+* Where A=1,B=2,C=3 Show contents of the stack at each step in a tabular form.

Subject Code : 104 Subject : Introduction to Management Functions

Q1	Describe the procedure for selection of employees in a large-sized manufacturing concern .
Q2	Explain briefly various advantages and limitations of undertaking marketing research.
Q3	Explain with purchase the 4 P's of marketing with reference to automobile industry.
Q4	Explain the concept of marketing mix with suitable examples.
Q5	Give the significance of following: a) Current Ratio b) Debt Equity Ratio
Q6	Give the significance of following: a) Gross Profit Ratio b) Net Profit Ratio
Q7	What are the advantages of performance appraisal system?
Q8	Write a note on the following: a) Retailers b) PERT
Q9	Write a note on the following: a) Fund Flow b) Forecasting
Q10	Write a note on the following: a) Training needs b) Importance of Marketing Research

Subject Code : 105 Subject : Mathematical Foundation

Q1	Define the terms: connected graph, complete graph and bipartite graph.
Q2	Distinguish between an Eulerian graph and a Hamiltonian graph. Give only one of them.
Q3	Describe various internal representations of graphs.
Q4	Let A and B be any non empty sets. Prove that a function $f: A \rightarrow B$ is invertible if and only if f is both one to one and onto. Let R be the following equivalence relation on the set $A = \{1,2,3,4,5,6\}$ $R = \{(1,1),(1,5),(2,2),(2,3),(2,6),(2,6),(3,2),(3,3),(3,6),(5,5),(4,4),(5,1),(6,2),(6,3)\}$ Find the equivalence class of elements of A induced by R.
Q5	Write short notes on the following: a) Quantifiers b) 2-Tree

