GUJARAT TECHNOLOGICAL UNIVERSITY
MCA- Ist SEMESTER–EXAMINATION – MAY/JUNE - 2012

Subject code: 610001   **Date: 29/05/2012**

Subject Name: Fundamentals of Programming

Time: 02:30 pm – 05:00 pm   **Total Marks: 70**

Instructions:
1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1 **(a)** Define algorithm and flowchart. Explain features of good algorithm. **07**
Write an algorithm and draw the flowchart to evaluate following series.
$Sum = X – X^2/2! + X^3/3! – X^4/4! + … ± X^N/N!$

(b) What do you mean by looping? Compare and Contrast the while(), **07**
do…while() and for() loops with their flowcharts and examples.

Q.2 **(a)** How strings are managed in C? Explain various string manipulation **07**
functions with syntax and example.

(b) Write a detailed note on the data types available in C, with their memory **07**
requirements and ranges.

OR

(b) Explain all the possibilities of format specifications in printf() function. **07**

Q.3 **(a)** What is the need of UDF? Explain various storage classes available in C. **07**
(b) How pointer works? Explain "Array of Pointers" and "Pointer to an Array" **07**
with examples.

OR

Q.3 **(a)** What is recursion? Describe the mechanism of recursion with suitable **07**
example. Write a recursive function of binary search.
(b) Explain "Function Pointers" with suitable examples. **07**

Q.4 **(a)** Write a detailed note on Array of Structures and Nested Structures. **07**
(b) What is file? Describe various types of files. Explain fopen() and fseek() **07**
functions in detail.

OR

Q.4 **(a)** Write a program to enter N records of Employee (empcode, name, **07**
designation, salary), and sort these records as per employee names and print
the result.
(b) Write a program to copy one file to another file using command-line **07**
arguments.

Q.5 **(a)** Write a program to convert given Decimal value to its Hexadecimal **07**
equivalent.
(b) Write a menu-driven program to Create singly linked list, Add a node after **07**
given node, Delete a given node and Display the list.

OR

Q.5 **(a)** Write a program to evaluate the following series using Nested Recursive **07**
function, $F(x) = X – X^3/3! + X^5/5! – X^7/7! + … ± X^N/N!$
(b) What is the difference between Array and the Linked-List? Describe various **07**
operations on singly linked list using diagrams.

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