Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– I EXAMINATION – SUMMER • 2015

Subject Code: 610001 Date: 02-05-2015

Subject Name: Fundamentals of Programming

Time:10:30 am - 01:00 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 and explain following terms in brief. **07**

(1) Program
(2) Compiler
(3) Variable
(4) Storage class
(5) Function
(6) Symbolic Constant
(7) Linked List

(b) Answer the following questions. **07**

(1) What is the use of enumerated data type?
(2) "We can create new data type using keyword typedef." This statement is true or false? Justify your answer.
(3) Which function will you use to determine whether the given character is a number from 0 to 9 or an alphabet from a to z?
(4) What is the precision of floating point number?
(5) Give the general form of self referential structure.
(6) int a[5] = {1, 2, 3, 4, 5}, b[5];
b = a;
If you compile and run the above code written in a main( ) function body and print the values of array b then what will be the output?
(7) What type of expression can be written in switch statement?

Q.2 **(a)** What is data type? Give classification of it and explain primitive data type with size, range and modifiers in detail. **07**

(b) What is iterative statement? List all the iterative statement in C and explain any one in detail with flow chart, syntax and example. **07**

OR

(b) What is decision statement? Explain simple if, nested if and if-else-if ladder construct with flowchart, syntax and example. **07**

Q.3 **(a)** What is array? Explain one dimensional and two dimensional character arrays with syntax, memory storage structure and example. **07**

(b) Write a program that will receive two equal sized integer arrays and compare both the arrays using function isEqual ( ). Both the array are said to be equal if both the arrays have the same data values at the same position otherwise arrays are said to be different. Function isEqual ( ) should return true if arrays are equal otherwise false. **07**

OR

Q.3 **(a)** What is recursion? How it is useful? Explain and write a program to find out the factorial of a given number using recursive function. **07**

(b) What is storage class? List all the storage class and explain static and register storage classes with scope and extent. **07**

Q.4 **(a)** Differentiate between structure and union. **07**

(b) What is pointer? Give the differences between pointer and array. What will be the output of following sample code? **07**

```
void main ( )
{
        int *p, i;
        int a[10] = {1,2,3,4,5,6,7,8,9,10};
        p = a;
        for (i = 0; i < 10; i++)
            printf (“%d   %d\n”, a[i], p[i]);
}
```

OR

Q.4 **(a)** What is function? Give the usefulness of function. Explain function declaration, function definition and function call. Differentiate between the user defined function and library function. **07**

(b) Write a program using UDFs to compute the length of a given string and compare two strings. Write UDFs using pointer. **07**

Q.5 **(a)** What is linked list? Differentiate between linked list and array. **07**

(b) Explain call by value and call by reference concept using suitable example codes. **07**

OR

Q.5 **(a)** Explain the process of inserting and deleting a node form a linked list. **07**

(b) What an operator? Explain ternary and logical operators in C with suitable example. **07**

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