Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER–I • EXAMINATION – SUMMER 2013

Subject Code: 610001 Date: 04-06-2013

Subject Name: Fundamentals of Programming

Time: 10:30am to 13:00pm 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)** Answer the following questions by selecting an appropriate option. **07**

(1) Which of the following is not a library function in C?
(a) printf() (b) scanf() (c) main() (d) getch()

(2) Which of the following is not a valid keyword in C?
(a) case (b) constant (c) char (d) continue

(3) Which of the following is not a valid variable name in C?
(a) Total5 (b) total_ (c) _total (d) 5Total

(4) Which is the valid declaration in C?
(a) INT a[5]; (b) int A[5]; (c) int a[]; (d) int a[2,2];

(5) The name of operator << is?
(a) Less than
(b) Greater than
(c) Shift left
(d) Shift right

(6) What is a pointer?
(a) Keyword
(b) Constant
(c) Variable
(d) String

(7) Which function is used to obtain the current position of file pointer?
(a) fopen() (b) fseek() (c) feof() (d) ftell()

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

(1) How many bytes are allocated by a float variable?

(2) What will be the output of the following program segment?

```
int a= 10;
if (a = 0);
      printf("True\n");
 printf("a = %d\n", a);
```

(3) Give the data type whose variable may contain a value of any member of symbolically declared set of values?

(4) What is linked list?

(5) What is sizeof?

(6) Define : Compiler

(7) What is the use of typedef?

Q.2 **(a)** Define algorithm and flow-chart. Explain basic symbols of. flow-chart and draw a flow-chart to obtain the sum of first N natural numbers. **07**

	(b)	What is data type? Explain primitive data types with size and range.	**07**
		OR	
	(b)	Give the classification of program control statements. Explain various constructs of if statement using flow-chart and example.	**07**
Q.3	**(a)**	Explain for statement with syntax, flow-chart and example. Write a program using for loop to print the numbers from 1 to 100 which are divisible by 2 or 5.	**07**
	(b)	Explain logical operators in C with example.	**03**
	(c)	Write a program to find out the length of a given string using user defined function.	**04**
		OR	
Q.3	**(a)**	What is function? What are the advantages of using functions in a program? Explain function prototype declaration, function definition and function call with suitable example.	**07**
	(b)	Explain unconditional control statements in C.	**03**
	(c)	Write a program to find out the sum of digits of a given integer number.	**04**
Q.4	**(a)**	Explain the storage structure and initialization of 2 dimensional array with example. Write a program that will receive m x n array and obtain the sum of all its elements.	**07**
	(b)	Explain static storage class with example.	**03**
	(c)	Write a program to find out factorial of the given number using recursion.	**04**
		OR	
Q.4	**(a)**	What is pass by value and pass by reference? Explain it with the example of swapping the values of two variable using function.	**07**
Q.4	**(b)**	Explain : union	**03**
	(c)	Write a program to find out the maximum from the given N element array. .	**04**
Q.5	**(a)**	Write a program to copy one file to another. File names should be given as command line arguments.	**07**
	(b)	Explain following functions: (1) malloc ( ) (2) calloc () (3) free ( )	**03**
	(c)	Explain the process of inserting and deleting a node form a given linked list by suitable example.	**04**
		OR	
Q.5	**(a)**	Write a program that will create an array of 10 students using following structure Student Roll_no, Name, Mark1, Mark2, Mark3, Total. Calculate the total marks by adding all three subjects' marks for all 10 students and display the records line wise in following format. Roll Number Name of Student Subject1 Subject 2 Subject 3 Total	**07**
	(b)	Explain following functions: (1) fopen( ) (2) fclose() (3) fseek ( )	**03**
	(c)	Explain #include and #define with example.	**04**

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