Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– I EXAMINATION – SUMMER 2014

Subject Code: 610001 Date: 12-06-2014

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)** Answer in brief **07**

1. Define Algorithm.
2. Why 'C' is a middle level language? – Justify.
3. What is the use of indirection operator?
4. What is the use of void data type?
5. What do you mean by preprocessor directive?
6. How to determine the end of file?
7. What is the difference between #include<abc.txt> and #include "abc.txt" ?

(b) Do as directed

1. Draw a flow chart or write an algorithm to find out total number of even and odd numbers from given n numbers. **03**
2. Explain short, long, signed and unsigned type qualifiers with suitable example. **04**

Q.2 **(a)** What is function? Why it is needed? Explain function prototype, function call and return type of a function. **07**

(b) Why arrays are needed? Explain the use of one dimensional and two dimensional character arrays. Also explain at least three string functions. **07**

OR

(b) Differentiate array and linked list. What is row major order and column major order in array? Give examples to initialize one dimensional and two dimensional integer arrays. **07**

Q.3 **(a)** Explain pre-test loop and post-test loop with suitable example. Explain the importance of break and continue statements in loop with suitable example. **07**

(b) Explain following function with example w.r.t. file : **07**
getc( ), putc( ), fscanf( ), fprintf( ), fopen( ), fflush( ) and fflushall( )

OR

Q.3 **(a)** Explain nested if statement with example. What is dangling else problem in nested if? Compare nested if with conditional operator. **07**

(b) Compare text file and binary file. Explain fseek( ) and ftell( ) functions to work with binary file. **07**

Q.4 **(a)** Explain pointer to pointer and array of pointers with suitable example. **07**

(b) Explain following terms w.r.t. structure : **07**
Variable structure, tagged structure, type-defined structure, members of a structure, dot operator (.), arrow operator (->), Array of structure.

OR

Q.4 **(a)** Write short note on Dynamic memory allocation. **07**

(b) Explain in detail with suitable example : bit field and slack byte. **07**

Q.5 **(a)** Explain with figure and compare: Singly linked list, circular singly linked list **07**

and doubly linked list. Write a function to display singly linked list.

(b) 1. Explain at least three bitwise operators with suitable example. **03**

2. List Naming conventions of an identifier with example. **04**

OR

Q.5 **(a)** Write functions to add a node at the beginning, at some position p and at the end of a singly linked list. **07**

(b) 1. Explain at least three preprocessor directives with example. **03**

2. Explain the terms : operator, operand, unary operator and binary operator. **04**

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