Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

MCA - SEMESTER– I EXAMINATION – SUMMER 2018

Subject Code: 610001 Date: 19/05/2018

Subject Name: Fundamentals of Programming

Time:02:30 P.M. to 05:00 P.M. 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 :

i. Explain term constant, symbolic constant and literal. **03**

ii. Differentiate between algorithm and pseudo code. **04**

(b) Explain various symbols of flow chart and draw a flowchart to find maximum of three numbers. **07**

Q.2 **(a)** Differentiate between following:-

i. Constant pointer and pointer to constant **03**

ii. int *p[2] and int (*p)[2] **04**

(b) What is an array? Write a program to sort n element using user define function. **07**

OR

(b) Write a program to multiply two matrices using user define function. **07**

Q.3 **(a)** What is recursion? Write a recursive function to convert any decimal number to binary number. **07**

(b) Explain various storage class in detail. **07**

OR

Q.3 **(a)** Explain malloc, calloc, realloc and free function in detail. **07**

(b) Differentiate between macro and function with suitable example. **07**

Q.4 **(a)** Differentiate between enum, structure and union with suitable example. **07**

(b) Write a program to perform following operations on singly linked list

i. Add node at end of list **03**

ii. Delete node **03**

iii. Search node **01**

OR

Q.4 **(a)** Differentiate between array name and pointer. Write a program sort string array using pointer. **07**

(b) Write short note on command line arguments and its usage and also write a program to make a DOS command “copy con” which shows the contents of given file. **07**

Q.5 **(a)** Differentiate between

i. ftell() and fseek() functions **02**

ii. void pointer and NULL pointer **02**

iii. binary file and text file **03**

(b) Explain #ifdef , # undef and #ifndef preprocessor with example **07**

OR

Q.5 **(a)** Write down the output of following code snippet

(i) **03**

```
void main()
{
  int a[]={1,2,3,4,5};
  int *x=a,*y=a[4];
  printf("%d",y-x);
}
```

(ii) **04**

```
#define swap(a,b) t=a;a=b;b=t;
void main()
{
   static int a=1,b=2,t;
   if(t)
     swap(a,b);
    printf("%d , %d  , %d",a,t,b);
}
```

(b) Write short note on following:

i. bitwise operator **03**

ii. #pragma **02**

iii. bitfield **02**