Roll No. .....

TCS–201

B. TECH. (SECOND SEMESTER)
MID SEMESTER EXAMINATION, 2018

(All Branches)

PROGRAMMING IN 'C'

Time : 1 : 30 Hours

Maximum Marks : 50

Note : (i) This question paper contains two Sections.

(ii) All questions are compulsory.

Section—A

1. Fill in the blanks/True-False : (1×5=5 Marks)
   (a) Can we change size of an array at run time. (True/False)
   (b) int a[5] = {3, 6, 1}. What will be the output for printf("%d", a[4]) ?
   (c) int i = 2, j = 0, k = (i < j) || (5 > 2); then the value of k is .....
   (d) Name the array stores base address of the array. (True/False)
   (e) char str [ ] = "hello". What will be the size of the array ..... ?

2. Attempt any *five* parts : (3×5=15 Marks)

(a) Explain the different types of array initializations in 1-D array.

(b) Write a code to print transpose of a matrix.

(c) Differentiate between getchar( ), getch( ), getche( ).

(d) int main( )

```
{
    int a [5] = {5, 1, 15, 20, 25};
    int i, j, m;
  i = ++ a [1];
  j = a [1] ++;
  m = a [i ++];
    printf ("%d, %d, %d", i, j, m);
    return 0;
}
```

(e) Write algorithm to implement bubble sort.

(f) What is the difference between strcmp( ) and strcmpi( ) function ?

Section—B

3. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What is an array ? What are the limitations of arrays ?

(b) Draw a flowchart to input an array of n integers. Find their average and print the count of all the number which are more than the average.

(c) Write a code to input n elements in an array and sort the elements in ascending order using insertion sorting technique.

4. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) What are the row major and column major implementation in a 2-D array ? Explain how machine calculates memory addresses using these implementations.

(b) Draw a flowchart to input a matrix of order m × n. Find and print the largest element stored in the matrix.

(c) Write a code to input a square matrix and check if the matrix is upper triangular or not.

5. Attempt any *two* parts of choice from (a), (b) and (c). (5×2=10 Marks)

(a) Define a string. What is the significance of NULL character in a string ? Why gets( ) function is preferred over scanf( ) function for string handling ?

(b) Draw a flowchart to input a string in lower case and convert it to its equivalent uppercase. (Without using strupr( )/to upper( ) functions).

(c) Write a program to input a string and check if it is a palindrome or not. (Without using strcmp() function).