Total No. of printed pages = 2

CS 181106

Roll No. of candidate | | | | | | | | | | |

2022

B.Tech. 2nd Semester (Regular) End-Term Examination

PROBLEM SOLVING THROUGH PROGRAMMING USING C

Full Marks – 70 Time – Three hours

The figures in the margin indicate full marks for the questions.

Answer Question No.1 and any *four* from the rest.

1. Fill in the Blanks or choose True/False : (10 × 1 = 10)

   (a) The full form of ALU is ————————

   (b) The full form of EEPROM is ————————

   (c) One Byte is equal to ———————— bits

   (d) The Binary number system consists of the digits ———————— and ————————

   (e) The range of numeric values that can be stored in a 8-bit unsigned integer variable is from ———————— to ————————

   (f) Web Browser is an example of system software (True/False) ————————

   (g) The EPROM is a type of volatile memory (True/False) ————————

   (h) The programs written in the C programming language requires a compiler for generating the executable code (True/False) ————————

   (i) A compiler can find and report syntax errors (True/False) ————————

   (j) In C, 'String' is a primary/fundamental data type (True/False) ————————

2. For the C code snippets shown below, what will be the output? Assume that the necessary header file(s) have been included, and the code shown is written inside the main() function. Justify answer [Answer any three] (5 × 3 = 15)

   (a)
   ```
   int a=010, b=02, c;
   c=a+b;
   printf("%d\n", c);
   ```

   (b)
   ```
   int a, b, c;
   a=5,000; b=2,000;
   c=a+b;
   printf("%d\n", c);
   ```

(c) float a=5.0, b=0.0, c;

```
c=a/b;
printf("%f\n", c);
```

(d) int a=0, b=5;

```
if((a=b))
        printf("Equal\n");
else
        printf("Not Equal\n");
```

(e) int a=9;

```
for(a--; a--; a--)
        printf("%d", a);
```

3. (a) What is an algorithm? How it differs from a program (3)

(b) Write an algorithm to check if a given integer number is positive, negative, or neither. (6)

(c) Draw the flowchart for the above algorithm. (6)

4. (a) What is a library function? (3)

(b) Write a C program to count the number of characters present in a given string, without using any library function(s) like 'strlen()' etc. (6)

(c) Write a C program to count the number of vowels present in a given string. (6)

5. (a) Differentiate between Compiler and Interpreter (6)

(b) Write a C program to calculate and print the multiplication table from 1 to 10 (i.e. multiplication table of 1,2,3, ... 10). (9)

6. (a) What are the different types of semiconductor memory (6)

(b) (i) Write a C program to find the three smallest numbers from a given list of fifty integer numbers. (9)

Or

(ii) Write a C program to add three matrices of order 3x4, and display the result.

7. (a) What are the Identifier naming rules in C? [6]

(b) Write a C program to find the first ten numbers of the Fibonacci series, using the recursive method. (9)

8. (a) What do you understand about Scope and lifetime of variables in C (6)

(b) Write a C program to swap the values of two floating point type variables using a user defined function, and without using any global variable(s). (9)
