



**Indian Institute of Engineering Science and Technology, Shibpur**  
**B.Tech. 2nd Semester Mid-Term Examinations, 2021**  
**Introduction to Computing (CS 1201)**

**Time: 45 Minutes**

**Full Marks: 30**

- Answer Question number 1 and any four from the rest. For programming problems use C language.
- On the top of the answerscript write Name of the Examination, Name of the Subject, Subject Code, Date of Examination, Name of the Student, Examination Roll Number, G Suite ID and Number of Sheets uploaded.
- Before uploading scanned copy of answerscript, rename it as your examination roll number.pdf

1. A. Answer the following questions:

(i) C programs are converted to machine language using which of the following:

(a) Interpreter (b) Compiler (c) Assembler (d) Operating system

(ii) If A is an integer variable, A=7/3 returns which of the following values:

(a) 3 (b) 2.3 (c) 2 (d) 3.3

(iii) `if (a>b) x=a; else x=b;`

Express the above mentioned code using conditional operator.

(iv) `a=3; x=a++; y=++a; printf("%d %d %d", a, x, y);`

What will be the output of the above code segment?

(v) Convert the decimal number 12.75 into its binary equivalent.

B. Realize the following logic expression using two-input basic logic gates.

$$f = x\bar{y} + y\bar{z} + \overline{xyz}$$

[ (1 × 5)+5]

2. Illustrate the difference between **while** and **do-while** loop using appropriate code segments. [5]

3. Write a program to evaluate the value of  $S$  as shown below. Here, the value of  $n$  will be accepted as input

$$S = 1 - 4 + 9 - 16 + \dots n \text{ terms} \quad [5]$$

4. Write a program to generate the following pattern for  $n$  number of lines where the value of  $n$  is accepted as an input. [5]

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* * * * *
* * * *
* * *
* *
*
```

5. Write a program that computes and prints first  $n$  terms of the Fibonacci sequence, using a function named `fib(n)`. Here,  $n$  is the user-input and Fibonacci sequence is as shown below.

0 1 1 2 3 5 8 13 ... [5]

6. Declare an integer array of size 11. Read 10 numbers from the terminal and store them in that array. Print the array. Insert the number 42 after the third element of the array and print the modified array. [5]

( Paper Setters: M.Kule, T.Pal, S.Mitra, U.Bhattacharya )