

[Total No. of Questions - 9] [Total No. of Printed Pages - 3]

Dec.-23-0352

CS-101 (Computer Fundamentals & Programming in C++)

B.Tech. 1st (CBCS)

Time : 3 Hours

Max. Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt Five questions in all. Question no. 9 in Section E is compulsory. Rest attempt one question each from Sections A, B, C, and D.

SECTION - A

1. Explain the classification of computers on the basis of generation. What are the types of computer booting? Which type of computer uses the 8-bit code called EBCDIC? (10)
2. What are the responsibilities of the operating system in a computer machine? Differentiate application and system software with a suitable example. (10)

SECTION - B

3. Convert the following:

$$(i) (2331)_8 = (?)_{16}$$

$$(ii) (111101010.01101)_2 = (?)_8$$

$$(iii) (456.71)_8 = (?)_{10}$$

$$(iv) (A37B)_{16} = (?)_2 \quad (10)$$

4. What does clock speed mean in processors? Does higher clock speed mean better CPU? How many bytes in 20 TB? Which memory is called volatile and why? (10)

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SECTION - C

5. What is the importance of header files in C++? Which header file is used for mathematical functions? Write down a C++ program to calculate the roots of the quadratic equation. (10)
6. What do you understand by Data Types? Explain primitive data Types in C++ with the details of occupied memory, format specifier, range, and suitable example wherever required. (10)

SECTION - D

7. Differentiate the while and do-while loop with a suitable example. Write a program using recursion to find the factorial of a given number. (10)
8. What is the difference between array and structure? Also, write a program in C++ to multiply two matrices MAT_A[m][n] and MAT_B[p][q]. (10)

SECTION - E (Compulsory)

9. Explain the following:
 - (a) What is a compiler? How is it different from an Interpreter?
 - (b) What is variable and also write the rules for creating variable names.
 - (c) Differentiate software and hardware with example.
 - (d) Write a 'C' program to find the ASCII value of a given character.
 - (e) Write the difference between implicit and explicit typecasting.
 - (f) Find the value of z where x=4 and y=7.

$$z = y + + \% -- x + x + + * -- x + \text{size of } (x).$$

[P.T.O.]

(g) What is the output of the following code:

```
# define sqr(x) x*x
main()
{
    int i;
    i= 64/sqr(4);
    cout<<i
    return 0;
}
```

(h) What is a pointer? Give a suitable example to find the memory address of any float variable.

(i) Define strcpy(), strcmp() with a suitable example.

(j) What is call by reference? (10×2=20)