WEST BENGAL STATE UNIVERSITY

B.Sc. Honours 1st Semester Examination, 2021-22

CMSACOR01T- COMPUTER SCIENCE (CC1)

PROGRAMMING FUNDAMENTALS USING C/C++

Time Allotted: 2 Hours   Full Marks: 40

The figures in the margin indicate full marks.
Candidates should answer in their own words and adhere to the word limit as practicable.
All symbols are of usual significance.

GROUP-A

1.   Answer any *four* questions from the following: 2×4 = 8

   (a) What is identifier in C?

   (b) What do you mean by data encapsulation?

   (c) How are macros different from functions?

   (d) Differentiate 'a' from "a".

   (e) Distinguish between class and structure.

   (f) What is the difference between automatic and static variable in C?

   (g) What are the characteristics of static data members in a class?

GROUP-B

Answer any *four* questions from the following   8×4 = 32

2.   Explain the following four C and/or C++ features with the help of short fragment   2+2+2+2
       of codes to complement your explanation.

   (i)   The use of a virtual destructor.

   (ii)   The difference between malloc() & free() and new & delete.

   (iii) Pointer arithmetic.

   (iv)   Catching and throwing exceptions including the passing of a user-defined
          structure.

3. (a) How a two-dimensional array can be reduced to a pointer to an array of one-   3+3+2
       dimensional arrays? Illustrate with example.

   (b) What is wrong with the following code?

          T*p = new T[10];

          delete p;

   (c) What is scope resolution operator?

4. (a) How can constructors be overloaded? Give examples using C++ codes.   3+2+3

   (b) Why do we use to overload a function?

   (c) What is the difference between structure and union in C language?

5. (a) Distinguish between local variable and global variable. What is destructor?   (3+2)+3

   (b) Compare and contrast between entry controlled loop and exit controlled loop in C.

6. (a) What are the differences between iteration and recursion?   2+2+4

   (b) In what order are the class constructors called when a derived class object is created?

   (c) Explain the memory allocation for objects.

7. (a) Distinguish between Logical and Bitwise operator with examples.   4+(2+2)

   (b) What are the functions of break and continue statements?

8. (a) What will be the output of the following program?   2+(1+2)
   main()   +(1+2)

```
{
        int a = 6;
        printf("%d%d%d%d", a++, ++a, a++, a− −);
}
```

   (b) Why n++ executes faster than n+1? What are the different types of storage class?

   (c) Is there any difference between a void pointer and null pointer? Justify. When break and continue statements are used within a loop?

    N.B. : *Students have to complete submission of their Answer Scripts through E-mail / Whatsapp to their own respective colleges on the same day / date of examination within* 1 *hour after end of exam. University / College authorities will not be held responsible for wrong submission (at in proper address). Students are strongly advised not to submit multiple copies of the same answer script.*

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