



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 of codes to complement your explanation. 2+2+2+2
- (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-dimensional arrays? Illustrate with example. 3+3+2
- (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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