



WEST BENGAL STATE UNIVERSITY
B.Sc. Honours 1st Semester Examination, 2022-23

CMSACOR01T- COMPUTER SCIENCE (CC1)

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 the difference between static variable and global variable in C?
- (b) How is a structure different from union in C?
- ✓(c) What is an inline function?
- (d) Is it possible to overload a destructor? Justify your answer.
- (e) What do you mean by Dangling pointer in C programming?
- ✓(f) How are macros different from function?
- (g) Compare compile time and run-time polymorphism.
- ✓(h) What is friend function in C++?

GROUP-B

Answer any *four* questions from this group

8×4 = 32

2. (a) What are the differences between object oriented and procedural programming languages?

2×4 = 8

- ✓(b) What does a header file do?
- ✓(c) What is an 'identifier'?
- ✓(d) Which of the following statements will execute faster and why?
 $a = a + 1$ or $a ++$?

3. What is encapsulation? Explain how encapsulation can be implemented in C++ with a suitable example. Compare and contrast between public, private and protected members of a class in C++.

2+3+3

4. (a) What is the difference between call by value and call by function?

3+2+3

- (b) Name two operators in C++ that cannot be overloaded.
- (c) What is a virtual function? Explain with example.

5. (a) Can constructor be overloaded? Give proper coding example in support to your

3+5

answer.

(b) Write a program in C++ to overload the '+' operator to add two complex numbers.

6. (a) When there are a Global variable and a Local variable with the same name, how will you access the global variable? 3+3+2

(b) Output of following program:

```
#include <stdio.h>
void fun(int *ptr)
{
    *ptr = 30;
}
int main()
{
    int y = 20;
    fun(&y);
    printf("%d", y);
    return 0;
}
```

(c) Differentiate between break and continue statements.

7. (a) What is inheritance and explain its types. 3+2+3

(b) What are void pointers?

(c) What is the output of the below C++ program?

```
#include <iostream>
using namespace std;
int main()
{
    enum {blue, green = 5, GREAT};
    cout << blue << " " << GREAT;
}
```

8. (a) What is the function of scope resolution operator? 2×4 = 8

(b) How is memory allocated for objects? Explain.

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

(d) What is the functional difference between 'break' and 'continue' statements?

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