Subject Code: ACSBS0302

Roll No: | | | | | | | | | | | | | |

NOIDA INSTITUTE OF ENGINEERING AND TECHNOLOGY, GREATER NOIDA

(An Autonomous Institute Affiliated to AKTU, Lucknow)

B.Tech

(SEM: SECOND YEAR THEORY EXAMINATION (2022-2023)

Subject OBJECT OREINTED PROGRAMMING

Time: 3Hours Max. Marks:100

General Instructions:

IMP: Verify that you have received question paper with correct course, code, branch etc.

1. *This Question paper comprises of three Sections -A, B, & C. It consists of Multiple Choice Questions (MCQ's) & Subjective type questions.*
2. *Maximum marks for each question are indicated on right hand side of each question.*
3. *Illustrate your answers with neat sketches wherever necessary.*
4. *Assume suitable data if necessary.*
5. *Preferably, write the answers in sequential order.*
6. *No sheet should be left blank. Any written material after a blank sheet will not be evaluated/checked.*

SECTION – A 20

1. Attempt all parts:-

1-a. Which of the following is not a characteristic of procedure oriented programming? (CO1) 1

(a). Employs top-down approach in program design.
(b). Data move openly around system from function to function.
(c). Emphasis is on data rather than procedure.
(d). Most of the functions share global data.

1-b. In procedure oriented programming primary focus is on (CO1) 1

(a). Data
(b). Objects
(c). Function
(d). Class

1-c. Which of the following is not a C++ keyword (CO2) 1

(a). Class
(b). Section
(c). Public
(d). Namespace

1-d. Which of the following cannot be legitimately passed to a function (CO2) 1

(a). A constant
(b). A variable
(c). A structure
(d). A header file

1-e. Which feature of OOP is indicated by the following code? (CO3) 1

(a). Encapsulation and Inheritance

(b). Inheritance and polymorphism
(c). Polymorphism
(d). Inheritance

1-f. What happens if the following C++ statement is compiled and executed? (CO3) 1

```
int *ptr = NULL;
delete ptr;
```

(a). The program is not semantically correct
(b). The program is compiled and executed successfully
(c). The program gives a compile-time error
(d). The program compiled successfully but throws an error during run-time

1-g. What will be the values of x, m and n after the execution of the following statements? (CO4) 1

```
int x, m, n;
m = 10;
n =15;
x=++m + n++;
```

(a). x=25, m=10, n=15
(b). x=26, m=11, n=15
(c). x=27, m=11, n=16
(d). x=27, m=10, n=15

1-h. Which of the following is operator overloading in C++? (CO4) 1

(a). Overriding the operator meaning by the user defined meaning for user defined data type.
(b). Redefining the way operator works for user defined types.
(c). Ability to provide the operators with some special meaning for user defined data type.
(d). All of the mentioned.

1-i. How many types of output stream classes are there in C++? (CO5) 1

(a). 1
(b). 2
(c). 3
(d). 4

1-j. Which header file is used for reading and writing to a file(CO5) 1

(a). #include<iostream>
(b). #include<fstream>
(c). #include<file>
(d). #include<fe>

2. Attempt all parts:-

2.a. Explain Error handling in C (CO1) 2

2.b. Write the Advantages of function Overloading in C++ (CO2) 2

2.c. Explain feature of Object Oriented Programming (CO3) 2

2.d. Explain types of inheritance with example (CO4) 2

2.e. Explain Activity Diagram and Sequence Diagram for design (CO5) 2

SECTION – B

3. Answer any five of the following-

3-a.	Explain features of command line argument state standard function used for same with example (CO1)	6
3-b.	Compare pass by value and pass by reference with example (CO1)	6
3-c.	Write a C++ program by using classes to find the greatest and lowest value from array. If the greatest value is greater than 100, then print "it's my good luck", otherwise print" it's my bad luck". (CO2)	6
3-d.	Write a C++ program to print the hollow square or rectangle star pattern by using the constructor and destructor. (CO2)	6
3-e.	Define the concept of polymorphism? Write a program in C++ using polymorphism in which user enters the number if the number is positive and the number is also even, then print the cube of the number and if the number is odd and negative then print the square of the number. (CO3)	6
3-f.	Define the concept of operator overloading? Why we use operator overloading? Differentiate between the followings: 1. Function overloading & Function overriding 2. Constructor overloading & Operator overloading (CO4)	6
3-g.	Give syntax of and explain various functions related to ifstream and ofstream (CO5)	6

SECTION – C

4. Answer any one of the following-

4-a.	What is an operator? Explain the arithmetic, relational, logical, and assignment operators in C language. (CO1)	10
4-b.	Write a C program to maintain a record of "n" student details using an array of structures with four fields (Roll number, Name, Marks, and Grade). Each field is of an appropriate data type. Print the marks of the student given student name as input. (CO1)	10

5. Answer any one of the following-

5-a.	Compare the Structured programming and Object oriented programming with example (CO2)	10
5-b.	Discuss different string handling functions available in C++. (CO2)	10

6. Answer any one of the following-

6-a.	Write a C++ program to Add two Complex number passing objects to function.(CO3)	10
6-b.	Discuss the role of access specifiers in inheritance and show their visibility when they are inherited as public, private and protected. (CO3)	10

7. Answer any one of the following-

7-a.	Write a C++ Program to demonstrate an Example of Multiple Inheritance. (CO4)	10
7-b.	When is a sub-class function treated as an overriding function in C++? Explain with suitable example(CO4)	10

8. Answer any <u>one</u> of the following-

8-a. Explain Aggregation and Composition in class diagrams. (CO5) 10

8-b. Explain the following (CO5) 10

a) 'Extend' and 'Include' in use cases
b) Class diagrams
c) Business entity and Service class
d) Generalization and Specialization