

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2019

OBJECT ORIENTED PROGRAMMING THROUGH C++

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

I Answer *all* questions in one or two sentences. Each question carries 2 marks.

1. List any two preprocessor directives.
2. List the two parameter passing methods in C++, other than Call by Reference.
3. List the two access specifiers used in inheritance, other than Public.
4. List any two keywords that are associated with exception handling in C++.
5. What are the default storage classes of global variables and local variables ?

(5×2 = 10)

PART — B

(Maximum marks : 30)

II Answer any *five* of the following questions. Each question carries 6 marks.

1. Develop a program to read the Employee code, Name and Salary of an employee into a structure variable and display the same.
2. Explain break statement and continue statement with proper examples for each.
3. Define function overloading. Write a program to find the area of a Rectangle, Square and a Circle using function overloading.
4. Explain about any 2 types of constructors in C++.
5. Explain about Friend functions. Give an example.

6. Create a class *Rectangle* with member variables *length* and *breadth*, and suitable member functions for input, area calculation and output. Create another class *Box*, inheriting *Rectangle* with member variable *Height* and required member functions. Write a program to find the bottom area and volume of a box using the above classes.
7. Explain about exception handling in C++. (5×6 = 30)

PART — C

(Maximum marks : 60)

(Answer *one* full question from each unit. Each full question carries 15 marks.)

UNIT — I

- III (a) Explain about the different looping statements in C++. Give examples. 9
- (b) Write a program to check whether the given number is Prime or not. 6

OR

- IV (a) Write a program to read the Roll no, Name, Marks of Physics and Marks of Chemistry of N students of a class and display the Roll no, Name and Total marks of Science (sum of Physics and Chemistry) of the students, using structure. 10
- (b) List the user defined data types in C++. 5

UNIT — II

- V (a) Write Programs to swap (interchange) the values of two variables by,
(i) Using a function with call by pointer (ii) Using a function with call by reference. 10
- (b) Differentiate Constructors and Destructors. 5

OR

- VI (a) Explain about the 3 access control specifiers used inside the class. How they are used to control access to class member variables. 8
- (b) Develop a function **nextfib()** which returns the next fibonacci term on successive calls to the function, starting from the first term. Use static variables, if required. [Hint : If the Fibonacci series is 0 1 1 2 3 5 8..., the first call to **nextfib()** should return 0, on next call 1, then 1, then 2 and so on.] 7

UNIT — III

- VII (a) Write an object oriented program to add two complex numbers using operator overloading. Include a member function to display the complex number in its proper format as "X + iY", where X is the real part and Y is the imaginary part of the number. (if Y is -ve, it should be displayed as "X - iY").
[Hint : If the complex numbers are, C1 = X1 + iY1 and C2 = X2 + iY2, then C1 + C2 = (X1 + X2) + i(Y1 + Y2)] 15

OR

	Marks
VIII (a) Explain Single inheritance and Multilevel inheritance with suitable examples.	9
(b) Write a friend function addlength() , for class <i>Length</i> , which adds and displays the sum of two <i>Length</i> objects passed to it in Meters and Centimeters. Also write the statement to declare the function as a friend function in a class.	6

UNIT — IV

IX (a) What are templates in C++ ? Explain about Template functions and Template classes with examples.	8
(b) Write a program which reads two integers, divides the first number by the second number and displays the quotient. Use exception handling mechanism in C++ to handle the possibility of a division by zero exception.	7

OR

X (a) Write a program to find the largest of two values, which may be both integer, float or char variables, using a function template.	9
(b) Draw the block diagram and explain Multiple inheritance.	6
