

2125
B.Sc. Data Analytics (FYUP)
Third Semester
Paper: Programming in C++

Time allowed: 3 Hours

Max. Marks: 45

NOTE: Attempt five questions in all, including Question No. 9 (Unit-V) which is compulsory and selecting one question each from Unit I - IV.

x-x-x

UNIT - I

1. (a) Write and explain the features of an object-oriented programming language.
(b) Write a C++ program to show the use of class and object, where it stores the student data and calculates the result. (5,4)
2. What do you mean by arrays within a class and an array of objects? Give syntax for it. Also, give a suitable example to use in a C++ program. (9)

UNIT-II

3. (a) What do you mean by constructors and destructors in C++? What are the rules for creating these? Write a C++ program to use these in C++.
(b) Explain the use of the friend function with a suitable example in C++. (5,4)
4. What do you mean by operator overloading in C++? What are the rules for overloading operators in C++? Write a C++ program to overload the ++ and + operators in C++. (9)

UNIT-III

5. (a) Define inheritance. Explain how inheritance helps in code reusability. Write a C++ program to demonstrate simple inheritance.
(b) Discuss the concept of visibility modes in inheritance. How do public, private, and protected modes affect accessibility of base class members? Illustrate with an example. (5,4)
6. (a) Define polymorphism. Differentiate between static and dynamic polymorphism. Give examples of each.
(b) Define a pure virtual function. Explain its purpose with an example. (6,3)

UNIT - IV

7. (a) Define exception handling in C++. Write a program to demonstrate exception handling for division by zero.
(b) Write a C++ program to handle multiple exceptions using more than one catch block. (6,3)

P.T.O.

(2)

8. (a) Describe the steps to open and close a file using ifstream, ofstream, and fstream classes.
(b) Discuss the use of the following functions in file I/O operations with examples. seekg(), seekp(), tellg(), and tellp(). (4,5)

UNIT-V

9. (a) What is overriding in inheritance?
(b) What is a Constructor?
(c) What is the use of the scope resolution operator in C++?
(d) Write the names of memory management operators in C++.
(e) What is the use of the throws keyword in exception handling in C++?
(f) What is data abstraction? (6×1½)

x-x-x