Level: Bachelor   Semester: Fall   Year   : 2022
Programme: BE   Full Marks: 100
Course: Object Oriented Programming in C++   Pass Marks: 45
                                         Time   : 3hrs.

Candidates are required to give their answers in their own words as far as practicable.

The figures in the margin indicate full marks.

Attempt all the questions.

1. a) What is data abstraction? How does a Class provide data abstraction in C++? Explain with a suitable program. 8

   b) You know the friend function violates the rule of encapsulation. What is its benefit? Explain with the help of a suitable program. 7

2. a) Explain the static member of a class with its characteristics and a suitable program. 7

   b) What is constructor and why is it required? Explain the various kind of constructors with appropriate examples. 8

3. a) How is memory allocated and de-allocated in C++? Explain with a suitable Program. 7

   b) What do you mean by ambiguity in multipath inheritance? Explain how we can solve this using a suitable example. 8

4. a) Create two classes Publication and Sales. The Publication class holds title and price and the Sales class holds the total monthly sales. Derive a class called Book from both Publication and Sales. The book class stores author's name and page count. Each of these three classes should have a function Display () to print the information of classes and should have at least one constructor that is inherited to derived class as well. Write a program to implement these classes. 8

   b) With a suitable program, explain the multi-level inheritance. 7

5. a) Define operator overloading. Write a simple program to overload ++ operator. 7

   b) Define the role of type casting in program development. Write a program to convert an object of Polar class into the object of Rectangle class by using type convesion routine. 8

6. a) What are the advantages of Generic Programming? Write a program to illustrate a template function with two arguments. 8

   b) Draw a sequence diagram for admission process of Pokhara University. Assume all the required process, attributes and associated methods. 7

7. Write short notes on: (**Any two**)   2×5

   a) Inline Function

   b) Computation as Simulation

   c) Exception handling