POKHARA UNIVERSITY

Level: Bachelor Semester: Fall Year : 2017
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) Describe how object oriented programming models the real world problem with reference of agents, method, behavior and responsibilities? 7
   b) What do you mean by static data member of a class? Explain the characteristics of a static data member. 8
2. a) Does a friend function violate the data hiding? Explain briefly. Write a program to swap variables of two classes using friend function. 8
   b) What is constructor? Can constructor be overloaded? If yes, explain how that is possible with reference of an example. 7
3. a) Differentiate methods of arguements passing in constructor and destructor. 7
   b) Inheritance supports the reusability characteristics of OOP. Justify your answer. Explain ambiguity that occurs in multiple inheritances. 8
4. a) Write base class that ask the user to enter Time (hour minute and second) and derived class adds the Time of its own with the base. Finally make third class that is friend of derived and calculate the difference of base class time and its own time. 7
   b) When base class and derived class have same function name what happens when derived class object calls the function? Differentiate overloading with overriding. 8
5. a) What is polymorphism? How operator overloading is used to support polymorphism? Explain it by overloading '+' operator to concatenate two strings. 7
   b) What is the advantage of using template functions? Write a program to illustrate a template function with two arguments. 8

6. a) Reusability implies non-interference. Explain with example. 7
   b) Explain in brief about interface and implementation. How different components of Software design can be represented and integrated? Discuss in brief. 8
7. Write short notes on: **(Any two)** 2×5
   a) CRC card
   b) Virtual function
   c) Features of object-oriented programming