Nepal College of Information Technology
Time Bound Examination

Level: Bachelor	**Full Marks: 70**
Programme: IT-Morning	**Pass Marks: 31.5**
Course*: OOP in C++*	**Time : 2 hrs**

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.

Group A: [5*10=50]

1. In C++ programming, programmer can use function in the form of function overriding and function overloading. Normally, the above-mentioned functions should be enough to code most of the programs. Do you agree with previous statement? If not, what other kind of functions you remember will be useful for coders? And what kind of problems will it solve?

2. "C++ strongly supports the concept of reusability." Justify this statement with different concepts that have been adopted in C++ in order to reuse codes and save programmer's time.

3. A programmer is assigned with a task of building a software for a gaming company. They receive the requirements for the software. But the requirements do not mention about the data types and data structures to be used as parameter in the classes and functions. In this scenario where programmer is not sure about the data types, what should he/she do? Are there ways they can generalize classes and functions? If so, give a small sample program on how to approach this issue.

4. Let us consider a situation where classes B and C are publicly derived from class A and class D is publicly derived from class B and C. In this situation, the class D inherits the properties from A twice. How is this situation solved? Explain with an example.

5. The use of constructor and destructor is very useful in C++ programming. What makes them so special? What are the different ways that constructor can be used in a program? Explain with suitable example.

Group B: Problem-solving/Case studies[1*20=20]

1. Suppose you are a developer in a software company. You are assigned a task to develop a school's software that keeps the records of teacher information, salary of teacher, student information and fee records of students. Now answer the following:
    a) Identify the possible components.
    b) Draw the CRC card for each component.
    c) Identify the possible classes.
    d) Draw an interaction diagram to show the process:-"Salary payments of a teacher"