Pokhara University

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| Level: Bachelor | Semester – Fall | Year : 2012 |
| Programme: BE | | Full Marks: 100 |
| Course: Object Oriented Programming in C++ | | Pass Marks: 45 |
| Time : 3hrs. |

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| *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. |

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|  | 1. Define classes and objects? How does a class accomplish data encapsulation? 2. What are the important characteristics of object oriented programming? Differentiate between procedural programming and modular programming? | 8  7 |
|  | 1. What are different aspects of software components? 2. Insulation of data from direct access by the program is called data hiding. Support this statement with an example. | 7  8 |
|  | 1. What is dynamic memory allocation? How do you allocate memory dynamically in C++? Explain with an example? 2. Explain the purpose of constructor and destructor. Describe their significances. Can we have more than one destructor in a class? Explain it. | 8  7 |
|  | 1. Write a program that will represent angular measurement in degree with OOPs approach. The program should have conversion functions to convert radian and gradient measurement.(Apply class to class conversion) 2. How ambiguity occurs in multiple inheritances? Explain with an example how ambiguity can be resolved? | 8  7 |
|  | 1. An Education institute wishes to maintain a database of its employees. The database is divided into a number of classes whose hierarchical relationships are shown in figure. The figure also shows the minimum information required for each class. Specify all the classes and define functions to create the database and retrieve individual information as an when required.      1. What is containership? How does it differ from inheritance? | 8  7 |
|  | 1. “Functions and objects associated with each other at runtime is known as runtime polymorphism.” Support or oppose this statement with an example. 2. What is Generic programming? Write a function template to calculate the sum and average of numbers. | 8  7 |
|  | Write short notes on **any two:**   1. CRC cards 2. Inline function 3. The is – a relationship | 2×5 |