Programming Language Concepts

Mid-Semester exam

24 February 2021, 2:00–3:45pm

1. Write three classes *SuperClass*, *SubClass* and *TestClass* as per the following constraints: (8)

   (a) *SubClass* should extend *SuperClass*.

   (b) *SuperClass* should have a public method with name *method* which takes a *String* as parameter and prints it out.

   (c) *SubClass* should override the above *method* and should print out its argument twice.

   (d) *TestClass* should have a public method named *testing* taking a *String* as parameter. Inside this method, you should create an object of type *SuperClass* or *SubClass* (which one to create should be based on some logic that you have to think and design) and invoke *method* on the created object, passing the string "test".

   (e) At compile time, one should not be able to determine whether "test" will be printed once or twice. It should depend on what parameter was passed to the *testing* method at runtime.

2. Write a class *SalesPerson* to store data about sales people of a company. There should be a field to store bank account number of the sales person. There should also be a field to store the number of items sold by the sales person. There should be a public method which computes and returns the payment due to the sales person. The payment due is the number of items sold multiplied by rate per item. The rate per item is rs. 10 per item, which is common to all sales people and should be declared in the class accordingly. Write a class *RuralSalesPerson*, for special kind of sales people who work in rural areas. Apart from the usual data for sales people, this class should also have a field to store the number of kilometers traveled by the sales person. The payment due to these special rural sales people should include, in addition to the rate per item sold, rs. 3 per kilometer fuel allowance.

   Assume you have a class *BankUtils* with a static method taking bank account number and amount as parameters. Invoking this static method will transfer the specified amount to the specified bank account. Write a class *SalesUtils* with a static method that takes an array of *SalesPerson* objects as parameter. In this method, you should iterate through the objects in the array and transfer the amount due to each sales person to the respective bank account. (12)