Scala tutorial 2

1. Consider the following variables

   i, j, m, n, k, f, g, c

   Declare the variables in Scala and assign with the initial values as follows:

   k = i = j = 2;

   m = n = 5;

   f = 12.0f;

   g = 4.0f;

   c = 'X';

   Evaluate the following expressions:

   a) k + 12 * m

   b) m / j

   c) n % j

   d) m / j * j

   e) f + 10*5 +g

   f) ++i * n

Compare the Java and Scala programming languages.

2. Use the following declaration and initialization to convert them to acceptable Scala statements.

   int a = 2, b = 3, c = 4, d = 5;
   float k = 4.3f;

   and evaluate the following expressions

   a) println(- -b * a + c *d - -);
   b) println(a++);
   c) println (–2 * (g – k) +c);

d) println (c=c++);
e) println (c=++c*a++);

Write Scala functions to solve the following problems.

3. Company XYZ & Co. pays all its employees Rs.250 per normal working hour and Rs. 85 per OT hour. A typical employee works 40 (normal) and 30(OT) hours per week has to pay 12% tax.
Develop a functional program that determines the take home salary of an employee from the number of working hours and OT hours given.

4. Imagine the owner of a movie theater who has complete freedom in setting ticket prices. The more he charges, the fewer the people who can afford tickets. In a recent experiment the owner determined a precise relationship between the price of a ticket and average attendance.
At a price of Rs 15.00 per ticket, 120 people attend a performance. Decreasing the price by 5 Rupees increases attendance by 20 and increasing the price by 5 Rupees decreases attendance by 20.
Unfortunately, the increased attendance also comes at an increased cost. Every performance costs the owner Rs.500. Each attendee costs another 3 Rupees.

The owner would like to know the exact relationship between profit and ticket price so that he can determine the price at which he can make the highest profit. Implement a functional program to find out the best ticket price.