4.10 Compare and contrast the if single-selection statement and the while iteration statement. How are these two statements similar? How are they different?

4.10 Answer: Both of them have condition.For If statement,if condition is true,performing an action (or group of actions).For while iteration statement,while loop-continuation condition is true, executing the body of while statement,repeatedly.

4.11 Explain what happens when a Java program attempts to divide one integer by another.What happens to the fractional part of the calculation? How can you avoid that outcome?

4.11 Answer: In a Java program,Dividing one integer by another causes the fractional part of the calculation to be truncated.I can use double or float type to calculate.And I also can use unary cast operator (double) to temporarily treat these values as floating-point number for use in calculation.

4.12 Describe the two ways in which control statements can be combined.

4.12 Answer: Control statements can be stacked to one another by connecting the exit point of one to the entry of the next.

Control statements can be nested by placing one control statement inside another.

4.13 What type of repetition would be appropriate for obtaining an input from the user until the user indicates there is no more input to provide? What type would be appropriate for calculating the factorial of 5? Briefly describe how each of these tasks could be performed.

4.13 Answer: (1)Sentinel-Controlled iteration have a sentinel value can be used to indicate “end of data entry”.

(2) Counter-Controlled iteration have a counter value to control the number of times a set of statement will execute.

(3) Sentinel-Controlled iteration is definite iteration,because the number of iteration is known before the loop begins executing.

Counter-Controlled iteration is indefinite iteration,because the number of iteration is unknown before the loop begins executing.

4.14 If integers x and y are set to 7 and 3, what is the value of x after x = y++ and x = ++y?

4.14 Answer: At first expression,after x = y++,x is equal to 3 and y is equal to 4.Because y++ is postincreament. y assign to x, and then y increases one.

Then,At second expression,after x = ++y,x is equal to 5 and y is equal to 5.Because ++y is preincreament, y increases one, and then y assign to x.