COMP30820 Java Programming (Conv)

Written Test

SOLUTIONS

Time Allowed: 60 Minutes

Instructions for Candidates

Answer all questions.
All questions are multiple choice.
Negative marking does not apply.

Write answers to questions in the spaces provided.
Use the blank pages provided for any rough work.
Submit your paper to an invigilator at the end of the exam.

Access to lecture notes, the textbook, the Web or any other resources is not permitted.

Name	
Student Number	

Question 1 – Multiple Choice Questions (1 mark each)

Write answers to each of the questions below in the spaces provided.

(i) Which of the following statements is correct?

a. Java source code is interpreted
b. Java source code is first compiled and then interpreted
c. Java source code is first interpreted and then compiled
d. Depending on the operating system, Java source code is either interpreted or compiled
e. None of the above

Answer: _____

(ii) The *signature* of a method consists of:

a. The method name and parameter list
b. The return type, method name, and parameter list
c. The parameter list
d. The method name
e. None of the above

Answer: _____

(iii) Which of the following should be declared as a `void` method?

a. A method that returns a random integer between 1 and 100 (inclusive)
b. A method that prints integers between 1 and 100 (inclusive)
c. A method that checks whether a number is less than 10
d. A method that converts an uppercase letter to lowercase
e. None of the above

Answer: _____

(iv) The expression `3 * 5 / 2 * 5` evaluates to:

a. 1.5
b. 30
c. 35
d. 37.5
e. None of the above

Answer: _____

(v) Given the ASCII decimal code value for the character `'a'` is 97, what is the value of `y` after the following `switch` statement?

```
char ch = 'a';
int y = 3;
switch ((int)++ch) {
     case 97:  y = 0; break;
     case 98:  y = 1;
     case 99:  y += 2; break;
     default:  y = 4;
}
```

a. 1
b. 4
c. 3
d. 6
e. 0

Answer: _____

(vi) The expression `7 + (int)(Math.random() * 40)` returns a random number in the interval:

a. 7 to 47, inclusive
b. 7 to 46, inclusive
c. 7 to 45, inclusive
d. 7.0 to 45.9999999999999999, inclusive
e. 7.0 to 46.9999999999999999, inclusive

Answer: _____

(vii) What is the value of `n` at the end of the following piece of code?

```
int n = 1;
for ( ; n < 5; n--)
     n += 3;
```

a. 3
b. 4
c. 5
d. 6
e. 7

Answer: _____

(viii) What is the output of the following piece of code?

```
int x = 0;
if (x > 0);
{
    System.out.println("x");
}
```

a. The value of variable `x` is printed
b. Nothing is printed because the loop runs forever (i.e. it is an infinite loop)
c. The string `"x"` is printed
d. Nothing is printed because there is a compilation error
e. Nothing is printed because `x > 0` is `false`

Answer: _____

(ix) How many times will the following piece of code print the string `"Hello"`?

```
int count = 4;
do {
    System.out.println("Hello");
    count++;
} while (count > 5);
```

a. The string is never printed
b. 5 times
c. 2 times
d. 1 time
e. The loop runs forever (i.e. it is an infinite loop)

Answer: _____

(x) What happens when the following piece of code is executed?

```
int x = 1;
while (x > 0 || x < 10)
    System.out.println(x++);
```

a. The loop runs forever (i.e. it is an infinite loop)
b. The loop body is never entered
c. The numbers 1 to 9 (inclusive) are displayed
d. The numbers 2 to 10 (inclusive) are displayed
e. Nothing is displayed since there is a compilation error

Answer: _____

Question 2 – Multiple Choice Questions (2 marks each)

Write answers to each of the questions below in the spaces provided.

(i) Consider the following code:

```
int count = 0;
while (count < 100) {
   // Point A
   System.out.println("Welcome to Java!");
   count++;
   // Point B
}
// Point C
```

Which one of the following statements is correct?

a. `count < 100` is always `false` at Point A
b. `count < 100` is always `true` at Point B
c. `count < 100` is `false` at Point C
d. `count < 100` is `true` at Point C
e. `count < 100` is always `false` at Point B

Answer: _____

(ii) What is the output of the following piece of code?

```
int[] myList = {1, 2, 3, 4, 5, 6};

for (int i = myList.length - 2; i >= 0; i--)
   myList[i + 1] = myList[i];

for (int e: myList)
   System.out.print(e + " ");
```

a. 6 2 3 4 5 1
b. 6 1 2 3 4 5
c. 1 2 3 4 5 6
d. 2 3 4 5 6 1
e. 1 1 2 3 4 5

Answer: _____

Question 3 – Multiple Choice Questions (3 marks each)

Write answers to each of the questions below in the spaces provided.

(i) What is the output when the following class is executed?

```
public class Q3i {
    public static void main(String[] args) {
        boolean[] booleans = new boolean[2];
        char[] chars = {'a', 'b', 'c'};
        int i = 0;

        foo(i, booleans, chars);

        System.out.print(i + " ");
        System.out.print(booleans[0] + " ");
        System.out.print(chars[0]);
    }

    public static void foo(int i, boolean[] b, char[] c) {
        i++;

        for (int j = 0; j < i; j++)
            c[j] = (char)('a' + 1);

        b = new boolean[2];
        b[0] = true;
        b[1] = b[0];
    }
}
```

a. 1 true a
b. 0 false a
c. 0 true b
d. 0 false b
e. None of the above

Answer: _____

(ii) What is the output when the following class is executed?

```
public class Q3ii {
    public static void main(String[] args) {
        int[][] m = foo();
        int[] r = m[0];
        r[0] = 1;

        System.out.print(m[0][0] + " ");
        System.out.print(m[1][0] + " ");
        System.out.print(m[2][0]);
    }

    public static int[][] foo() {
        int[][] arr = {
                {3, 2, 1},
                {3, 2},
                {3}
        };

        arr[1] = new int[3];
        return arr;
    }
}
```

a. 1 0 3
b. 3 0 3
c. 3 0 1
d. 1 3 0
e. None of the above

Answer: _____