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(Morning)

This question paper contains 10 printed pages.

S. No. of Paper : 6510 Your Roll No.
HC
Unique Paper Code : 32341201
Name of the Paper : **Programming in Java**
Name of the Course : **B.Sc. (Hons.) Computer Science**
Semester : **II**
Duration : **3 hours**
Maximum Marks : **75**

(Write your Roll No. on the top immediately
on receipt of this question paper.)

*Section A is compulsory.
Attempt any four questions from Section B.*

Section A

- 1 (a) Give one word answer for the following: (1 x 5)
- (i) A feature to handle runtime errors
 - (ii) Superclass of all the classes defined in Java
 - (iii) Multiple inheritance can be implemented using them
 - (iv) The toolkit to provide graphical user interface
 - (v) Which feature of Java makes it secure and platform independent?
-) On compiling the file having the following two classes, how many files will be created and what will be the name(s) of those file(s)? (2)

```
class A {  
    int x = 10;  
}  
class B {  
    public static void main(String args[])  
    {
```

P. T. O.

```

    A    a = new A();
    System.out.println(a.x);
}
}

```

(c) Differentiate between the following: (3 x 2)

- (i) init() and start() methods of the Applet class
- (ii) checked and unchecked exceptions
- (iii) java application and applet

(d) Out of the following two if statements, which one will throw an exception if value of n is 10 and of d is 0; and why? (2)

```

if (d != 0 && n / d <= 1)
    System.out.println("n/d <= 1");
if (d != 0 & n / d <= 1)
    System.out.println("n/d <= 1");

```

(e) Write the mathematical expression in Java for:

$$X = \frac{-b + \sqrt{b^2 - 4ac}}{2a} \quad (2)$$

(f) What will be the output of the following statements? (1 x 5)

- (i) System.out.println("Try this " + 1 + 4);
- (ii) System.out.println(3 & 8 - 2);
- (iii) System.out.println(0B11010);
- (iv) System.out.println(-1 >> 6);
- (v) System.out.println("Hello World!!!".substring(3, 7));

(g) What is the KeyEvent class and what are the three events associated with it? Give one example of a key when pressed results in:

- (i) all the three events
- (ii) two events only.

(2 + 1)

For each of the following statements mention whether it is correct or not. Justify your answers. (6)

- (i) `i = a;`
- (ii) `a = i;`
- (iii) `i.set(1.23f);`
- (iv) `i.display();`
- (v) `a.set(1.23f);`
- (vi) `a.display();`

7. What will be the output of the following code segments?

```
(a) enum Mango {
    Alphonso(100), Langra(80), Dasehri(90);
    private int price;
    Mango(int x) { price = x; }
    int getPrice() { return price; }
}
```

```
class enumDemo {
    public static void main(String args[]) {
        for (Mango x : Mango.values()) {
            System.out.print(x.getPrice());
            System.out.println
                (" " + x.ordinal())
        }
    }
}
```

(2)

```
(b) String a = "abc", b = new String(a);
    System.out.println("a == b: " + (a == b));
    System.out.println("a.equals(b):
        "+ a.equals(b)); (2)
```

(h) Consider the following code segment:

```
class A{
    void fn(int ...v) {
        for (int x:v)
            System.out.println(x);
    }
    void fn(boolean ...v) {
        for (boolean x:v)
            System.out.println(x);
    }
    void test() {
        A a = new A();
        a.fn(1, 2, 3); // line 1
        a.fn(true, false); // line 2
        a.fn(); // line 3
    }
}
```

Out of line1, line2 and line3, which one(s) will give an error and why? (2)

(i) For the following code segment, how many times does autoboxing and autounboxing take place in line1 and line2? Explain. (2)

```
int i;
Integer I = 12; // line 1
i = I / 3; // line 2
```

(j) What is the function of run() method of the Thread class? (2)

(k) Write the statement(s) in Java to create a two dimensional array that has 3 rows. Row 1 has 3 columns, row 2 has 1 column and row 3 has 2 columns. Also write for-each statements to print this array. (2 + 2)