

Assignment 3

Programming in JAVA

Submission date: 09/04/2020 (for Q1-to- Q12) & 20/04/2020 (for Q13-to-Q24)

1. WAP to read a file A.txt and copy the text in B.txt after removing vowels.
2. Create a user defined exception class **MyException** and use this class to signal an error condition if the number is negative. WAP to compute the square root of a number using user defined method **MySqrt()** which raises exception of type **MyException** for a negative number.
3. Write the prototype for methods handling following frame window functions:
 - i) Hiding and showing window
 - ii) Setting window dimensions
 - iii) Setting window title
 - iv) Closing a frame window
4. What are event listeners? Explain any three methods of MoseMotionListener interface along with respective prototypes.
5. When integer("abc") is called, what kind of exception is thrown?
6. What is the error in the following codes:-

```
a). int a (10);
    System.out.println (a [2]);
b) class A
{
    public static void main (String args [ ])
    {
        L1: for (int i=0; i<4; i++)
        {
            System.out.print ("Pass" + i + ": ");
        }
        for (int j=0; j<100; j++)
        {
            if (j==10) break L1;
            System.out.print (j + " ");
        }
    }
}
```

7. How does an interface differ from class in Java? Define an interface which has a method to convert length give in inches to centimeters (1 inch =2.54cm). Define a class called rectangle that implements the interface and find area in cm² given its side in inches.
8. Consider the following files f1.java and f2.java:-

```
f1.java
package myPack1;
public class A
{
    int i;
    private int j;
    protected int k;
    public int l;
    :
}
class B
{
    :
}
class C extends A
{
    :
```

```
f2.java
package myPack2;
import myPack1.*;
class D
{
    :
}
class E extends A
{
    :
}
```

Which variables of class A are accessible in classes B,C,D and E? Why?

9. What do you understand by AWT control? List name of two AWT controls.
10. What is the purpose of setsize() and getsize() functions in case of window class?
11. WAP to read name of student from the command line. if the first letter of the name is not capital then throw an exception.
12. Name event listener interface that is notified when following event occurs:
 - a) When component is resized
 - b) When mouse is pressed

- c) When mouse is moved
- d) When window gains or loses input focus

13. What is the output of following code:-

```
class PassObjRef
{
    public static void main (string args[ ])
    {
        Test ob=new Test (15,20);
        int k = 10;
        System.out. print In ("ob.a, ob. b, k
        before call: " + ob.a + ob.b + k);
        ob.meth (ob,k);
        System. out. print In ("ob.a, ob.b, k
        after call: " + ob.a + ob.b + k);
    }
}

class Test
{
    int a,b;
    Test (int i, int j)
    {
        a=i;
        b=j;
    }

    void meth (Test o, int index)
    {
        o.a *=2;
        o.b /=2;
        index = index *10;
    }
}
```

14. What is checked exception? How it is different from unchecked exception? Give an example of each.
15. Out of the following two if statements which one will throw an exception if value of n is 10 and d=0: and why?

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

16. Give output of the following:-

```
class A {  
    public static void main (String args[])  
    {
```

```
        Boolean b=true;  
        if (b) System. out. println ("b is true");  
        character ch= 'x';  
        char ch2=ch;  
        System.out. println ("ch2 is " + ch2);  
    }  
}
```

17. What will be the output of the following:-

```
(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!!!".sub  
                                string(3, 7));
```

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

- a) All three events
- b) Only two events

19. Identify the errors in the code segment given below:-

```
(i)   ++(i + j);  
(ii)  interface I {  
        char c;  
        void display();  
    }  
(iii) final class A {  
        float f;  
    }  
        class B extends A {  
            char c;  
        }
```

```

(iv) String s = "ace";
    s[0] = 'i';

(v) class try {
    void fn(int x) {
        System.out.println(x);
    }
    void fn(int x, int y){
        System.out.println(x + " " + z);
    }
}

```

20. Consider the following three files:

```

File: A.java
package X;
public class A {
    int i;
}

File: A.java
package Y;
public class A {
    float f;
}

File: B.java
package Z;
import X.*;
import Y.*;
class B {
    public static void main(String
                           args[]) {
        A a = new A();
    }
}

```

- i) What problem will come on compiling file B.java? How can that problem be solved.
- ii) What should be the names of folders/ directories to store these files?
- iii) What command will be used to run the program assuming that the error has been removed?

21. Explain the delegation event model for event handling.

22. What is the output of the following code segment? Justify your answer

```

class X {
    int x = 20;
    X(int x) {
        x = x;
        System.out.print(x + " ");
    }
    public static void main(String
        args[]) {
        X a = new X(10);
        System.out.print(a.x + " ");
    }
}

```

23. Consider the following code segment:

```

interface I {
    int x = 10;
    void display();
}
class A implements I {
    float f;
    void set(float F) { f = F; }
    public void display() {
        System.out.println(x + " " + f);
    }
}
class Demo {
    public static void main(String args[]) {
        A a = new A();
        I i;
    }
}

```

For each of the following statement mention whether it is correct or not:-

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

24. What will be the output of following code segments:-

a)

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

b)

```
class A {  
    int x = 12;  
    A(int y) {  
        System.out.println("In A with s  
                        = " + s);  
  
        s = 200;  
        x = y;  
    }  
    static int s = 10;  
    static {  
        System.out.println("In static");  
        s = 100;  
    }  
    public static void main(String args[]) {  
        A a = new A(34);  
        A b = new A(45);  
        System.out.println(a.s + " " + a.x);  
        System.out.println(b.s + " " + b.x);  
    }  
}
```


c)

```
class Demo {
    static void test(int a) {
        try {
            if (a > 10)
                throw new ArithmeticException
                    ("Demo");
            System.out.println("Normal exit");
        }
        catch (ArithmeticException e) {
            System.out.println(e);
            throw e;
        }
        finally {
            System.out.println("In test method
                                for a = " + a);
        }
    }

    public static void main(String args[]) {
        try {
            test(10);
            test(20);
        }
        catch (Exception e) {
            System.out.println("Caught");
        }
    }
}
```