QUESTION BANK 2

QUESTION BANK

2

Flow Control

CERTIFICATION OBJECTIVES

2.1 Develop code that implements an if or switch statement; and identify legal argument types for these statements.

2.2 Develop code that implements all forms of loops and iterators, including the use of for, the enhanced for loop (for-each), do, while, labels, break, and continue; and explain the values taken by loop counter variables during and after loop execution.

2.3 Develop code that makes use of assertions, and distinguish appropriate from inappropriate uses of assertions.

2.4 Develop code that makes use of exceptions and exception handling clauses (try, catch, finally), and declares methods and overriding methods that throw exceptions.

2.5 Recognize the effect of an exception arising at a specified point in a code fragment. Note that the exception may be a runtime exception, a checked exception, or an error.

2.6 Recognize situations that will result in any of the following being thrown: ArrayIndexOutOfBoundsException,ClassCastException, IllegalArgumentException, IllegalStateException, NullPointerException, NumberFormatException, AssertionError, ExceptionInInitializerError, StackOverflowError or NoClassDefFoundError. Understand which of these are thrown by the virtual machine and recognize situations in which others should be thrown programatically.

QUESTION 2.1

Q 1: **Suppose, during the training session in Xyz Company you was provided with the following program:**

```
class Arr {
        public static void main (String args[]) {
        try{
        throw new RuntimeException();
        }catch(RuntimeException e) {
                try{
                        System.out.println("Hello");
                        e.printStackTrace();
                }
                System.out.println("SCJP");
                catch(Exception x) {
                        System.out.println(x);
                }
        }
        }
}
```

What happens when you compile and run the preceding program?

A. It will print Hello
B. It will Print Hello and RuntimeException
C. It will print Hello, RuntimeException, SCJP
D. This program will not compile

A 1: **Option D is correct.**

Explanation: Option D is correct because no statement can come in between try and catch block. A catch block must follow a try block. However, it is allowed to use nested try-catch. Options A, B, and C are incorrect because the program will not compile and these options are representing runtime values.

QUESTION 2.2

Q 2: **Imagine, you appeared for an interview in the ABC Company and there you were provided with following program:**

```
class Except {
        public void disp() throws EOFException,FileNotFoundException {
                System.out.println("It is a super class");
        }
}
class Except1 extends Except {
        public void disp() throws FileNotFoundException {
                System.out.println("It is a sub class named except1");
        }
}
class Trial extends Except {
        public void disp() throws IOException {
                System.out.println("It is a sub class named trial");
        }
}
```

What would be the correct option among the following?

A. Program will print "It is super class"
B. Program will print "It is sub class named except1"
C. Program will print "It is sub class named trial"
D. Program will not compile successfully

A 2: **Option D is correct.**

Explanation: Option D is correct because the method inside the trial class is throwing IOException, which is a super class of EOFException and FileNotFoundException and while overriding exceptions it is allowed to override methods that either have same exception as overridden method or its sub class but a super class cannot be thrown after throwing its subclasses. Options A, B, and C are incorrect because the program will not compile and these options are representing runtime values.

QUESTION 2.3

Q 3: **Sam as a developer was asked to create a program using switch…case within for loop. Sam created the following program:**

```
class Sam {
```

```
        public static void main(String args[]){
                int z=3;
                for(int i=0; i<2;i++) {
                z++;
                switch(z) {
                case 3: System.out.print(z=z+1 +" ");
                case 5: System.out.print(z=z+2 + " ");
                break;
                default : System.out.print(z=z+8 + " ");
                case 6: System.out.print( z=z+4 + " ");
                }
                z--;
                }
        }
}
```

What would be the output of the preceding program out of the following?

A. 4 7 15 19 B. 12 16 C. 4 7 15 D. 12 16 24 28

A 3: Option D is correct.

Explanation: Option D is correct Initially the variable z is initialized with 3, which becomes 4 inside the for loop therefore, the cases before default becomes false and default statement prints 12 then statement following default is executed because break is not used after default and therefore 16 will be printed. Then, the value of z decreases by 1 and becomes 15. Now, for loop executes once again and z becomes 16 and same process continued and z becomes 24 in default case and 28 in next case. Option B is incorrect because for loop is executed two times. Option A is incorrect because value of z is 4 and none of the case statement is 4 and same is the case in option C.

QUESTION 2.4

Q 4: Imagine, you as a student provided with the following program during a class test:

```
class Student {
        public static void main(String args[]){
                int z=6, k;
                for(int i=0; i<2;i++) {
                        z++;
                        switch(z) {
                                case 3: System.out.print(z=z+1 + " ");
                                case 5: System.out.print(z=z+2 + " ");
                                break;
                                default : {
                                for (int x=10; x>3; x++) {
                                        System.out.print(x=k+x + " ");
                                }
                        }
                        case 6: System.out.print( z=z+4 + " ");
                }
                z--;
                }
        }
}
```

What would be the output of the preceding program?

A. Program will display 8 10 as an output B. Program will not compile successfully

C. Program runs infinity endless D. Program will display 8 10 10as an output

A 4: Option B is correct.

Explanation: Option B is correct. Program will not compile because k is not initialized.

Option C will be correct when k is initialized but this time it is incorrect.

Options A and D are incorrect because the program will not compile successfully.

QUESTION 2.5

Q 5: Imagine, you are a trainer in the XYZ company and during training session you asked one trainee to write code to implement the labeled continue statement. The trainee had written the following program:

```
public class Sam {
        public static void main(String args[]) {
                int x,y;
```

```
                    skip:
                    for(x=2; x<4; x++) {
                            System.out.print(x + " ");
                            for(y=0; y<6;y++) {
                                    System.out.print(y + " ");
                                    if (x==y) {
                                            continue skip;
                                    }
                            }
                    }
            }
    }
```

What happens when you compile and run the preceding program? Choose the correct option from the following options:

A. Program will display 2 0 1 2
B. Program will display 2 0 1 2 3 0 1 2 3
C. Program will display 2 0 1 3 0 1 2 3
D. Program will not compile successfully

A 5: Option B is correct.

Explanation: Option B is correct. First the outer loop will print the value of x and then the control transfers to inner loop and value of y will be printed and then the condition is checked. Condition is met when x==y i.e. both are 2 at that time control will transfers to outer loop and the process continues once again.

Option D is the incorrect answer because the program will compile and execute.

QUESTION 2.6

Q 6: Suppose, you as a trainee provided with an incomplete Java program in which you have to add some code so that program would work. The program and code that had to be inserted is as follows:

```
public class Abc {
        public static void main(String args[]) {
                // add code
        }
        void add( ) {
                int x, y,z;
                x=y=5;
                System.out.println( z=x+y);
        }
}
```

The code snippets that could be inserted are as follows:

```
A.try{new Abc().add();}catch(Error e)                {System.out.println(e);}
b. new Abc().add();
```

The program was compiled by inserting both snippets one by one. Choose the correct output out of the following:

A. Both options let the program be successfully compiled
B. Option A is correct while B is incorrect
C. Option B is correct while A generates compile time error
D. The program will print 10 in both the cases

A 6: Option A and D are correct.

Explanation: Option A and D are correct. In both the cases, object of class is created and used to call add () method. Rests of the options are incorrect because both the options are correct.

QUESTION 2.7

Q 7 Rose during an interview was provided with some program in which an array element was being divided by some number. The program is as follows:

```
import java.io.*;
public class Rose{
        public static void main(String args[]){
                int c=0;
                int y[]={5, 4, 0,6};
```

```
                    for(int i=0; i<y.length;i++){
                            System.out.println(y[6]/c);
                    }
            }
    }
```

Choose the correct exception that can be thrown among the following options:

A. ArithmeticException
B. ArithmeticException, ArrayIndexOutOfBoundsException
C. RuntimeException
D. IOException

A 7: **Correct options are B and C.**

Explanation: Correct options are B and C although only C can be used but it is better to thrown an exception that is exactly related to particular Exception rather than throwing its super class exception.

Option A is incorrect because it is incomplete.

Option D is incorrect because no I/O operation is being performed in the program.

QUESTION 2.8

Q 8: **Sam during an interview was provided with following statements and asked to choose the correct statements regarding if…else statement:**

A. An if statement can not be used without else statement
B. An else statement can be used without if statement
C. An if statement must evaluates a boolean expression
D. if(true) { } else { } is legal statement

A 8: **Option C and D are correct.**

Explanation: Option C and D are correct. Option C is a rule while option D is implementing that rule. Option A is incorrect because an if statement can be used without else statement. Option B is incorrect because an else statement can not be used without if statement.

QUESTION 2.9

Q 9: Rems as a student was provided with the following code snippet

```
public void Rems(float c) {
        switch (c) {
                case 5:
                case 7:
                case 2:
                default:
                case 9.5:
        }
}
```

After viewing the code snippet Rems was asked to notice the problems in preceding code snippet on the basis of the rules regarding switch…case statement. Following are the options from which Rems has to choose the correct answer

A. There is no problem in the code snippet
B. Switch cannot evaluate float value
C. The default statement can not be used between case statements
D. All cases must be in increasing order

A 9: **Option B is correct.**

Explanation: Option B is correct because switch…case statement can evaluate to a char, byte, short, int, or enum. Therefore

Option A is incorrect because float value is being used as a case, which is not allowed.

Option C is incorrect because default can be used anywhere in switch…case block.

Option D is incorrect because it is not necessary that cases must be in increasing order

QUESTION 2.10

Q 10: **Rose as a faculty given following options to her students and asked them to choose the correct options:**

A. A switch statement can only evaluate to float and double values

B. A switch…case block must have break statements after every case
C. Switch case must be similar to switch expression type
D. A switch…case can be nested like nested if…else

A 10: Option D is correct.

Explanation: Option D is correct because it is a fact.

Option A is incorrect because a switch…case cannot evaluate float and double.

Option B is incorrect because there is no need to have break statement after every case.

Option C is incorrect, for example, your case expression is of char type but you used 65 as case label then internally that 65 is recognized as char A. Therefore, case expression and case label can be varied but must take attention before using them

QUESTION 2.11

Q 11: Sam during an interview was provided with following code and asked to review the program:

```
public class Sam {
        public static void main(String args[]) {
                int x=0, i=0;
                for (int y=0; y>=i; ++y,i++) {
                        System.out.println(y);
                        System.out.println(i);
                }
        }
}
```

After reviewing the code he was asked to predict the correct options among the following:

A. Program will print 0 0 for first time
B. Program results in an endless loop
C. Program will not compile because declaration is not allowed inside the for loop
D. Program will successfully compile and print 0 0 on execution and then terminates

A 11: Option B is correct.

Explanation: Option B is correct because the value of y will always be equals to i and therefore loop will never terminates so, option A is incorrect.

Option C is incorrect because declaration can be done inside the for loop.

Option D is incorrect because program will successfully compile but when executes it becomes an endless loop.

QUESTION 2.12

Q 12: Rose during an interview was shown the following program:

```
class Rose {
        public static void main(String args[]) {
                int x = 0;int y=9;
                for (   ; x<y; ) { x++; y++;}      // (a)
                for (x; x==y; --x) continue;       // (b)
                for (x=0; x<5;    ) { x++; }     // (c)
                for (   ;     ;    ) ;           // (d)
        }
}
```

What would be the output of the preceding program from the following options?

A. Program will successfully compile and executes but does not print any value
B. Program will successfully compile and becomes endless because of loop d
C. Program will not compile because loop b is syntactically incorrect
D. Program will not compile because loop a has only expression part but missing initialization and increment/decrement part

A 12: Option C is the correct answer.

Explanation: Correct answer is option C because the loop is not initialized. Therefore, options A and B are incorrect. Option D is incorrect because syntax of loop is correct.

QUESTION 2.13

Q 13: Sam was given the following code snippet during an interview and asked to choose all correct decisional and loop statements:

```
int y=9;
for (   ;true ; ) { break;}      // 1
if(y==9) { break; }             // 2
switch(y) {default: break;} // 3
do ( ){ // code } while(expression); // 4
while (  ) { //code } // 5
```

Options:

A. Statement 1 and 3 are correct
B. Statement 1, 2, and 3 are correct
C. Statement 1, 3, and 5 are correct
D. Statement 1,4, and 5 are correct
E. Statement 1,2, and 4 are correct

A 13: Correct option is A.

Explanation: Correct option is A. Reason for all other options can be verified on the basis of following facts:

- The break statement can only be used in looping constructs and if need to use with if then if must be inside a loop
- The do… while do not have expression part with do i.e. do ( ). The expression is used in while block.
- The while block cannot be used without specifying expression.

QUESTION 2.14

Q 14: Rem during an interview was provided with the following program:

```
class Rose {
        public static void main(String args[]) {
                int x, y, k; y=3;
                label:
                for (x = 0; x < y; x++) {
                for (k = 0; k < 2; k++) {
                if (x == k) {
                        continue label;
                }
                System.out.println(x + " and " + k);
                }
                }
        }
}
```

What would be the output of the preceding program?

A. Program will displayed 0 and 0 as an output
B. Program will displayed 1 and 0 as an output
C. Program will displayed 1 and 1 as an output
D. Program will displayed 2 and 0 as an output
E. Program will displayed 1 and 2 as an output
F. Program will displayed 2 and 1 as an output
G. Program will displayed 2 and 2 as an output

A 14: Correct options are B, D, and F.

Explanation: Correct options are B, D, and F. First time values of x and k are 0 therefore the if expression inside the inner for loop evaluates to true and the control will transfers to outer loop. For the second time value of x becomes 1 while of k becomes 0 so the process continues and therefore 1 and 0 values are printed out. In this way, process continues until x < 3 and k <2 are not satisfied.

Rest all other options are incorrect as they are representing wrong output.

QUESTION 2.15

Q 15: Rose during an interview was provided with an incomplete program as follow:

```
class Rose{
```

```
        // implement method
        public static void main(String args[]) {
                Rose r= new Rose(); r.max(0,5);
        }
}
```

Rose was then asked to choose the correct code from the following to implement in the preceding incomplete program to return the minimum of two numbers:

A. int min (int k, int l) { if (k < l) { return k; return l; }}
B. int min (int k, int l) {switch (k < l) {case true : return k; default: return l; }
C. int min (if (k < l) { return k; } else { return l; }
D. int min (int k, int l) {return (if (k <l) {k; } else { l; });

A 15: Option C is the correct option.

Explanation: Option C is the correct option.

Option A is incorrect because consecutive return statements cannot be used. Option B is incorrect because we cannot use expression k<1 with switch statement. Option D is syntactically incorrect

QUESTION 2.16

Q 16: Sam was given the following program by his teacher:

```
class Sam {
        public static void main(String args[]) {
                int y=2;int i;
                for (i=0; i <= 3; i++) {
                        if (i == 2) {
                                break;
                        }else {
                        y++;}
                }
                System.out.println(i + ", " + y);
        }
}
```

What would be the output of the preceding code?

A. Program will display 2 , 2 as an output
B. Program will display 2 , 3 as an output
C. Program will display 2 , 4 as an output
D. Program will display 1 , 2 as an output

A 16: Option C is the correct.

Explanation: Option C is the correct output. Inside the for loop condition i==2 is checked and when it evaluates to false the value of y will increment by 1. This process continues until i is not equal to 2. When the condition i==2 evaluates to true then the loop terminates and the vales of i and y are printed.

Rest all of the options are incorrect as they are representing incorrect output.

QUESTION 2.17

Q 17: Rose created the following program to divide a number by zero and put the code in try-catch-finally to handle the raised exceptions:

```
public class Rose
{
        public static void main(String args[])
        {
                int i=0;
                try
                {
                        if (args.length == 0) {
                                return;
                        }else{
                                int x=Integer.parseInt(args[i]);
                                try{
                                        x =x/0;
                                }catch (ArithmeticException e) {
                                        System.out.print("Divied by 0, ");
                                } finally {
                                        System.out.print("Try again, ");
                                }
                        }
```

```
                } finally {
                        System.out.print("Outer Try");
                }
        }
}
```

When this program is executed then the value 5 is passed at runtime. Choose the correct option among the following as the result of the preceding program:

A. Divided by 0, Try again, and Outer Try
B. Divided by 0 and Try again
C. Try again and outer try
D. Divided by 0

A 17: Option A is correct.

Explanation: Option A is correct. Whatever the number is entered by user at runtime, ArithmeticException will be generated so, Divide by 0 is printed, followed by statements written in finally blocks including outer try block. Therefore, all other options are incorrect.

QUESTION 2.18

Q 18: Sam during an interview was given the following options and asked to choose the correct option:

A. RuntimeException must either be caught or declared to be thrown
B. NullPointerException is thrown when an object is trying to be accessed through a null object reference.
C. The catch block can be used without a try block
D. The finally block will execute only when any exception will raise in try block

A 18: Option B is correct.

Explanation: Option B is correct as it is a fact.

Option A is incorrect because RuntimeException does not to be caught or declared to be thrown.

Option C is incorrect because catch must be used with try block.

Option D is incorrect because finally block will always execute whether any exception will rise in try block or not.

QUESTION 2.19

Q 19: Rems during a training session was shown the following program to predict the correct output:

```
public class Rems {
        void get ( ) {
                int k[]= { 5, 7, 6, 2 , 8};
                for ( int x=0; x<k.length; x++) {
                        throw new InstantiationException ();
                }
        }
        public static void main(String args[])  {
                try{
                        new Rose().get();
                } finally {
                        System.out.println("Always Executes");
                }
                System.out.println(" Statement Out of the try block");
        }
}
```

What happens when Rems compiles and runs the preceding program.?

A. Program will not compile successfully
B. Program will successfully compile and executes without displaying any value
C. Program will display Always Executes, and InstantiationException as an output.
D. Program will successfully compile and display Always Executes

A 19: Option A is correct.

Explanation: Option A is correct because the InstantiationException is being thrown but no code is written to catch the exception or to declare the exception to be thrown. Therefore, all other options are incorrect

QUESTION 2.20

Q 20: Rose and Rems while preparing for Java certification came across the following program:

```
class Rems {
        void get ( ) throws ArrayIndexOutOfBoundsException {
                int k[]= { 5, 7, 6, 2 , 8};
                for ( int x=0; x<k.length; x++) {
                        System.out.print(k[2] + " ");
                }
        }
}
class Rose extends Rems{
        public static void main(String args[]) {
                try{
                        Rems r= new Rose();
                        r.get();
                } catch (IndexOutOfBoundsException ie) {
                        throw new IndexOutOfBoundsException ();
                }
                System.out.print(" Statement Out of the try block");
        }
}
```

What would be the output of the preceding program?

A. ArrayIndexOutOfboundException will be generated
B. 6 6 6 6 6, Statement out of the try block
C. 7 7 7 7 7, Statement out of the try block
D. Program will not compile because main method is not throwing any exception to override the exception thrown in Rems class

A 20: Option B is the correct answer.

Explanation: Option B is the correct answer.

Option A is incorrect because there is no such operation is being performed that will raise the ArrayIndexOutOfBoundsException.

Option C is incorrect because 7 is located at position 1.

Option D is incorrect because it is not necessary that an overriding method throw any exception.

QUESTION 2.21

Q 21: Rose during an interview was shown the following code snippet, which is incomplete and asked to insert the code snippet from the given options to generate assertion error:

```
class Rose{
public static void main(String args[]){
int x=5; int y=6;
// insert code snippet
}
}
```

Options are:

A. assert (x!=y): "OK";
B. assert (x>y);
C. assert (x<y): "Its OK";
D. assert (true): "its fine";

A 21: Option B is the correct.

Explanation: Option B is the correct answer because x is less than y therefore it will lead into an assertion error. All other options are incorrect because they will not lead into assertion error.

QUESTION 2.22

Q 22: Mike during an interview was given the following program and asked to predict the output from the given options:

```
public class Rose{
        public void get(int k, int l, int m) {
                assert ( k > l && k > m) : " its ok";
                System.out.println(" Its assertion");
```

```
        }
        public static void main(String[] args) {
                Rose r = new Rose();
                r.get(10, 20, 5);
        }
}
```

What happens when he compile and run the preceding program?

A. Program will not compile because a non-static method cannot be called within a static method
B. Program will successfully compile and executes without displaying any output
C. Program will successfully compile and executes and also prints Its assertion
D. Program will generate the AssertionError error.

A 22: Option D is correct.

Explanation: Option D is correct because the values passed in get method are 10, 20, and 5, which are stored in variable k, l, and m respectively. When assert checks for the expression it will be found that the value stored in the variable k is greater than the value stored in the variable l. Therefore, the expression becomes false and AssertionError is generated.

QUESTION 2.23

Q 23: Rems and Sam while preparing for Java certification exam successfully compiled the following program:

```
class Rose{
        public void rsam(int k) {
                int x=k;
                for( int i=3; i<x; i++){
                        for (int j=2; j<x-2; j++){
                        int y = i + j;
                        System.out.println( i + " + " + j + " = " + y);
                }
                }
        }
        public static void main(String[] args) {
                Rose r = new Rose();
                r.rsam(5);
        }
}
```

What would be the correct set of outputs from the following options?

A. 3 + 2 = 5 B. 3 + 3 = 6 D. 4 + 2 = 6
E. 4 + 3 = 7 F. 5 + 2 = 7 G. 5 + 3 = 8

A 23: Option A and C are correct.

Explanation: Option A and C are correct. Firstly the value of i=3 and j=2 so addition is 5. Then, value of j increases by 1 and expression becomes false, therefore inner loop terminates and control transfers to outer loop. Here, i=4 and j becomes 2 and addition becomes 6.

QUESTION 2.24

Q 24: Rose after attending a lecture on for statement was shown the following for statements to choose the correct for statement:

A. for(int j=2; j*j==4, j<4; j++)
B. for (int j=3; j/2==1; j++)
C. for (int j=3, long k=0; j>k; j++)
D. int k, j; for (j=3, k=2; k==j-1; k++, j--)

A 24: Options B and D are correct for statements.

Explanation: Options B and D are correct for statements.

Option A is incorrect because multiple conditions cannot be used in for statement.

Option C is incorrect because different type of initialization variable cannot be declared inside the for loop rather they can be declared outside the for loop.

QUESTION 2.25

Q 25: Sam works in Xyz Company as Java programmer and he designed the following program:

```
class Rose{
```

```
        public void sam() {
                int y[] = {4, 2, 8};
                for (int x=2; x<1+3*2-4; x++){
                        System.out.print(x+" ");
                        for (int j:y) {
                                j=j*x-4;
                                System.out.print(j+" ");
                        }
                }
        }
        public static void main(String[] args) {
                Rose r = new Rose();
                r.sam();
        }
}
```

What would be the output of this program? Choose the correct option from the following:

A. The program displays 2 4 2 8
B. The program displays 2 4 0 12
C. The program displays 2 4 4 16
D. The program displays 3 4 0 12

A 25: Correct option is B.

Explanation: Correct option is B. Firstly the value of the variable x is 2, which is less than the 3 (value specified in expression) therefore control will transfer into for each loop and prints the array variable with modifications according to the expression. Array element is fetched into j. First array element is 4 and the expression is j*x-4 i.e. 4*2-4=4. In the same way, other array elements are extracted and displayed with modifications.

QUESTION 2.26

Q 26: Sam works in a xyz company and he designed the following program:

```
import java.util.*;
class Rose {
        public static void main (String args[]) {
                ArrayList <Integer> arraylist = new ArrayList<Integer>();
                arraylist.add(0);
                arraylist.add(2);
                arraylist.add(3);
                arraylist.add(4);
                int y= arraylist.size();
                switch(y) {
                        case 0: System.out.println(0);break;
                        case 2: System.out.println(2);break;
                        case 4: System.out.println(4);break;
                        case 5: System.out.println(5);break;
                        default: System.out.println("Default");
                }
        }
}
```

What would be the answer of the preceding program?

A. Program will not compile successfully because ArrayList class do not have size () method rather it has getSize() method.
B. Program will print Default
C. Program will print 4
D. Program will print 5

A 26: Option C is correct.

Explanation: Option C is correct. The arraylist.size () method retrieves the size of ArrayList and assign that to the variable y. The variable y is then passed into switch and because the total number of elements in the arraylist is 4 therefore the case 4 will be executed.

Option A is incorrect because the ArrayList class has size() method.

QUESTION 2.27

Q 27: John as a programmer created the following program:

```
class Rose {
        public static void main (String args[]) {
                int x=2; int y=6;
                if( x!=y || (y*=x)!=x) {
                        System.out.println(" Not equal");
```

```
                }else{
                        System.out.println(" Equal");
                }
        }
}
```

What happens when he compile and run the preceding program?

A. Program will display Equal
B. Program will display Not Equal
C. Program will not compile successfully because if statement is not correct
D. Program will compile but not executes

A 27: Option B is the correct answer.

Explanation: Option B is correct because the first expression in if statement evaluates to true therefore second expression is not checked and the statement in else block is displayed.

Option A is incorrect because if statement evaluates to false.

Options C and D are incorrect because the program compiles and executes successfully

QUESTION 2.28

Q 28: Steve during a training session was shown the following program:

```
public class Rose{
        protected void get(boolean x ) {
                if(x){ System.out.println("True");}
                else { System.out.println("False");}
        }
        public static void main(String[] args) {
                Rose r = new Rose();
                r.get(true);
        }
}
```

What would be the output when the program is compiled?

A. Program will display True
B. Program will display False
C. Program will successfully compile but give runtime error
D. Program will not compile successfully

A 28: Option A is the correct answer

Explanation: Option A is the correct answer because the value true is passed in the get () method from main method. In the get () method, the if expression evaluates to true and statement written in it is displayed. Therefore, the Option B is incorrect.

Option C and D are incorrect because the program will successfully compile and execute.

QUESTION 2.29

Q 29: Rose as a programmer created the following program:

```
public class Rose{
        protected void get(char x ) {
                switch(x){
                        case 88: System.out.println( "X");break;
                        case 90: System.out.println( "Z");break;
                        case 89: System.out.println( "Y");break;
                        default: System.out.println( 0);break;
                        case -97: System.out.println("a");break;
                }
        }
        public static void main(String[] args) {
                Rose r = new Rose();
                r.get('X');
        }
}
```

What would be the output of this program?

A. Program will display X
B. Program will display X0
C. Program will not compile successfully
D. Program will compile successfully but not execute

A 29: Option C is the correct answer.

Explanation: Option C is the correct answer because switch case is designed to accept character values but -97 is an integer value. Therefore, options A, B, and D are incorrect.

QUESTION 2.30

Q 30: Rems and Sam while preparing for Java certification created the following program:

```
public class Rose{
        public static void main(String[] args) {
                char x = 'a';
                switch(x){
                        case 66: System.out.println( "B" +" ");break;
                        case 72: System.out.println( "H"+ " ");break;
                        case 97: System.out.println("a"+ " +);
                        case 89: System.out.println( "Y" + " ");break;
                        default: System.out.println( "default");break;
                }
        }
}
```

What would be the output of this program? Choose the correct option from the following options:

A. Program will display a Y default
B. Program will display a Y
C. Program will not compile successfully because break cannot be used with default case.
D. Program will display A

A 30: Option B is the correct answer.

Explanation: Option B is correct because ASCII equivalent of small a is 97 and because break is not used so, statement following this case is also displayed. Option A is incorrect because break statement is used in case 89 (ASCII equivalent of Y).

Option C is incorrect because break can be used with default statement.

Option D is incorrect because ASCII equivalent of capital A is 65, which is not a case in this program.

QUESTION 2.31

Q 31: Sam as a developer in Dkinfotech created the following program:

```
class Rose {
        static int j;
        public int arr() {
                int y[] = { 5 , 7, 8 , 6};
                j = y[2]; return j;
        }
        public static void main (String args[]) {
                Rose r=new Rose();
                int x = r.arr( );
                System.out.println(x);
                switch(x) {
                        case 0: System.out.print(0 + " ");break;
                        case 2: System.out.print(2 + " ");break;
                        case 8: System.out.print(8 + " ");
                        case 5: System.out.print(5 + " ");break;
                        default: System.out.print("Default");
                }
        }
}
```

What would be the output when Sam compile and execute this program?

A. Program will not compile successfully
B. Program will display 8 8 5
C. Program will display 8 5
D. Program will display 8

A 31: Option B is the correct answer.

Explanation: Option B is the correct answer. Firstly the control will transfer to arr () method and retrieves the array element at array[2] index and returns that value to calling routine. In the calling routine the retrieved value is first displayed and then used in switch statement. Therefore, the result is 8 8 and 5 is displayed because the case 8 does not have break and 5 is the statement written in next case. Therefore, options C and D are incorrect.

Option A is incorrect because program will successfully compile.

QUESTION 2.32

Q 32: Rose works as a programmer in Xyz Company and during a project she designed the following program:

```
public class Rose {
        public static void main(String args[]) {
                int input, result;
                try{
                        input= 5;
                        result= input/0;
                        System.out.println(result);
                }catch (ArithmeticException a) {
                        a.printStackTrace();
                }
                catch (Exception e) {
                        e.printStackTrace();
                }
                finally {
                        System.out.println("Arithmetic Exception / 0");
                }
        }
}
```

What would be the output of this program?

A. Program will generate Java.lang.ArithmeticException: / Zero error
B. Program will display Arithmetic Exception / 0
C. Program will display Java.lang.ArithmeticException: / Zero and Arithmetic Exception / 0
D. Program will successfully compile and execute

A 32: Option C is the correct answer

Explanation: Option C is the correct answer because when exception is raised it is first caught by catch block and then the finally block will be executed. Therefore options A and B are incorrect.

Option D is incorrect because program will successfully compile but not execute. During execution exception will be generated.

QUESTION 2.33

Q 33: Jane works as a programmer in Xyz company and she designed the following program:

```
class Rose
{
        public void arr()
        {
                try
                {
                        int y[] = { 2 , 7, 8 , 6};
                        for (int j=0; j< y.length; )
                        {
                        j++;
                        y[j] = y[j-1];
                        System.out.print(y[j] + " ");
                        }}catch(IndexOutOfBoundsException ie)
                        {
                                ie.printStackTrace();
                        }
                        catch(Exception e) {
                                e.printStackTrace();
                        }
                }
        public static void main (String args[])
        {
                Rose r=new Rose();
```

```
                r.arr( );
        }
}
```

What would be the output of this program?

A. Program will display 2 2 2 ArrayIndexOutOfBoundsException
B. Program will display 2 2 2 2
C. Program will not compile successfully
D. Program will display 7 8 6 ArrayIndexOutOfBoundsException

A 33: Option A is the correct answer.

Explanation: Option A is the correct answer. Firstly, the value of j is 0, which is less than array length so control will go inside the for loop. Now, j=1, which again decreases by 1 in next statement and the value at that position is displayed. This is happened for three times and at the fourth time exception is generated. Option C is incorrect because the program will successfully compile.

QUESTION 2.34

Q 34: Hem during a training session was asked to create a program to handle Arithmetic exception and he designed the following program:

```
class Rose {
        public void arr() {
                try{
                        int y= 5, j=0;
                        System.out.println(y=y/0);
                }catch(Exception e)
                {
                        e.printStackTrace();
                }catch(ArithmeticException ae)
                {
                        ae.printStackTrace();
                }finally{
                        System.out.println("Hi");
                }
        }
        public static void main (String args[]) {
                Rose r=new Rose();
                r.arr( );
        }
}
```

What would be the output of this program?

A. Program will display ArithmeticException and Hi
B. Program will display Only Hi
C. Program will generate Compile time error
D. Program will generate only ArithmeticException exception

A 34: Option C is correct

Explanation: Option C is the correct answer because the Exception class is used before ArithmeticException, which is a subclass of Exception class. It is not allowed to use superclass before subclass while handling exceptions. Therefore, all other options are incorrect.

QUESTION 2.35

Q 35: Sam works as a developer in Xyz Company and he created the following program:

```
class Rose {
        public void arr() throws ArithmeticException {
                int y= 5, j=0;
                System.out.println(y=y/0);
                System.out.println(y, j);
                catch(Exception e) {
                        e.printStackTrace();
                }
        }
        public static void main (String args[])
        {
                Rose r=new Rose();
```

```
                r.arr( );
        }
}
```

What would be the output when Sam tries to compile and execute this program?

A. Program will display ArithmeticException / 0 will be raised
B. Program will not compile successfully
C. Program will compile successfully and execute without displaying any value
D. Program will display 5 0

A 35: Option B is the correct answer

Explanation: Option B is the correct answer because catch cannot be used without a try block. Therefore all other options are incorrect.

QUESTION 2.36

Q 36: Jane and Steve while preparing for Java certification designed the following program to handle exception:

```
class Rose {
        public void arr() {
                try{
                        int y= 5, j=0;
                        System.out.print(y=y/0 + " ");
                }catch(Exception e)
                {
                        e.printStackTrace();
                }
                System.out.print("Hi" + " ");
                finally{
                        System.out.print("Hi");
                }
        }
        public static void main (String args[])
        {
                Rose r=new Rose();
                r.arr( );
        }
}
```

What would be the output of this program?

A. Program will display ArithmeticException, Hi, Hi
B. Program will display Hi Hi
C. Program will generate Compile time error
D. Program will display ArithmeticException Hi

A 36: Option C is the correct answer

Explanation: Option C is the correct answer because a statement is written between catch and finally block but according to the rule try-catch-finally block must be in continuation.

Options A, B, and D are incorrect because the program will not compile and these options are representing runtime values.

QUESTION 2.37

Q 37: Sam as a Java developer created the following program:

```
class Rose {
        public static void main (String args[]) {
                try{
                        int j=0, x;
                        x=Double.parseDouble(args[j]);
                        System.out.println(x/0);
                }catch(Exception e) {
                        System.out.println("Hi");
                }
        }
}
```

What happens when he compile and run the preceding program?

A. Program displays Hi
B. Program generates ArithmeticException exception
C. Program generates Compile time error
D. Program will successfully compile but does not print any value

A 37: Option C is the correct answer

Explanation: Option C is the correct answer because we are parsing the command line argument in double value but assigning that parsed value into an integer value. All other options are incorrect as they are related with runtime values.

QUESTION 2.38

Q 38: Sam during an interview was shown the following code:

```
class Rose {
        public static void main (String args[]) {
                try{
                        for(int j=0; j<args.length;j++) {
                        System.out.println(args[j]-1);
                }}catch(ArrayIndexOutOfBoundsException ne)
                {
                        ne.printStackTrace();
                }
                catch(Exception e) {
                        System.out.println("Hi");
                }
        }
}
```

What happens when he compile and execute the preceding program?

A. Program deducts 1 from each array element passed on command line and then display array elements
B. Program generates compile time error
C. ArrayIndexOutOfBoundsException
D. Program displays Hi

A 38: Option B is the correct answer

Explanation: Option B is the correct answer because we are trying to subtract 1 from a string value which is not allowed. All other options are incorrect because they are related to runtime values

QUESTION 2.39

Q 39: Jane works as a developer and she created the following program:

```
class Rose {
        public static void main (String args[]) {
                try{
                        int x[]= {};
                        System.out.println(x.length);
                        for(int j=0; j<=x.length;j++) {
                        System.out.println(x[j+1]);
                }}catch(IndexOutOfBoundsException ne)
                {
                        ne.printStackTrace();
                }
                catch(Exception e) {
                        System.out.println("Hi");
                }
        }
}
```

What would be the output when this program is compiled and executed?

A. Program will display 0 Hi
B. Program will display 0 java.lang.ArrayIndexOutOfBoundsException
C. Program generates compilation error because array is not initialized
D. Program will display 0

A 39: Option B is the correct answer

Explanation: Option B is the correct answer because the array x is not initialized but its elements are trying to be accessed. Option A is incorrect answer because Hi is the statement, which is written in second catch block and that block is never reached in this program.

Option C is incorrect because the program will successfully compile.

Option D is incorrect because along with array length exception will also be generated.

QUESTION 2.40

Q 40: Sam and Jane while preparing for Java certification came across the following program:

```
class Rose {
        public static void main (String args[]) {
                try{
                        Object obj= new String ("Hello");
                        System.out.print(obj + " ");
                        Integer in= (Integer) obj;
                        System.out.println(in);
                }catch(ClassCastException ce){
                        ce.printStackTrace();
                }
                catch(Exception e) {
                        System.out.print("Hi");
                }
        }
}
```

What would be the output of the program?

A. Program will display Hello
B. Program generates compilation error because an object of String class is being created using Object class
C. Program will display Hello Hello
D. Program will handle ClassCastException exception and Hello

A 40: Option D is the correct answer

Explanation: Option D is the correct answer firstly the statement followed by creating the object of String class is displayed but when the control come to next statement where obj is trying to be parsed into an integer type then ClassCastException will be generated.

Option A is incorrect because along with Hello, ClassCastException will also be generated.

Option C is incorrect because after displaying first Hello exception will be raised.

Option B is incorrect because the program will successfully be compiled.

QUESTION 2.41

Q 41: Jane created the following program while preparing for Java certification:

```
class Rose {
        public static void main (String args[]) {
                try{
                        for(int x=0; x<4; x=x+3/2) {
                                System.out.print(x + " ");
                        }
                }catch(Exception ce){
                        ce.printStackTrace();
                }
                catch(ArithmeticException e) {
                        System.out.print("Hi");
                }
        }
}
```

What would be the answer of this program?

A. Program will display 0 1 2 3
B. Program generates compilation Error
C. Program will display 0 1 2
D. Program generates runtime error

A 41: Option B is the correct answer

Explanation: Option B is the correct answer because Exception class is already used in the first catch handler therefore an error specifying that ArithmeticException has already been caught is generated.

Options A, B, and D are incorrect because they all are related to runtime values

QUESTION 2.42

Q 42: Sam works as a programmer in Xyz Company and he created the following program to read data from a file:

```
import java.io.*;
class Rose {
        public static void main (String args[]) {
                try{
                        FileReader f= new FileReader("abd.txt");
                        BufferedReader br=new BufferedReader(f);
                        String str;
                        while((str=br.readLine())!=null) {
                                System.out.println(str );
                        }
                }catch(FileNotFoundException ce) {
                        ce.printStackTrace();
                }
                catch(IOException e) {
                        System.out.println("Hi");
                }
        }
}
```

Which of the following exception will be generated when the specified file is not available?

A. NoClassDefFoundException
B. FileNotFoundException
C. EOFException
D. IllegalArguementException

A 42: Option B is the correct answer

Explanation: Option B is the correct answer because it is thrown when the specified file is not available.

Option A is incorrect because this exception is thrown when you try to execute a class which is not available. Option D is incorrect because this exception is thrown when an illegal argument is being passed in a method.

QUESTION 2.43

Q 43: Sam works as a programmer in Xyz Company and he created the following program:

```
class Rose {
        public static void main (String args[]) {
                // write appropriate code here
                switch(k) {
                        case 65: System.out.println("hello");
                        case 'k': System.out.println("Hi");
                        case 'j': System.out.println("Java");
                        break;
                        default: System.out.println("default");}
        }
}
```

You have to choose appropriate code snippet from the following code snippets to replace the "// write appropriate code here" statement in the preceding program so that "hello Hi Java" can be printed:

A. int k = 65
B. char k= (char) 65;
C. char k='A'
D. int k ='65'

A 43: Options B and C are the correct answers

Explanation: Options B and C are the correct answers because the ASCII equivalent of 65 is A.

Option B converts the 65 in its character equivalent i.e. A. Option C is correct because the compiler interprets the characters in term of ASCII codes and therefore A is internally stored as 65. Options A and D are incorrect because the cases are of character type.