

AP COMPUTER SCIENCE A – QUIZ 4 STUDY GUIDE

9) Consider the file `problem_9.txt` which contains no spaces

```
13
17.48
-27
Batman
166
```

which file is read in by the program

```
import java.io.BufferedReader;
import java.io.File;
import java.io.FileReader;
import java.io.FileNotFoundException;
import java.io.IOException;
/**/
public class Problem9 {
    /**/
    public static void main ( String [] arg ) {
        /**/
        int i;
        BufferedReader br;
        File f;
        String line;
        /**/
        f=new File("problem_9.txt");
        br=null;
        try {
            br=new BufferedReader ( new FileReader(f) );
        }
        catch ( FileNotFoundException fnfe ) {
            System.out.println();
            System.out.println("\"problem_9.txt\" not found.");
            System.exit(0);
        }
        /**/
        while ( true ) {
            line=null;
            try {
                line=br.readLine();
                if ( line == null ) break;
            }
            catch ( IOException ioe ) { }
            i=-1;
            try {
                i=Integer.parseInt(line);
                System.out.println(i);
            }
            catch ( NumberFormatException nfe ) {
                System.out.println("NumberFormatException");
            }
        }
        /**/
        return;
    }
}
```

What is the output of the program?

Ans.

13
NumberFormatException
-27
NumberFormatException
166

10) What is the output of the program?

```
public class Problem10 {  
    /**/  
    public static void main ( String [] arg ) {  
        /**/  
        int a, b, c;  
        int [] ia = new int [] { 7 , 8 , 3 , 2 , 9 };  
        /**/  
        a=Integer.MIN_VALUE;  
        b=Integer.MAX_VALUE;  
        c=0;  
        for ( int i=0; i<ia.length; ++i ) {  
            if ( ia[i] > a ) a=ia[i];  
            if ( ia[i] < b ) b=ia[i];  
            c += ia[i];  
        }  
        /**/  
        System.out.println(a);  
        System.out.println(b);  
        System.out.println(c);  
        /**/  
        return;  
    }  
}
```

Ans.

9
2
29

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11) What is the output of the program?

```
public class Problem11 {
    /**/
    public static void main ( String [] arg ) {
        /**/
        int min, iMin, temp;
        int [] ia = new int [] { 7 , 8 , 3 , 2 , 9 };
        /**/
        for ( int p=0; p<ia.length-1; ++p ) {
            min=Integer.MAX_VALUE; /* line 9 */
            iMin=-1;
            for ( int i=p; i<ia.length; ++i ) {
                if ( ia[i] < min ) { /* line 12 */
                    min=ia[i];
                    iMin=i;
                }
            }
            temp=ia[p];
            ia[p]=ia[iMin];
            ia[iMin]=temp;
        }
        /**/
        for ( int i=0; i<ia.length; ++i ) System.out.println(ia[i]);
        /**/
        return;
    }
}
```

Ans.

2
3
7
8
9

12) If, in problem 11, line 9 is changed to

```
min=Integer.MIN_VALUE
```

and line 12 is changed to

```
if ( ia[i] > min ) {
```

then what would be the output of the program?

Ans.

9
8
7
3
2

13) What is the output of the program?

```
public class Problem13 {  
    /**/  
    public static void main ( String [] arg ) {  
        /**/  
        int numTokens;  
        String s, t;  
        String [] tokens;  
        /**/  
        s="John Quincy Adams"; /* contains 2 spaces */  
        tokens=s.split(" "); /* contains 1 space */  
        numTokens=tokens.length;  
        t=tokens[numTokens-1];  
        for ( int i=0; i<numTokens-1; ++i ) t += tokens[i];  
        /**/  
        System.out.println(t);  
        /**/  
        return;  
    }  
}
```

Ans.

AdamsJohnQuincy

14) What is the output of the program?

```
public class Problem14 {  
    /**/  
    public static void main ( String [] arg ) {  
        /**/  
        int numTokens;  
        String s;  
        String [] tokens;  
        /**/  
        s=":::SpongeBob::loves:Gary";  
        tokens=s.split(":");  
        numTokens=tokens.length;  
        System.out.println(numTokens);  
        /**/  
        return;  
    }  
}
```

Ans.

7

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15) What is the output of the program?

```
public class Problem15 {  
    /**/  
    public static void main ( String [] arg ) {  
        /**/  
        int numTokens, num, k;  
        String s;  
        String [] tokens, sa;  
        /**/  
        s=":::John::Quincy::Adams";  
        tokens=s.split(":");  
        numTokens=tokens.length;  
        num=0;  
        for ( int i=0; i<numTokens; ++i ) {  
            if ( !tokens[i].equals("") ) ++num;  
        }  
        sa=new String [num];  
        k=0;  
        for ( int i=0; i<numTokens; ++i ) {  
            if ( !tokens[i].equals("") ) sa[k++]=tokens[i];  
        }  
        /**/  
        System.out.println(numTokens);  
        System.out.println(num);  
        for ( int i=0; i<num; ++i ) System.out.println(sa[i]);  
        /**/  
        return;  
    }  
}
```

Ans.

8

3

John

Quincy

Adams

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Problems **16** and **17** concern the class Problems16and17 listed here:

```
public class Problems16and17 {
    /**/
    private int [][] x, y;
    /**/
    public Problems16and17 () {
        /**/
        x=new int [][] {
            { 2 , 3 , 4 },
            { 5 , 6 , 7 }
        };
        /**/
        y=new int [][] {
            { 8 , 9 } ,
            { 10 , 11 } ,
            { 12 , 13 }
        };
    }
    /**/
    public int [][] doStuff () {
        /**/
        int xRows, xCols, yCols;
        int [][] z;
        /**/
        xRows=x.length;
        xCols=x[0].length;
        yCols=y[0].length;
        z=new int [xRows][yCols];
        for ( int i=0; i<xRows; ++i ) {
            for ( int j=0; j<yCols; ++j ) {
                z[i][j]=0;
                for ( int k=0; k<xCols; ++k ) z[i][j] += x[i][k]*y[k][j]; /* line 31 */
            }
        }
        /**/
        return z;
    }
}
```

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16) What is the output of the program?

```
public class Problem16 {
    /**/
    public static void main ( String [] arg ) {
        /**/
        int [][] z;
        Problems16and17 p1617;
        String line;
        /**/
        p1617=new Problems16and17();
        z=p1617.doStuff();
        /**/
        for ( int i=0; i<z.length; ++i ) {
            line="";
            for ( int j=0; j<z[0].length; ++j ) {
                line += String.format("%4d",z[i][j]);
            }
            System.out.println(line);
        }
        /**/
        return;
    }
}
```

Ans.

```
94 103
184 202
```

17) If in class Problems16and17, line 31 was changed to

```
for ( int k=0; k<xCols; ++k ) z[i][j] += x[i][k]+y[k][j];
```

then what would be the output of program Problem16?

Ans.

```
39 42
48 51
```

18) What is the output of the program?

```
public class Problem18 {  
    /**/  
    public static void main ( String [] arg ) {  
        /**/  
        boolean a, b;  
        String s, t;  
        /**/  
        s="SpongeBob";  
        t="Gary";  
        a = ( s.compareTo(t) < 0 );  
        b = ( t.compareTo(s) < 0 );  
        System.out.println(a);  
        System.out.println(b);  
        /**/  
        return;  
    }  
}
```

Ans.

false

true

Problems **19** and **20** concern the file `problems_1920.txt` listed here:

```
000000000111111111222222  
1234567890123456789012345  
Sponge   Bob loves   Gary
```


19) What is the output of the program?

```
import java.io.FileNotFoundException;
import java.util.Scanner;
/**/
public class Problem19 {
    /**/
    public static void main ( String [] arg ) {
        /**/
        int numTokens;
        Scanner s;
        String line;
        String [] tokens;
        /**/
        s=null;
        try {
            s=new Scanner("problems_1920.txt");
        }
        catch ( FileNotFoundException fnfe ) {
            System.out.println("File \"problems_1920.txt\" not found.");
            return;
        }
        /**/
        line=s.nextLine();
        line=s.nextLine();
        line=s.nextLine();
        s.close();
        /**/
        tokens=line.split(" "); /* one space */
        numTokens=tokens.length;
        System.out.println(numTokens);
        /**/
        return;
    }
}
```

Ans.

8

20) What is the output of the program?

```
import java.io.File;
import java.io.FileNotFoundException;
import java.util.NoSuchElementException;
import java.util.Scanner;
/**/
public class Problem20 {
    /**/
    public static void main ( String [] arg ) {
        /**/
        int numTokens;
        File f;
        Scanner s;
        /**/
        f=new File("problems_1920.txt");
        s=null;
        try {
            s=new Scanner(f);
        }
        catch ( FileNotFoundException fnfe ) {
            System.out.println("File \"problems_1920.txt\" not found.");
            return;
        }
        numTokens=0;
        while ( true ) {
            try {
                s.next();
                ++numTokens;
            }
            catch ( NoSuchElementException nsee ) {
                s.close();
                break;
            }
        }
        System.out.println(numTokens);
        /**/
        return;
    }
}
```

Ans.