Assignment 07

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Batch: GDSE 68
Module: Programming Fundamentals

1.

a. Statement declares an array called xr.
b. Statement creates a new array of integers with a length of 4 and assigns it to the xr
c.statement prints the xr array reference name.
d.statement prints the value at index 0 of the xr array.
e.This statement assigns the value 100 to the element at index 0.
f.This statement assigns the value 200 to the element at index 1.
g.This statement assigns the value 300 to the element at index 2.
h.This statement assigns the value 400 to the element at index 3.
i.This statement prints the values of elements at indexes 0, 1, 2, and 3 of the xr array, separated by spaces. The output will be 100 200 300 400.

2.

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

                final int ARRAY_SIZE = 10;

                double [] fractions= new double[ARRAY_SIZE];

      fractions[4] = 0;
      fractions[9] = 1.667;
      fractions[6] = 3.333;

                double total=0;

                for (int x = 0; x < fractions.length; x++){

                        total+=fractions[x];

                }

                System.out.println("Total is "+total);

                }

}
```

3.

a.
```
int [] array = new int[5];
```

b.
```
System.out.println("Enter Number 1");
        array[0]= input.nextInt();

        System.out.println("Enter Number 2");
        array[1]= input.nextInt();

        System.out.println("Enter Number 3");
        array[2]= input.nextInt();

        System.out.println("Enter Number 4");
        array[3]= input.nextInt();

        System.out.println("Enter Number 5");
        array[4]= input.nextInt();|
```

c.
```
for (int i = 0; i <array.length; i++){

            System.out.println("Enter Number "+(i+1)+" :");
            array[i]=input.nextInt();

        }
```

d.
```
        System.out.println("Number 1 is "+array[0]);
        System.out.println("Number 2 is "+array[1]);
        System.out.println("Number 3 is "+array[2]);
        System.out.println("Number 4 is "+array[3]);
        System.out.println("Number 5 is "+array[4]);
```

e.
```
for (int i = 0; i < array.length; i++){

            System.out.println("Number "+ (i+1)+" is "+array[i]);

        }
```

4.

a.
```
System.out.println( f[5] );
```

b.
```
int[] g = new int[5];

for (int i = 0; i < g.length; i++) {
    g[i] = 8;
}
```

c.
```
int total=0;

for (int i = 0; i < 100; i++){

        total+=c[i];

}
```

d.
```
for (int i = 0; i < 11; i++){

        a[i]=b[i];
}
```

e.
```
float max=0;
float min= Float.MAX_VALUE;

        for (int i = 0; i < 99; i++){

                if (w[i]>max){

                        max=w[i];
                }

                if (w[i]<min){

                        min=w[i];
                }
        }

System.out.println("Maximum value is"+ max);
System.out.println("Minimum value is"+ min);
```

5.

a.
```
int [ ] ar = {65, 78, 43, 89, 34, 56, 90, 23, 64, 71, 94, 29};
```

b.
```
System.out.println(“Array size is ”+ ar.length);
```

c.
```
System.out.print("[");

 for (int i = 0; i < ar.length; i++) {
          System.out.print(ar[i] + ", ");
    }
    System.out.print("\b\b]");
```

d.
```
System.out.print("[");
        for (int i:ar){

                System.out.print(i+", ");

        }
System.out.print("\b\b]");
```

e.
```
System.out.print("[");
        for (int i:ar){
                if (i%2==1){
                        System.out.print(i+", ");
                }
        }
        System.out.print("\b\b]");
```

f.
```
System.out.print("[");
        for (int i:ar){
                if (i%2==0){
                        System.out.print(i+", ");
                }
        }
        System.out.print("\b\b]");
```

6.

a.
```
int ar [ ] = new int [12];
```

b.
```
for (int i = 0; i < ar.length; i++){

        ar[i]= rand.nextInt(101);

}
```

c.
```
System.out.print("[");
 for (int i = 0; i < ar.length; i++) {
        System.out.print(ar[i] + ", ");
   }
 System.out.print("\b\b]");
```

d.
```
System.out.print("[");
 for (int i = ar.length-1; i >=0 ; i--) {
        System.out.print(ar[i] + ", ");
   }
 System.out.print("\b\b]");
```

e.
```
int total=0;

            for (int i = 0; i < ar.length; i++){

                total+= ar[i];

            }
```

f.
```
int max=0;

            for (int i = 0; i < ar.length; i++){

                if (ar[i]>max){

                    max=ar[i];
                }

            }
```

g.
```
int min= Integer.MAX_VALUE;
        for (int i = 0; i < ar.length; i++){
            if (ar[i]<min){

                min=ar[i];
            }
        }
```

h.
```
System.out.print("[");
    for (int i:ar){
        if (i%2==1){
            System.out.print(i+", ");
        }
    }
    System.out.print("\b\b]");
```

i.
```
System.out.print("[");
    for (int i:ar){
        if (i%2==0){
            System.out.print(i+", ");
        }
    }
    System.out.print("\b\b]");
```

j.
```
System.out.print("[");
    for (int i = 0; i < ar.length; i=i+2){

        System.out.print(ar[i]+", ");

    }
    System.out.print("\b\b]");
```

k.
```
System.out.print("[");
    for (int i = 1; i < ar.length; i=i+2){

        System.out.print(ar[i]+", ");

    }
System.out.print("\b\b]");
```

7.

a.
```
System.out.print("[");
        for (int i:ar){

                System.out.print(i+", ");

        }
        System.out.print("\b\b]");
```

b.
```
for (int i = 0; i < ar.length; i++){
                ar[i]++;
        }
```

c.
```
System.out.print(Arrays.toString(ar));
```

d.
```
if (ar.length==br.length){

                System.out.println("Both arrays are the same size");

        }
```

e.
```
for (int i = 0; i < ar.length; i++){

                ar[i]+=br[i];
        }
```

f.
```
for (int i = 0; i < ar.length; i++){

                ar[i]=br[i];
        }
```

8.

```
import java.util.*;

class main{

        public static void main(String [] args){

                Scanner input=new Scanner(System.in);
                System.out.print("Input no of students : ");
                final int N=input.nextInt();

                //1. Create an array to store student marks
                int [] marks= new int[N];

                //2. Input marks from the keyboard

                for (int i = 0; i < marks.length; i++){
                        System.out.print("Enter student "+(i+1) +" marks: ");
                        marks[i]=input.nextInt();
                }
                //3. find total
                int total=0;

                for (int i = 0; i < marks.length; i++){

                        total+=marks[i];

                }

                //4. find max;

                int max = marks[0];

                for (int i = 0; i < marks.length; i++){

                        if (marks[i]>max){

                                max=marks[i];
                        }

                }

                //5. find min
```

```
		int min = marks[0];
			for (int i = 0; i < marks.length; i++){
				if (marks[i]<min){

					min=marks[i];
				}
			}

		//6. print marks [32, 45, 54, 76, ...]

		System.out.println(Arrays.toString(marks));

		System.out.println("Total : "+total);
		System.out.println("Maximum : "+max);
		System.out.println("Minimum : "+min);
		}

}
```

9.

```
import java.util.*;

class main{

	public static int [] createAnArray(int N){



		return new int[N];
		}
	public static void readMarks(int []marks){

		Scanner input=new Scanner(System.in);

		for (int i = 0; i < marks.length; i++){
			System.out.print("Enter Student "+(i+1)+" Mark: ");
			marks[i]=input.nextInt();
		}


	}


	public static int  total(int []marks){
```

```
        int total=0;
        for (int i = 0; i < marks.length; i++){

                total+=marks[i];

        }

        return total;

        }

public static int max(int []marks){

        int max=marks[0];

        for (int i = 0; i < marks.length; i++){

                if (marks[i]>max){
                        max=marks[i];

                }
        }

        return max;
        }


public static int min(int []marks){

        int min=marks[0];

        for (int i = 0; i < marks.length; i++){

                if (marks[i]<min){
                        min=marks[i];

                }
        }

        return min;

        }
```

```
        public static void printMarks(int []marks){

        System.out.println(Arrays.toString(marks));

        }

        public static void main(String [] args){

                Scanner input=new Scanner(System.in);
                System.out.print("Enter Student Count: ");
                int N= input.nextInt();

                int[] marks=createAnArray(N);
                readMarks(marks);
                int total=total(marks);
                int max=max(marks);
                int min=min(marks);
                printMarks(marks);

                }

    }
```

10.

A
B
D

11.

A
D
E
G

12.

A
B
C
E
F

13.

```
public class test {
   static byte byteValue;
   static short shortValue;
   static int intValue;
   static long longValue;
   static float floatValue;
   static double doubleValue;
   static boolean booleanValue;
   static char charValue;
   static String stringValue;

   public static void main(String[] args) {
      System.out.println("byte: " + byteValue);
      System.out.println("short: " + shortValue);
      System.out.println("int: " + intValue);
      System.out.println("long: " + longValue);
      System.out.println("float: " + floatValue);
      System.out.println("double: " + doubleValue);
      System.out.println("boolean: " + booleanValue);
      System.out.println("char: [" + charValue + "]");
      System.out.println("String: " + stringValue);
   }
}
```

14.

B
E

15.

16.

A
B
C
G

Yes all of above answers will compile

17.

100 200
100 201

In the main method, x is initialized to 100 and y is initialized as an array with a 200 elements.When the increment method is called with arguments x and y, x is incremented locally within the method, but this does not affect the value of x in the main method.However, the first element of the y array is incremented within the increment method, and this change is reflected in the main method since arrays are passed by reference.Therefore, after the increment method call, x remains 100, but y[0] becomes 201.

18.

```
import java.util.*;
class main{

        public static char[] merge(char []vowels1,char []vowels2){

                char[] temp= new char[vowels1.length+vowels1.length];

                for (int i = 0; i < temp.length ; i++){

                        if (i<vowels1.length){
                                temp[i]=vowels1[i];
                                continue;
                        }

                                temp[i]=vowels2[i-vowels1.length];

                }

                return temp;

                }

        public static void main(String args[]){
                char[] vowels1={'a','e','i','o','u'};
                char[] vowels2={'A','E','I','O','U'};
                System.out.println(Arrays.toString(vowels1));
                //[a, e, i, o, u]
                System.out.println(Arrays.toString(vowels2));
                //[A, E, I, O, U]
                char[] vowelsAll=merge (vowels1,vowels2);
                System.out.println(Arrays.toString(vowelsAll));
                //[a, e, i, o, u, A, E, I, O, U]
        }
}
```

19.

Output: [100, 200, 300]
[100, 200, 300]
[101, 201, 301]

The given code initializes an array array with values [100, 200, 300].It prints the array, then uses a loop to increment “ a “variable a for each element.But its not affecting the original array. Next it print array again. Then it use for loop to increase the size of each array elements by one. Then its print array

20.

A
B
C
D
G
H

21.

A
B
E
G

22.

```
import java.util.*;

class main{


        public static int [] inputNum(Scanner input){

                int [] temp= new int[5];
                boolean flag=false;
                int num=0;
                System.out.println("Enter A Number Between 10 and 100");
                for (int i = 0; i < 5; i++){

                        do{

                        int count=0;
                        flag=false;
```

```
                System.out.print("Enter the Number "+(i+1)+": " );
                num=input.nextInt();

                for (int j = 0; j < temp.length; j++){
                        if (num==temp[j]){
                                count++;
                        }

                }

                if (count==0){
                        temp[i]=num;

                }
                else{
                        flag=true;
                }

                if (num<10 || num>100){
                        System.out.println("Wrong Input Out of Range");
                }

                else if (flag){
                        System.out.println("Duplicate Number");
                }

                } while (num<10 || num>100|| flag);


        }


        return temp;

        }

public static void main(String []args){

        Scanner input= new Scanner(System.in);

        int []num= inputNum(input);
        System.out.println(Arrays.toString(num));
```

```
                }

        }
```

23.

```
public static void copyRange(int[] a1, int[] a2, int i1, int i2, int length) {
    for (int i = 0; i < length; i++) {
        a2[i2 + i] = a1[i1 + i];
    }
}
```

24.

```
import java.util.Scanner;

class main{

        public static boolean isExist(int[] array, int number){
                for (int i = 0; i < array.length; i++){
                        if (array[i]==number){
                                return true;
                        }
                }
                return false;
                }

        public static int searchElement(int[] array,int number){
                for (int i = 0; i < array.length; i++){
                        if (array[i]==number){
                                return i;
                        }
                }
                return -1;
        }

        public static int [] removeDuplicates(int []array){
                for (int i = 0; i < array.length; i++){
                        int count=0;

                        for (int j = 0; j < array.length; j++){
```

```
                    if (array[i]==array[j]){
                        count++;
                    }

                }

                if (count>1){
                    remove(array,i);
                    i--;
                }
            }

            return array;
    }


    public static void clear(int []array){
            for (int i = 0; i < array.length; i++){
                array[i]=0;
            }
    }

    public static boolean isFull(int[] array){
            for (int i = 0; i < array.length; i++){
                if (array[i]==0){
                    return false;
                }
            }
            return true;
    }


    public static Boolean isEmpty(int[] array){
            int count=0;
            for (int i = 0; i < array.length; i++){
                if (array[i]==0){
                    count++;
                }
            }

            if (count==array.length){
                return true;
            }
```

```
        return false;
}


public static int size(int []array){
        return array.length;
}

public static void insert(int [] array, int number, int index){
        array[index]=number;
}

public static int [] remove(int[]array,int index){
        int []temp= new int[array.length-1];
        for (int i = 0,j=0; i <temp.length ; i++){
                if (i==index){
                        j++;
                }

                temp[i]=temp[j];
        }

        return temp;
}


public static int [] remove(int []array){
        int []temp= new int[array.length-1];
        for (int i = 0; i < temp.length; i++){
                temp[i]=array[i];
        }
        return temp;

}


public static void printList(int [] array){
        System.out.print("[");
        for (int i = 0; i < array.length; i++){
                System.out.print(array[i]+", ");
        }
        System.out.print("\b\b]");
}
```

```
public static int []insert(int array[],int number){
	array=extend(array);
	array[array.length-1]=number;
	return array;
	}


public static int [] extend(int [] ar){
	int []temp= new int[ar.length+1];
	for (int i = 0; i <ar.length; i++){
		temp[i]=ar[i];
	}
	return temp;

	}

public static void main(String []args){
Scanner input= new Scanner(System.in);
	int []array=new int[0];
	while (true){
		System.out.print("Enter Number: ");
		int number=input.nextInt();

		if (number==0){
			break;
		}
		array=insert(array,number);
	}
	printList(array);

	}
}
```