Solution of Mid-sem 2024

Q1. a.

```
class Q1_a
{
	public static void main(String[] args)
	{
		int a,b,c;
		a = -13 + 2 * 7 -14;
		b = a++ + --a;
		System.out.println(a+" "+b);
		c = a>>2 * b-- + b++;
		System.out.println(a+" "+b+" "+c);
	}
}
```

Answer:
-13 -26
-13 -26 -1

Q1. b.

```
class Q2_b
{
	public static void main(String[] args)
	{
		 int a = 12 + 21 * 3 - 9 / 2;
		 int b = 14 - 32 * 4 + 175 / 8 - 3;
		 if(++a > 71 && --b < 20)
		 {
			System.out.println("a = "+a+"b "+b);
		 }
		 if(b-- == -97 || a-- < 100)
		{
```

```
                        System.out.println("a = "+a+"b "+b);
                }
        }
}
```

Answer:
a = 72b -97
a = 72b -98

Q1. c

```
class Q1_c
{
        public static void main(String[] args)
        {
                System.out.println(10^6);
        }
}
```

Answer:
12

Q2. a.

A physical students gets unexpected result when using code:

```
F = G * mass1 * mass2 / r * r
```

Corrected version: **(G * mass1 * mass2) / (r * r)**

Q2. b.

```
import java.util.*;

class Q2_b
{
	public static void main(String[] args)
	{
		double r = Double.parseDouble(args[0]);
		double h = Double.parseDouble(args[1]);
		double area = Math.PI*Math.pow(r,2) + 2*Math.PI*r*h;
		System.out.println("Area of cylinder: "+area);
	}
}
```

Q2. c.

```
import java.util.*;

class Q2_c
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the number of days: ");
		int days = sc.nextInt();
		int year = days/360;
		days = days%360;
		int month = days/30;
		days = days%30;
		System.out.println(days+" days = "+year+" years "+months+" months
"+days+" days");
	}
}
```

Q3. a.

```
class Q3_a
{
	public static void main(String[] args)
	{
		int n1 = Integer.parseInt(args[0]);
		int n2 = Integer.parseInt(args[1]);
		int n3 = Integer.parseInt(args[2]);
		if(n1 == n2 && n2 == n3)
			System.out.println("Equal");
		else
			System.out.println("Not equal");
	}
}
```

Q3. b.

```
import java.util.*;

class Q3_b
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter three number: ");
		int n1 = sc.nextInt();
		int n2 = sc.nextInt();
		int n3 = sc.nextInt();
		int big = (n1>n2?(n1>n3?n1:n3):(n2>n3?n2:n3));
		System.out.println("Greatest number is: "+big);
	}
}
```

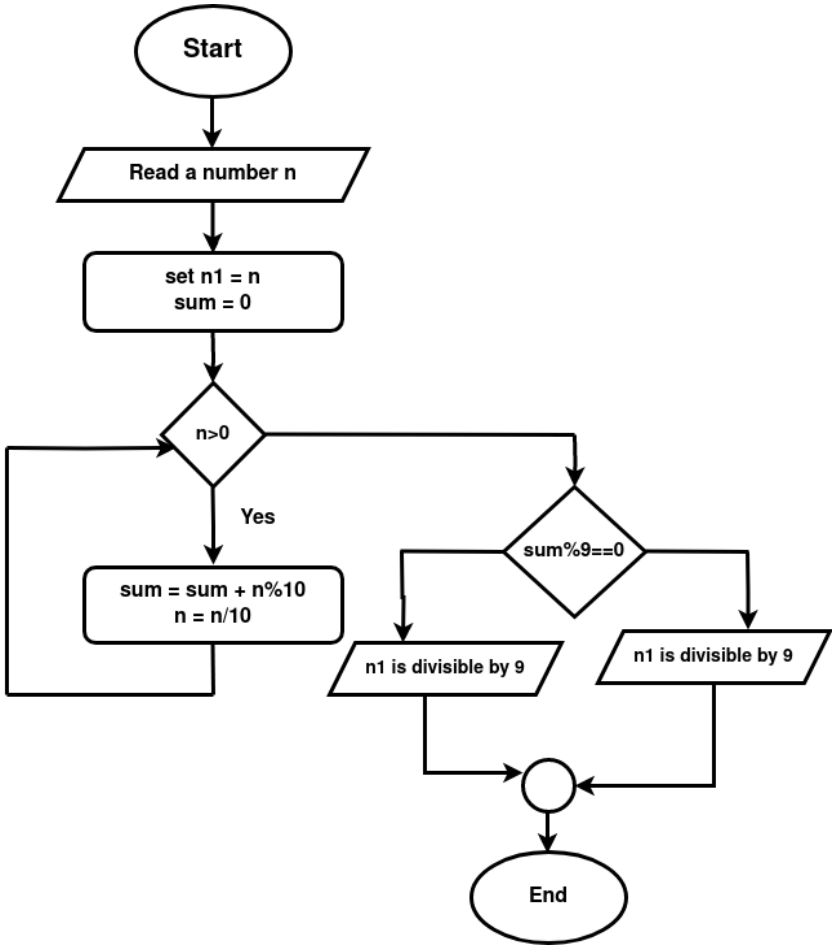
Q3. c.

```
import java.util.*;

class Q3_c
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number to be check: ");
		int n = sc.nextInt();
		boolean b = (n%10 == 7 | n%7 == 0);
		System.out.println(b);
	}
}
```

Q4. a.

```
import java.util.*;

class Q4_a
{
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number to be check: ");
		int n = sc.nextInt();
		int sum = 0;
		int n1 = n;
		while(n>0)
		{
			sum = sum + n%10;
			n = n/10;
		}
		if(n%9 == 0)
			System.out.println(n1+" is divisible by 9");
		else
			System.out.println(n1+" is not divisible by 9");
	}
}
```

Q4. b.



Q4. c.

Initially n = 1543
Set sum = 0

while n>0 condition is true, so sum = sum + n%10, so updated sum = 3 and n = n/10 so updated n = 154
Again, **while n>0** condition is true, so sum = sum + n%10, so updated sum = 7 and n = n/10 so updated n = 15
Again, **while n>0** condition is true, so sum = sum + n%10, so updated sum = 12 and n = n/10 so updated n = 1
Again, **while n>0** condition is true, so sum = sum + n%10, so updated sum = 13 and n = n/10 so updated n = 0
Again, **while>**0 condition is false so **out of loop**.

Next **if(sum%9==0)** condition is false based on the value of sum = 13, so the body of the else block will execute.

So, output is **1543 is not divisible by 9.**

Q5. a.

```
import java.util.*;

public class Q5_a
{
	 public static void main(String[] args)
	{
		Scanner sc= new Scanner (System.in);
		System.out.println("Enter x coordinate-");
		int x= sc.nextInt();
		System.out.println("Enter y coordinate-");
		int y= sc.nextInt();
		if (x==0 && y==0)
		{
			System.out.println("("+x+","+y+")"+" is at origin ");
		}
		else if (x==0)
		{
			System.out.println("("+x+","+y+")"+" is on y axis ");
		}
		else if (y==0)
		{
			System.out.println("("+x+","+y+")"+" is on x axis ");
		}
		else if (x>0 && y>0)
		{
			System.out.println("("+x+","+y+")"+"is in quadrant I");
		 }
		else if (x<0 && y>0)
		 {
		 System.out.println("("+x+","+y+")"+" is in quadrant II");
		 }
```

```
                else if (x<0 && y <0)
                {
                        System.out.println("("+x+","+y+")"+" is in quadrant III");
                }
                else
                {
                        System.out.println("("+x+","+y+")"+" is in quadrant IV");
                }
        }
}
```

Q5. b.

```
import java.util.*;

class HelloWorld
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter a number : ");
                int n = sc.nextInt();
                for(int a=1;a<=n; a++)
                {
                        for(int b=1;b<=n;b++)
                        {
                                for(int c=1;c<=n;c++)
                                {
                                        for(int d=1;d<=n;d++)
                                        {
                                                if(a!=b && a!=c && a!=d && b!=c && b!=d &&
c!=d)
                                                {
                                                        if((Math.pow(a,3)+Math.pow(b,3) ==
Math.pow(c,3)+Math.pow(d,3)) && (Math.pow(c,3)+Math.pow(d,3)) == n)
                                                        {
                                                                System.out.println("For a="+a+",
b="+b+", c="+c+", d="+d+" (a^3+ b^3) = (c^3 + d^3) gives "+n);
```

```
                                                }
                                            }
                                        }
                                    }
                                }
                            }
                        }
                }
```

Q5. c.

```
import java.util.*;

public class Q5_c
{
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the number of line: ");
                int n = sc.nextInt();
                for(int i = 1;i<=n;i++)
                {
                        for(int j = 1;j<=n-i;j++)
                        {
                        System.out.print("  ");
                        }
                        for(int j = 1;j<=i;j++)
                        {
                                System.out.print("$ ");
                        }
                        System.out.println();
                }
        }
}
```