MID-SEMESTER EXAMINATION, February-2023
INTRODUCTION TO COMPUTER PROGRAMMING
(CSE 1001)

Programme: B.Tech **Semester: 1st**
Full Marks: 30 **Time: 2 Hours**

Subject/Course Learning Outcome	*Taxonomy Level	Ques. Nos.	Marks
Ability to state and explain the basic Java programming syntax, semantics and building blocks.	L1	2(a,b, c),4(b ,c)	10
Ability to design, write, debug and test the correctness of programs.	L2, L4	1(a,b, c)	6
Ability to develop Java programs using programming constructs like conditional statements, looping, arrays, methods and class.	L2, L3	3(a,b, c), 4(a),5 (c)	10
Ability to solve computational problem(s) using programming constructs.	L3	5 (a,b)	4

Bloom's taxonomy levels: Remembering (L1), Understanding (L2), Applying (L3), Analysing (L4), Evaluating (L5), Creating (L6)

Answer all questions. Each question carries equal mark.

1. (a) Find the output of the given code snippet. Eliminate 2 typographic error.

```
int a=5+7-6*8/2%10;
int b=a+2-9%6/3+(-7);
System.out.println(a+" "+b);
boolean p=(++a > 61 &&  --b < 13);
System.out.println(p);
System.out.println(b>>5);
```

(b) Find the output of the given code snippet. Eliminate typographic error. 2

```
int z=-4;
int k=z++ + ++z + ++z;
System.out.println(z+"  "+k);
int t=--k + k++ + z++;
int p=t++ -(t%5) + (p=t);
System.out.println(z+ " "+k+" "+t+" "+p);
```

(c) Find the output of the given code snippet. Eliminate typographic error. 2

```
int a=Integer.MAX_VALUE;
System.out.println(a+9);
System.out.println(-a-8);
System.out.println(a*3);
System.out.println(a>>24);
```

2. (a) Write the java statements to take two number from command line arguments and print true if anyone is divisible by other or not. If not divisible print false. 2

Sample output:

```
Enter two number: 10  5
10 is divisible by 5: true
Enter two number: 7  4
7 is not divisible by 4 and 4 is not divisible by 7
so: false
```

(b) Write the java statements that display the following table. Cast floating-point numbers into integers. 2

A	B	pow(A,B)
3	1	3
5	2	25
7	3	147
9	4	6561

(c) The total number of students in a class are 90 out of which 45 are boys. If 50% of the total students secured grade 'O' out of which 20 are boys, then write a program to calculate the total number of girls getting grade 'O'. 2

3. (a) Write a java program to calculate the monthly electricity bill. The tariff is given as follows: 2

Price per unit	Unit range
Rs.3/-	First 50 units
Rs. 4.80/-	Next 50-200 units
Rs. 5.80/-	Next 200-400 units
Rs.6.20/-	Above 400 units

(b) For the above *Question no 3(a)*, write the java statements with a choice if the consumer wants to pay bill online. Consumer who pays their bill online will get a discount of 3%. 2

Sample output:

```
No. of units consumed: 867
Do you want to pay online(y/n): y
Total amount:4925.4
Discount:147.762
```

```
Amount payable: 4777.638
```

(c) Write the java statements to create a simple calculator using switch case. The simple calculator calculates only addition (+), subtraction (-), multiplication (*) and division (/). 2

Sample output:

```
Enter two operands: 6   3
Enter an operator: +
The addition of 6 and 3 is 9
```

4. (a) Write a java program to print sum of all even numbers and the product of all odd numbers from 1 to n, where n is inputted through the keyboard. 2

(b) Draw a flow diagram for the *Question no. 4(a)*. 2

(c) Write the execution pattern for the *Question no. 4(a)* for n=10. 2

5. (a) Write the java statements to take an integer input from the user and print the input by removing all zeroes. 2

Example: *Input n=20406 then Output=246*

(b) Write the java statements to check whether a number can be expressed as sum of two prime numbers or not. 2

Sample output:

```
Enter a number :16
16 can be written as 3+13
16 can be written as 5+11
```

(c) Write the java statements using for loop the print the given pattern. 2

```
1  2  3  4  5
6  7  8  9
10 11 12
13 14
15
```

End of Questions