



Institute of Computer Engineering Technology



iCET Certified Master

ASSIGNMENT

Assignment	WEEK 02 - Programming Fundamentals
Name	Variables and Data Types
Ass. Date	18th November 2023

02. Write a java program to print your name , address, phone number and email.

```

*
*  *
*  *  *
*  *  *  *

```

$$\begin{array}{r} 299 \\ + \quad 800 \\ \hline 1099 \\ \hline \end{array}$$
[illegible]

06. What are the output of following program?

Program A

```
class Example{  
    public static void main(String args[]){  
        System.out.println("Institute of Computer Engineering Technology");  
        System.out.println("223 A,");  
        System.out.println("Galle Road,");  
        System.out.println("Panadura.");  
    }  
}
```

Program B

```
class Example{  
    public static void main(String args[]){  
        System.out.println("Institute of Computer Engineering Technology");  
        System.out.print("223 A,");  
        System.out.print("Galle Road,");  
        System.out.print("Panadura.");  
    }  
}
```

07. What is the difference between print() and println()? Explain your answer with suitable examples.

08. What is the different between letter a of line 1 and line 2?

```
class Example {  
    public static void main(String args[]){  
        System.out.println("a");    //line 1  
        System.out.println('a');    //line 2  
    }  
}
```

09. What is the different between 7 of lines 1 , 2 , 3 and 4 ?

```
class Example {
    public static void main(String args[]){
        System.out.println(7);    //line 1
        System.out.println(7.0);  //line 2
        System.out.println("7");  //line 3
        System.out.println('7');  //line 4
    }
}
```

10. What are the type of java literals? Explain with a suitable example.

11. What will be the output when you compile and run the following program?
Explain your answer.

```
class Example {
    public static void main(String args[]){
        System.out.println(1100100);    //line 1
        System.out.println(0B1100100);  //line 2
        System.out.println(01100100);   //line 3
        System.out.println(0x1100100);   //line 4
    }
}
```

12. Which of the following lines are valid statements? Explain your answers.

```
class Example{
    public static void main(String args[]){
        System.out.println(0B11100100); //Line 1
        System.out.println(0b11100100); //Line 2
        System.out.println(0B11100200); //Line 3
        System.out.println(0144); //Line 4
        System.out.println(0148); //Line 5
        System.out.println(0x64); //Line 6
        System.out.println(0xabc); //Line 7
        System.out.println(0xabcg); //Line 8
        System.out.println(0X); //Line 9
        System.out.println(0Xffffff); //Line 10
    }
}
```

13. What is the result of attempting to compile and run the program?

```
class Example{
    public static void main(String args[]){
        System.out.print("A\nB");
        System.out.println("CD");
        System.out.print("\nEF\n");
        System.out.print("G\nH");
    }
}
```

14. Write a java program using single "System.out.print()" to get following output.

i. iCM – iCET CERTIFIED MASTER

ii. iCM
 iCET
 CERTIFIED
 MASTER

iii. iCM
 iCET CERTIFIED MASTER

15. What is the output of following program.

```
class Example {
    public static void main(String args[]){
        System.out.println("Hello\nJAVA");
        System.out.println("Hello\tJAVA");
        System.out.println("Hello\bJAVA");
        System.out.println("\ \Hello JAVA \ ");
        System.out.println("\"Hello\nJAVA\"");
        System.out.println("'Hello\nJAVA'");
    }
}
```

What are the Escape Sequences used in above program? Explain about them with suitable example.

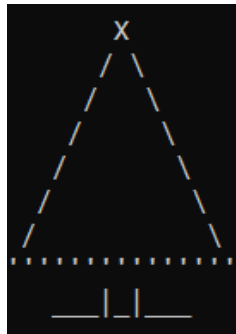
16. Write java statements to get the following output. (Only one sout statement can be used).

- a. Java is a typed language
- b. AB"CB
- c. AB\CD
- d. C:\Windows\Program
- e. AB\"CD
- f. AB\\\"CD
- g. AB\nCD
- h. AB\tCD
- i. AB\bCD

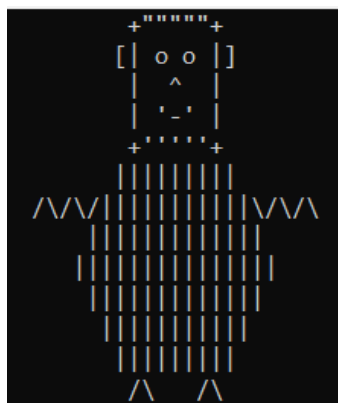
17. Write a java program to get following output.

```
( ) / _ | _ | _ |
| | | | | | |
| | | | | | |
| | | | | | |
| | \ _ | _ | | |
```

18. Write a Java program printing Christmas tree.



19. Write a program in Java to display following picture.



20. Explain line 1, 2 and 3 in following program.

```
class Example{
    public static void main(String[] args){
        int i;                //line 1
        i=103;                //line 2
        System.out.println(i); //line 3
    }
}
```

21. Write a java program create 2 variables as integer, named x , y.

i. assign values x – 102 y – 103

ii. Print the values as x , y format

102 103

iii. Print the values in y , x format.

103 102

22. What is the result of attempting to compile and run the program?

```
class Example{
    public static void main(String args[]){
        int x;
        System.out.println(x);
    }
}
```

i. prints : nothing

ii. prints : x

iii. prints : 100

iv. Runtime error

v. Compile time error

23. What is the result of attempting to compile and run the program?

```
class Example{
    public static void main(String args[]){
        int x=10,y=20,z=30;
        System.out.println(x);
        System.out.println(y);
        System.out.println(z);
        int y=200;
        System.out.println(y);
    }
}
```


24. What will be the output when you compile and run the following program?
Explain your answer.

```
class Example {
    public static void main(String args[]){
        int x,y;
        x=100;
        y=200;
        System.out.println(x);
        System.out.println(y);
        y=300;
        System.out.println(x);
        System.out.println(y);
    }
}
```

25. Which of the following can be legally inserted at line 12? Explain your answer.

```
class Example{
    public static void main(String args[]){
        int x;
        //Line 12
        System.out.println(x);
    }
}
```

A. x+1;

B. x=100;

C. int y=100

D. int x=200;

E. Insert nothing.

26. What is the result of attempting to compile and run the program?

```
class Example{
    public static void main( String args[] ){
        int x,y,z; //line 1
        x=y=z=10; //line 2
        int a=12,b,c=4; //line 3
        int p=10; //line 4
        int q=p; //line 5
        int i=j=k=10; //line 6
    }
}
```

- | | |
|----------------------------|----------------------------|
| A. Compile error at line 2 | B. Compile error at line 3 |
| C. Compile error at line 5 | D. Compile error at line 6 |
| E. None of the above | |

27. What are the output of following program and Explain your answer.

```
class Example{
    public static void main(String args[]){
        System.out.println("10"+"20"); //line 1
        System.out.println(10+20); //line 2
    }
}
```

28. What will be the output when you compile run the following program?

```
class Example{
    pubic static void main(String args[]){
        System.out.println(10+20+30);
        System.out.println("10+20+30");
        System.out.println("10+20"+30);
        System.out.println("10"+"20"+"30");
        System.out.println("10"+20+30);
        System.out.println(10+20+"30");
        System.out.println(10+"20"+30);
    }
}
```

29. What is the output for following code fragment and explain your answer?

- A. `System.out.println(1+2+3);`
- B. `System.out.println("1"+"2"+"3");`
- C. `System.out.println('1'+2+'3');`
- D. `System.out.println('1'+" "+2+" "+'3');`
- E. `System.out.println('A'+B+'C');`
- F. `System.out.println("A"+"B"+"C");`
- G. `System.out.println('A'+100+200);`
- H. `System.out.println('A'+" "+B+" "+'C');`

30. What is the different between Question 20 program and following program.

```
import java.util.*;
class Example{
    public static void main(String[] args){
        int i;
        i=input.nextInt();
        System.out.println(i);
    }
}
```

31. Write a java program using the help of the "Scanner" ,

- a. Input two integer values and store them in two variables.
- b. Print the values as they assign to the variable and finally print them as following.

1st input -12

2nd input -34

- c. Declare an integer variable and initialize by sum of the above user input and print following.

12 34 = 46

32. Write a Java program that takes an integer (n) and display the output as below to differentiate the arithmetic addition and string concatenation.

Sample Output:-

Input number: 8

888

24

33. Write a java program to get four subjects marks and print output as below.

```

Combined Maths - 81
Chemistry      - 72
Physics        - 84
English        - 78
Total          - 315
  
```

34. Write a Java program to invert the RGB values input by the keyboard. Colour inversion is the colour left over when you deduct one RGB value from 255.

Sample Output:-

```

Enter Red value : 165
Enter Green value : 170
Enter Blue value :221
Inversion of given colour - [90, 85, 34]
  
```

35. Fill the blank following table about primitive data type.

Data Type	Size	Description
byte	1 byte	
short		-32 768 to 32 767
int		
long		
float		
double	8 bytes	
boolean		
char		

36. Which of the following statements are legal? And explain your answer.

- | | |
|----------------------|--------------------------|
| A. byte b1=100; | B. byte b2=128; |
| C. byte b3=-128; | D. byte b4=0; |
| E. short s1=100; | F. short s2=32768; |
| G. short s4=-32768; | H. char c1='A'; |
| I. char c2='7'; | J. char c3='AB'; |
| K. char c4=7; | L. int x=10.6; |
| M. double d1=10045; | N. double d2=2023.03; |
| O. boolean b1=true; | P. boolean b2=False; |
| Q. boolean b3=false; | R. boolean b5=" true"; |
| S. boolean b6=0; | T. Boolean isValid=50>10 |

37.

```
class Example{
    public static void main(String args[]){
        long l; //Line 1
        System.out.println(l);
    }
}
```

Which of the following statements can be legally placed at Line 10 of the above program?

- | | | |
|--------------------|---------------------|----------------|
| A. l = 1147383947; | B. l = 2187523347; | C. l = 0xbacc; |
| D. l = 04032; | E. l = 0101110110L; | |

38. Which of the following identifiers are not valid?

- | | | | |
|-------------|------------|-----------|--------------|
| myVariable | @name | Customer | getFirstName |
| new | user_input | main | longVariable |
| MyClass | user-input | \$percent | _piece |
| My Variable | Boolean | 123num | java.org |

39. What will be the output when you compile run the following program?

```
class Example{
    public static void main(String args[]){
        short x;
        x=Short.MAX_VALUE;
        System.out.println(x);

        x=Short.MIN_VALUE;
        System.out.println(x);
    }
}
```

Study above program and write a program to print max and minimum value of float , double and int.

40. What will be the output when you compile run the following program?

```
class Example{
    public static void main(String[] args) {
        char ch='A';
        System.out.println(ch);
        System.out.println(ch+1);
        System.out.println(ch+"1");

        char ch1=97;
        System.out.println(ch1);
        System.out.println(ch1+1);
        System.out.println(ch1+"1");
    }
}
```

41. What is the output of the following code fragment and explain your answer.

- a. `System.out.println(1+2+3);`
- b. `System.out.println(1+'2'+3);`
- c. `System.out.println(1+2+'3');`
- d. `System.out.println('1'+2+'3');`
- e. `System.out.println('1'+2+3);`
- f. `System.out.println(A+100+200);`
- g. `System.out.println(1+'h'+30);`
- h. `System.out.println('A'+B+'C');`
- i. `System.out.println('1'+2+'3');`

42. Write a java program to get int value from 33 to 126 and print ASCII character of that input value.

43. Which of the following lines are valid declarations? Select the three correct answers.

- a. `char a = '\u0061';`
- b. `char 'a' = 'a';`
- c. `char \u0061 = 'a';`
- d. `ch\u0061r a = 'a';`
- e. `ch'a'r a = 'a';`

44. What will be the outputs when you compile and run the following program and explain your answer line by line?

```
class Example{
    public static void main(String asrg[]){
        char a='a';
        System.out.println(a=='\u0061');
        System.out.println(\u0061=='\u0061');
        System.out.println(\u0061==97);
        \u0061='\u0041';
        System.out.println('A=='\u0041');
        System.out.println(65=='\u0041');
        System.out.println(65==a);
        System.out.println('\u0041'==a);
    }
}
```

45. Study following code and explain what are the different between line 1 and line 2.

```
class Example{
    public static void main(String[] args) {
        System.out.println("iCET"); //line 1
        String s="connect intelligents...";
        System.out.println(s); //line 2
    }
}
```

46. Write a program that asks the user's name and then greets the user by name. For example, if the user's name is Amal, then the program should display "Hello Amal, nice to meet you!"

47.

```
class Example {
    public static void main(String[] args) {
        int x = 10;
        int y = 5;
        String z = x + 'y' + "y" + x + y + 'z';
        System.out.println("z is: " + z);
    }
}
```

What is the output of this program?

- | | |
|--------------------|-------------------|
| A) z is: 10y5y105z | B) z is: 105yz |
| C) z is: 205yz | D) z is: 15yy105z |

48. Write a java program to get you'r best friend details as input and print small description like below. Numbers should get as int value.

```
Enter your friend's name: Kasun
Enter your friend's age: 21
Enter your friend's living place: Panadura

Kasun is my best friend. He is 21 years old and lives in the beautiful town of Panadura.
```


49. Write a java program to get A/L student subject name and subject marks and print total as following.

```

----Subject total calculator----

Subject 1 name - Maths
Maths marks - 67
Subject 2 name - Chemistry
Chemistry marks - 59
Subject 3 name - Physics
Physics marks - 81

Maths           67
Chemistry       59
Physics         81

Total           207

```

50. Complete the following program?

```

import java.util.*;
class Example{
    public static void main(String args[]){
        Scanner input=new Scanner(System.in);
        System.out.print("Input number 1 : ");
        int num1=input.nextInt();
        System.out.print("Input number 2 : ");
        int num2=input.nextInt();
        System.out.println(num1+" "+num2);
        //-----Do not modify before this line-----
        //Insert java code(s) here to swap the two
        //variables "num1" and "num2"
        //as an example when you input 10 for
        //num1 and 20 for num2, then
        //the first output should be "10 20" and the
        //second output "20 10"
        //-----Do not modify after this line-----
        System.out.println(num1+" "+num2);
    }
}

```

