

ASSESSMENT -I
COMPUTER APPLICATIONS (GRADE X)

Maximum Marks: 100

Time allowed: Two hours

This paper is divided into two sections

Attempt **all** questions from **Section A** and **any five** question from **Section B**.
The intended marks for questions or parts of questions are given in brackets[].

SECTION A

(Attempt **all** questions from this **Section**)

Question 1

Choose the correct answer and write the correct option.

[20]

- (i) The classes provided by java for its primitive types are known as?
(a) Wrapper classes
(b) Primitive classes
(c) Functional classes
(d) Object classes
- (ii) In Java, if `int[] arr = new int[10];`, how many elements does arr have?
(a) 9
(b) 10
(c) 11
(d) Cannot be determined
- (iii) A single dimensional array contains N elements. What will be the last subscript?
(a) N
(b) N-1
(c) N-2
(d) N+1
- (iv) Identify the name of '&&' operator:
(a) Increment operator
(b) Logical operator
(c) Ternary operator
(d) Relational operator
- (v) Conditional operator is a :
(a) Logical operator
(b) Arithmetic operator
(c) Relational operator
(d) Ternary operator
- (vi) Which of the following statements about Java constructors is true?
(a) Constructors must always have a void return type.
(b) Constructors can be inherited by subclasses.
(c) A class can have multiple constructors with different parameter lists.
(d) Constructors cannot be declared with access modifiers like private or protected.
- (vii) The keyword to create an object of a class is ____.
(a) create
(b) new
(c) New
(d) NEW

- (viii) Write a method prototype name check() which takes an integer argument and returns a char:
- (a) char check()
 - (b) void check(int x)
 - (c) check(int x)
 - (d) char check(int x)
- (ix) The default value of a boolean variable is:
- (a) false
 - (b) 0
 - (c) 1
 - (d) True
- (x) Which of the following is a Java keyword?
- (a) every
 - (b) all
 - (c) case
 - (d) each
- (xi) What will be the output of the following code?
- ```
int arr[] = {10, 20, 30, 40};
System.out.println(arr.length);
```
- (a) 3
  - (b) 4
  - (c) 5
  - (d) Compilation error
- (xii) State the type of loop in the given program segment:
- ```
for(int i=5; i !=0 ;i -=2)  
System.out.println(i);
```
- (a) finite
 - (b) infinite
 - (c) null
 - (d) fixed
- (xiii) Name the type of error in the statement given below:
- ```
double x;y;z;
```
- (a) Logical error
  - (b) Syntax error
  - (c) Runtime error
  - (d) No error
- (xiv) Constructor overloading follows which principle of Object Oriented programming?
- (a) Inheritance
  - (b) Polymorphism
  - (c) Abstraction
  - (d) Encapsulation
- (xv) What Will be the output for:
- ```
System.out.print(Character.toLowerCase('l'));
```
- (a) 0
 - (b) 1
 - (c) A
 - (d) true

- (xvi) Assertion(A): In java statements written in lower case letter or upper case letter are treated as the same. Reason(R): Java is a case sensitive language.
- (a) Both Assertion (A) and Reason (R) are true and Reason (R) is a correct explanation of Assertion (A)
- (b) Both Assertion (A) and Reason (R) are true and Reason (R) is not a correct explanation of Assertion(A)
- (c) Assertion (A) is true and Reason (R) is false
- (d) Assertion (A) is false and Reason (R) is true

(xvii) The output of $42/6\%2$ is:

- (a) 1
- (b) 10
- (c) 2
- (d) 0

(xviii) Which of the following is user defined data type?

1. array	3. class
2. double	4. boolean

- (a) only 1
- (b) 1 and 3
- (c) only 2
- (d) only 4

(xix) A physical education teacher asks the students to do the side stretch as shown below, 10 times. Which programming construct the teacher uses?

- (a) if
- (b) switch
- (c) for
- (d) if else if



- (xx) A mechanism where one class acquires the properties of another class
- (a) Polymorphism
- (b) Inheritance
- (c) Encapsulation
- (d) Abstraction

Question 2

(i) Consider the following array and answer the questions given below: [2]

int a[] = {12,10,8,4,6,2,3,5,7};

(a) What is the output of System.out.print(a[0]+a[5]);?

(b) What is the index (subscript) of the largest element of the array a[]?

(ii) Write the following as java expressions [2]

(a) $\frac{|a+b|}{\sqrt{a^2+b^2}}$

(b) $\frac{-b+\sqrt{b^2-4ac}}{2a}$

(iii) What is the value of x1 if x=5? [2]

x1 = ++x - x++ + --x

(iv) Rewrite the following using ternary operator: [2]

```
if((bill>1000)
```

```
    discount=bill*10.0/100;
```

```
else {
```

```
    discount=bill*5.0/100;
```

```
}
```

(v) Evaluate the expression: where a = 10 b = 5 z = 10s [2]

Z +=a++ + --b + ++a + --b;

(vi) Differentiate between pure and impure function. [2]

(vii) Rewrite the following while loop using for loop: [2]

```
int x=5;
```

```
while (x <=5)
```

```
{
```

```
    x++;
```

```
}
```

```
System.out.println(x);
```

(viii) Name any two jump statements. [2]

(ix) Identify the operator that gets the highest precedence while evaluating the given expression: [2]

a + b % c * d - e

(x) String s1 = "45.50"; String s2 = "54.50"; [2]

```
double d1=Double.parseDouble(s1);
```

```
double d2=Double.parseDouble(s2);
```

```
int x= (int)(d1+d2);
```

What is value of x?

SECTION B

(Answer **any five** questions from this **section**)

The answer in this section should consist of the programs in either BlueJ environment or any Program environment with java as the base.

Each program should be written using variable description/mnemonic codes so that the logic of the Program is clearly depicted.

Flowcharts and algorithms are not required.

Question 3

[12]

Search an element in an array using Linear Search. Pass the element to be searched for, as an argument.

Question 4

[12]

DTDC a courier company charges for the courier based on the weight of the parcel. Define a class with the following specifications:

class name: courier

Member variables: name – name of the customer

weight – weight of the parcel in kilograms

address – address of the recipient

bill – amount to be paid

type – 'D' - domestic, 'I' - international

Member methods:

void accept () – to accept the details using the methods of the Scanner class only.

void calculate () – to calculate the bill as per the following criteria:

Weight in Kgs	Rate per Kg
---------------	-------------

First 5 Kgs	Rs.800
-------------	--------

Next 5 Kgs	Rs.700
------------	--------

Above 10 Kgs	Rs.500
--------------	--------

An additional amount of Rs.1500 is charged if the type of the courier is I (International)

void print () – To print the details

void main () – to create an object of the class and invoke the methods

Question 5

[12]

A tech number has even number of digits. If the number is split in two equal halves, then the square of sum of these halves is equal to the number itself. Write a program to generate and print All four digits tech numbers.

[12]

Question 6

Write a java program to input number of week's day(1-7) and translate to its equivalent name of the day of the week. (e.g., 1 to Sunday, 2 to Monday, 7 to Saturday). Use switch statement

Question 7

[12]

Write a java Program that accepts a number in the range 1-99 and displays if the entered number is single digit or double digit number.

[12]

Question 8

Define a class to overload the method perform as follows:

double perform (double r, double h)	To calculate and return the value of curved area of cone $CSA = \pi r l$, $l = \sqrt{r^2 + h^2}$
Void perform (int r , int c)	Use NESTED FOR LOOP to generate the following format R=4, c=5 output - 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5 1 2 3 4 5
Void perform (int m, int n, char ch)	To print the quotient of the division of m and n if ch is Q else print the remainder of the division Of m and n if ch is R.

[12]

Question 9

Write a program to print first 50 numbers in reverse order i.e., 50 to 1.

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