

INTER NOBILIAN FIRST SEMESTER EXAMINATION 2024–25

Computer Applications – Class 9

Full Marks: 100

Duration: 2 Hours

Answers to this paper must be written on the paper provided separately.

- You will not be allowed to write during the first 15 minutes. This time is to be spent in reading the question paper.
 - The time given at the head of this paper is the time allowed for writing the answers.
 - This paper is divided into two Sections.
 - Attempt all questions from Section A and any four questions from Section B.
 - The intended marks for questions or parts of questions are given in brackets [].
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SECTION A

(Attempt all questions from this Section.)

Question 1

[20]

Choose the correct answers to the questions from the given options.

(Do not copy the question, write the correct answers only.)

i) In OOP, the stress is given on:

- (a) procedure
- (b) methods
- (c) class
- (d) data

ii) The ASCII codes of upper case alphabets range from:

- (a) 65–90
- (b) 60–85
- (c) 65–91
- (d) 97–122

iii) Which of the following results in integer type?

- (a) 11.4F/3.2D
- (b) 13.8/4.6F
- (c) 12/3
- (d) none of these

iv) BlueJ is an _____ to create Java applications.

- (a) C++
- (b) IDE
- (c) BASIC
- (d) all the above

v) An object is identified by its:

- (a) characteristics
- (b) state
- (c) class
- (d) attributes

vi) The statement **n++** is equivalent to:

- (a) ++n
- (b) n = n + 1
- (c) n + 1
- (d) none

vii) The Math class is part of which Java library package?

- (a) java.util
- (b) java.io
- (c) java.random
- (d) java.lang

viii) If int m = 43; int n = 5; int t = 0; What value is stored in t when t = m % n?

- (a) 8.6
- (b) 8.0
- (c) 0
- (d) none

ix) If condition is essentially formed by using:

- (a) Arithmetic operators
- (b) Relational operators
- (c) Logical operators
- (d) Ternary operators

x) Which of the following is not an object-oriented programming language?

- (a) C++
- (b) Simula
- (c) BASIC
- (d) Java

xi) Which of the following is not an integral data type in Java?

- (a) short
- (b) long
- (c) byte
- (d) double

xii) The smallest individual unit in a program is known as:

- (a) data
- (b) token
- (c) class
- (d) None

xiii) What will be the output of **a** and **b** in the following, if

```
int a, b;  
a = 10;  
b = ++a;
```

- (a) 10,10
- (b) 10,11
- (c) 11,10
- (d) 11,11

xiv) The high-level language program when converted to machine level is known as:

- (a) source code
- (b) program code
- (c) object code
- (d) none

xv) Java provides _____ types of data types.

- (a) 2
(b) 1
(c) 3
(d) none
- xvi) Keyword _____ while declared a variable, makes it a constant.
(a) int
(b) final
(c) char
(d) None
- xvii) The process by which an object acquires the properties of another object is called:
(a) polymorphism
(b) inheritance
(c) abstraction
(d) object
- xviii) Mixed expressions are those wherein operands are of different _____.
(a) class
(b) datatype
(c) abstraction
(d) none
- xix) An Internet applet runs within a:
(a) application
(b) web browser
(c) class
(d) none
- xx) How would you describe Java?
(a) a programming language
(b) a platform
(c) both (a) and (b)
(d) none of the above

Question 2

[20]

Answer the following questions briefly:

- a) What is object-oriented programming? Mention any two advantages of OOP. [2]
b) Differentiate between **compiler** and **interpreter**. [2]
c) Rewrite the following using the ternary operator: [2]

```
if (x % 2 == 0)
    System.out.println("Even");
else
    System.out.println("Odd");
```

- d) Write equivalent Java expressions for the following expressions: [2]

- (i) $a + b^2 - b + a^6$
(ii) $p * q / (m - n)^6$

- e) What is the problem with the following snippet? [2]

```
char t = 'A';
int p;
p = (t == 'a') ? 'A' : 'a';
System.out.println("P=" + p);
```

- f) What will be the output of the following code line? [2]

(i)
`System.out.println(Math.floor(-7.5));`

(ii)

```
System.out.println(Math.cbrt(64.0));
```

g) Predict the output:

```
int x = 1, y = 1;
```

```
if (n > 0)
```

```
{  
    x = x + 1;  
    y = y + 1;  
}
```

What will be the value of **x** and **y**, if **n** assumes a value of:

(i) 1

(ii) 0

[2]

h) What is the difference between / and % operators?

[2]

i) Given the expression:

$ay^3 + 2bc^2 \frac{ay^3 + 2b}{c^2} c^2 ay^3 + 2b$

Each of the following expressions is intended to evaluate the above expression. Some are correct while others are not. Classify each as **Correct** or **Incorrect**. For the incorrect ones, give the reason(s). [2]

(i)

```
(a*y*y*y + 2*b) / (Math.pow(c, 2))
```

(ii)

```
(a*Math.pow(y, 3) + 2*b) / (c*c)
```

(iii)

```
((a) (y) (y) (y)+2 (b)) / ((c) (c))
```

(iv)

```
a*(y*y*y)+b*b/c*c
```

j) Using Java notation, provide:

- the integer value zero,
- a string consisting of a zero,
- and the character zero. [2]

SECTION B

(Answer any four questions from this Section.)

The answers in this section should consist of programs in either **BlueJ** 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 [15]

A student's school is at a distance of **15 km 1250 m** from her house. She travels **10 km 50 m** on foot and the rest by bus.

Write a Java program to determine how much distance she travels by bus.

Hint: Use constant, **1 km = 1000 metres**.

Question 4 [15]

Mr. Shyam Lal Agarwal invests **₹85,000** at **5% per annum compound interest** for **three years**.

Write a Java program to calculate:

- The interest for the first year
- The interest for the second year
- The amount after three years

Question 5 [15]

Write a Java program that displays an amount in rupees in terms of notes of denominations.
For example, if the amount is **1687**, the output should be:

```
₹1000 notes : 1
₹500 notes  : 1
₹100 notes   : 1
₹50 notes    : 1
₹20 notes    : 1
₹10 notes    : 1
₹5 notes     : 1
₹2 notes     : 1
₹1 notes     : 0
```

Question 6 [15]

Write a Java program to find the difference between **Simple Interest (SI)** and **Compound Interest (CI)** when **Principal, Rate, and Time** are given.

Hint:

$$SI = P \times R \times T / 100$$

$$CI = A - P$$

where,

$$A = P \times (1 + R/100)^T$$

Question 7 [15]

Write a Java program that reads a **4-digit year** and tests whether it is a **leap year** or not. Display an appropriate message.

Given year: 2094

Question 8 [15]

Write a Java program that reads the marks in **three subjects** (out of 100) and assigns grades on the basis of the **percentage of marks**.

Marks allotted:

- Subject 1 = 70
- Subject 2 = 87
- Subject 3 = 68

Percentage	Grade
> 75	A
60 – 75	B
50 – 60	C
40 – 50	D
< 40	E
