

R.N.G.PATEL INSTITUTE OF TECHNOLOGY-RNGPIT
(An Autonomous Institute U/s UGC Act 1956)

B.Tech. SEMESTER-II, SEMESTER END EXAMINATION – WINTER 2025

SUBJECT CODE: 1CS201

DATE: 09-01-2026

SUBJECT NAME: OBJECT ORIENTED PROGRAMMING

TIME: 11:00 AM to 01:30 PM

TOTAL MARKS: 70

Instructions

1. It is **compulsory** for students to write **Enrolment No. /Seat No.** on the question paper.
2. Write answers of **Section A** and **Section B** in **separate answer books**.
3. Attempt all questions from both **Section A** and **Section B**.
4. Each section carries **35 marks**, with a total of **70 marks** for the examination.
5. The figures to the right of each question indicate full marks, make suitable assumptions with justification.
6. BL - Bloom's Taxonomy Levels (R-Remember, U-Understanding, A –Application, N –Analyze, E – Evaluate, C -Create), CO - Course Outcomes.

SECTION A

Marks BL CO

Q.1 Multiple-Choice Questions

[05]

(a) Which method is called automatically when an object is created?

1 R 3

(i) finalize()

(ii) main()

(iii) constructor

(iv) init()

(b) Which package contains thread-related classes?

1 R 5

(i) java.io

(ii) java.util

(iii) java.lang

(iv) java.thread

(c) Which class is used for character stream output?

1 R 5

(i) OutputStream

(ii) PrintStream

(iii) Writer

(iv) FileOutputStream

(d) Which predefined stream is used for standard input?

1 R 5

(i) System.out

(ii) System.err

(iii) System.in

(iv) Scanner

(e) Which class converts byte streams into character streams? **1 R 5**

(i) FileReader

(ii) InputStream

(iii) InputStreamReader

(iv) BufferedReader

Q.2 Attempt Any Two

[10]

(a) What is Method Overloading and Overriding? Explain it with example. **5 U 3**

(b) What is an interface? Explain with example **5 U 3**

(c) What is Inheritance? List out the different forms of Inheritance and explain any one with example. **5 U 3**

Q.3 Attempt Any Two

[10]

(a) Design a java class Rectangle which contains following field and methods: **5 A 3**

(i) Field: length, width: int

(ii) Default Constructor: initialize all fields with 0 value

(iii) Method: int getArea () will return area of rectangle.

(b) Consider class A as the parent of class B. Explain among the following which statement will show the compilation error. (explain with Reason) **5 A 3**

i) A a = new A();

ii) A a = new B();

iii) B b = new A();

iv) B b = new B();

(c) Read two numbers from command line argument and print sum of them. **5 A 3**

Q.4 Attempt Any Two

[10]

(a) Explain synchronization in Thread with suitable example. **5 U 5**

(b) Explain life cycle of Thread with diagram and analyze how a thread can work or perform, explain it step by step. **5 N 5**

(c) Explain Text I/O and Binary I/O with proper example. **5 U 5**

SECTION B

Marks BL CO

Q.5 Multiple-Choice Questions

[05]

(a) Which statement terminates the loop completely?

1 U 2

(i) continue

(ii) break

(iii) return

(iv) exit

(b) Which of the following variable names is valid in Java?

1 U 2

(i) 1num

(ii) num-1

(iii) _num1

(iv) num 1

(c) Which loop is best when the number of iterations is known in advance?

1 U 2

(i) while

(ii) do-while

(iii) for

(iv) for-each

(d) What is the output of the following code?

1 N 2

```
int i = 1;
while (i <= 5)
{
    if (i == 3)
        break;
    System.out.print(i + " ");
    i++;
}
```

(i) 1 2 3 4 5

(ii) 1 2 3

(iii) 1 2

(iv) 2 3 4 5

(e) What is the output of the following code?

1 N 2

```
int[] arr = {2, 4, 6, 8};
int sum = 0;
for (int i : arr)
{
    if (i > 4)
        sum += i;
}
System.out.println(sum);
```

(i) 6

(ii) 8

Q.6 Attempt Any Two	[10]		
(a) List the main features of Java and discuss why java is platform independent language.	5	R	1
(b) Explain the advantages of object-oriented programming in real-world application development.	5	U	1
(c) What is a class in Java? Explain its components with a simple example.	5	U	1
 Q.7 Attempt Any Two	 [10]		
(a) Explain one-dimensional arrays in Java. Write a Java program to declare, initialize, and access a one-dimensional array.	5	U	2
(b) Define variables in Java. Explain the rules for naming variables with examples.	5	U	2
(c) Explain the while and do-while loops in Java. Also explain the differences between them.	5	U	2
 Q.8 Attempt Any Two	 [10]		
(a) Write a Java program to demonstrate the use of multiple catch blocks in handling different exceptions.	5	A	4
(b) Explain the use of throw and throws keywords with a suitable example in Java.	5	A	4
(c) Create a user-defined (custom) exception and demonstrate its use with a Java program.	5	A	4
