**Intern Java Programming Assessment – 100 Marks**

**Instructions to Candidates:**

1. All questions are compulsory.
2. Answer neatly and write code with proper indentation.
3. Duration: **2 Hours**
4. Total Marks: **100**
5. Use of IDE is not allowed; write answers on notepad with question number.

**Section A: Multiple Choice Questions (40 Marks)**

*(20 questions × 2 marks each)*

**Q1.** Which of the following is not a Java keyword?  
a) final  
b) static  
c) then  
d) super

**Q2.** What is the default value of a boolean variable in Java?  
a) true  
b) false  
c) null  
d) 0

**Q3.** Which operator is used for comparing object references?  
a) ==  
b) equals()  
c) compareTo()  
d) instanceof

**Q4.** What will be the output of the following code?

int x = 10;

int y = 20;

System.out.println(x > y ? x : y);

a) 10  
b) 20  
c) true  
d) false

**Q5.** Which of the following best describes encapsulation?  
a) Hiding implementation details and showing functionality.  
b) Reusing code from other classes.  
c) Defining multiple methods with the same name.  
d) Converting one data type to another.

**Q6.** Which class is the parent of all classes in Java?  
a) Object  
b) Class  
c) Super  
d) Base

**Q7.** What is the time complexity of linear search?  
a) O(1)  
b) O(log n)  
c) O(n)  
d) O(n log n)

**Q8.** Which of the following is used to stop the current loop iteration and move to the next iteration?  
a) break  
b) continue  
c) exit  
d) return

**Q9.** Which collection allows duplicates?  
a) HashSet  
b) TreeSet  
c) ArrayList  
d) HashMap (keys)

**Q10.** Which method is used in JUnit for checking equality of expected and actual values?  
a) assertSame()  
b) assertEquals()  
c) assertTrue()  
d) assertCheck()

**Q11.** What is the output of the following code?

String s1 = new String("hello");

String s2 = "hello";

System.out.println(s1 == s2);

a) true  
b) false  
c) hello  
d) Compilation error

**Q12.** Which of the following is a checked exception?  
a) NullPointerException  
b) IOException  
c) ArithmeticException  
d) ArrayIndexOutOfBoundsException

**Q13.** Which sorting algorithm works on “divide and conquer”?  
a) Bubble Sort  
b) Merge Sort  
c) Linear Sort  
d) Selection Sort

**Q14.** Which keyword is used to call the parent class constructor?  
a) super  
b) parent  
c) base  
d) extends

**Q15.** Which of the following data structures follows FIFO (First In First Out)?  
a) Stack  
b) Queue  
c) Tree  
d) Array

**Q16.** Which keyword is used for inheritance in Java?  
a) inherit  
b) base  
c) extends  
d) super

**Q17.** Which of these collections is synchronized?  
a) ArrayList  
b) Vector  
c) HashSet  
d) LinkedList

**Q18.** Which of the following statements about Java is true?  
a) Java supports multiple inheritance through classes.  
b) Java is platform dependent.  
c) Java uses Just-In-Time compiler.  
d) Java does not support polymorphism.

**Q19.** What is the default value of an object reference in a class?  
a) null  
b) 0  
c) false  
d) undefined

**Q20.** Which of the following is not part of OOP principles?  
a) Abstraction  
b) Encapsulation  
c) Compilation  
d) Inheritance

**Section B: Scenario-based Questions (25 Marks)**

*(5 questions × 5 marks each)*

**Q21.** Your team is developing a **school management app** where each student has a unique roll number. Which Java collection would you use and why?

I will use the MAP for the unique storing of ID’s as Keys and as Values I will store the details of the student and uses a method “map.containsKey(ID)” to check where the key is already present in map or not

**Q22.** In a **chat application**, messages need to be shown in the order they are sent (first sent → first shown). Which collection should you choose?

I Will use Queue because for in the order they are sent we insert the messages into the queue so that queue follows the first in and first out order. By this there will be no change of order in messages

**Q23.** Imagine a **job portal** where you want to store candidates sorted by their names automatically. Which Java collection is best suited?

I will use the ArrayList because if I use the set then if any person with same name is applied to job so they will not stored because the set only store the unique values  
and for the sorting I will use the method “Collections.sort(arraylist)”

**Q24.** In an **ATM software**, multiple users may access the same account at the same time. Which Java concept would you apply to prevent data inconsistency?

The concept is synchronization

**Q25.** You are building a **weather monitoring app**. Data (temperature, humidity, etc.) comes continuously, and you only need the **latest values** to overwrite the old ones. Which collection will you use?

We can use the Map for the data and values will be the values of the data like temperature(Key) & 32(Value) and to update with the latest values we can use the put function to override the values with new values

**Section C: Code Snippets / Debugging (20 Marks)**

*(4 questions × 5 marks each)*

**Q26.** Predict the output (concept: polymorphism).

class Animal {

void sound() { System.out.println("Animal sound"); }

}

class Dog extends Animal {

void sound() { System.out.println("Bark"); }

}

public class Test {

public static void main(String[] args) {

Animal a = new Dog();

a.sound();

}

}

Output:

Bark

**Q27.** Debug the code (concept: invalid exception catch).

try {

int arr[] = new int[3];

arr[5] = 10;

} catch(Exception e) {

System.out.println(e.getMessage());

}

👉 Correct the catch mechanism so the program runs without compilation error and handles the exception properly.

**Q28.** What will be printed? (concept: overriding with super)

class Parent {

void display() { System.out.println("Parent class"); }

}

class Child extends Parent {

void display() {

super.display();

System.out.println("Child class");

}

}

public class Main {

public static void main(String[] args) {

Parent p = new Child();

p.display();

}

}

Output:

Parent class

Child class

**Q29.** The following recursive code has an error. Correct it so it prints factorial correctly.

int factorial(int n) {

if(n == 0)

{return 1;}

return n \* factorial(n - 1);

}

**Section D: Coding Questions (15 Marks)**

*(3 questions × 5 marks each)*

**Q30.** Write a program to check if a number is prime.

public class IsPrime {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

int num = sc.nextInt();

boolean isPrime = true;

if (num <= 1) {

isPrime = false;

} else {

for (int i = 2; i <= Math.sqrt(num); i++) {

if (num % i == 0) {

isPrime = false;

break;

}

}

}

if (isPrime) {

System.out.println(num + " is a prime number.");

} else {

System.out.println(num + " is not a prime number.");

}

}

}

**Q31.** Write a Java program to reverse a string without using built-in reverse functions.

public class ReverseString {

    public static void main(String[] args) {

        String str="HELLO";

        String rev="";

        for (int i = str.length()-1; i <0; i--) {

            rev+=str.charAt(i);

        }

        System.out.println("String is "+str+" Reversed is "+rev);

    }

}

**Q32.** Write a program to read n numbers into an array and print the largest element.

public class Largest\_Element {

    public static void main(String[] args) {

        int array[] = { 1, 2, 3, 4, 5, 6, 7, 8, 9 };

        int max = 0;

        for (int i : array) {

            if (i > max)

                max = i;

        }

        System.out.Println(max);

    }

}