

Master of Computer Applications
Subject: Java Programming
Paper Code: MCAO- 201
Unique Paper Code: 223403201
Semester II
August-2022
Year of admission: 2021-22

Time: Three Hours

Max. Marks: 70

Note: All questions are compulsory. Q1 carries 20 marks, Q2 to Q6 carries 10 marks each.

Q1. Describe the following with the help of Java code snippets: (5×4)

- ☒ A) compareTo() //defined in String class
- ☒ B) System.out and System.in
- ☒ C) ClassNotFoundException //checked or unchecked
- ☒ D) read() //defined in InputStream class
- ☒ E) itemStateChanged() //defined in ItemListener interface

Q2. (i) What is String Pooling in Java? Demonstrate String Pooling with the help of Java code snippets. (6)

Q2. (ii) What will be the output of the following Java code? Justify your answer. (4)

```
byte a=20, b=10;
if(a++>20 && ++b<=11)
    System.out.println("Hello");
System.out.println(a+" "+b);
a=20; b=10;
if(a++>20 & ++b<=11)
    System.out.println("Hi");
System.out.println(a+" "+b);
```

Q3 (i) Explain the concept of method hiding and variable hiding with the help of Java code snippets. (6)

Q3. (ii) Consider the following Java code snippet. Calculate and show the changes in the value of the variable result after each step. Show all intermediate calculations also. (4)

```
int arr[] = {12, 98, 13, 76, 53};
int index = 4, result = 0, i;
for (i = 0; i < index; i++) {
    result += arr[i];
    i++;
}
for (i = 0; i < index; i++)
    result += arr[i];
System.out.println("Result: "+ result);
```

Q4 (i) What are custom exceptions in Java? How to create custom unchecked exception in Java, show with the help of Java code snippets. (6)

Q4 (ii) Consider the following Java code snippet. What will be the output of the given code? Show step-by-step internal working of the code also. (4)

```
byte a=22, b=-22, c, d, e, f, g, h;
c=(byte) (a<<2);
d=(byte) (a>>2);
e=(byte) (a>>>2);
System.out.println(c+" "+d+" "+e);
f=(byte) (b<<2);
g=(byte) (b>>2);
h=(byte) (b>>>2);
System.out.println(f+" "+g+" "+h);
```

Q5 (i) Show the exact output produced by the following Java code segment.

(6)

```
char[][] pic = new char[6][6];
for (int i = 0; i < 6; i++)
    for (int j = 0; j < 6; j++) {
        if ( i == j || i == 0 || i == 5 )
            pic[i][j] = '@';
        else
            pic[i][j] = '*';
    }
for (int i = 0; i < 6; i++) {
    for (int j = 0; j < 6; j++)
        System.out.print(pic[i][j]);
    System.out.println();
}
```

Q5 (ii) What will be the output of the following code? Justify your answer.

(4)

```
class Abc
{
    static Abc obj;
    static Ram ram_obj;
    public static void main(String[] args)
    {
        obj.show();
        ram_obj.show_Ram();
    }
    static void show()
    {
        System.out.println("Show method in Abc class");
    }
}
// Another class in the same package.
class Ram
{
    static void show_Ram()
    {
        System.out.print("Show method in Ram class");
    }
}
```

Q6 (i) Consider the following JAVA code snippet. What will be the output of the given code? Justify your answer. (4)

```
class Abc {
    public static void main(String[] args){
        String [][][]arr={
            { {}, null},
            { {"i","2"}, {"1", null, "3"}},
            {},
            { { "1", null}}
        };

        System.out.println(arr[0].length);
        System.out.println(arr.length);
        System.out.println(arr[1][2].length);
    }
}
```

Q6 (ii) Consider the following statements related to casting and conversion. Select the correct statements and justify your answer. (4)

- A) Conversion from int to long does not need a cast.
- B) Conversion from byte to short does not need a cast.
- C) Conversion from float to long does not need a cast.
- D) Conversion from short to char does not need a cast.
- E) Conversion from boolean to byte using a cast is not possible.

Q6 (iii) What will be the output of the following program and justify your answer. (2)

```
class Demo
{
    public static void main(String args[]) {
        System.out.print(2 + 3 + "Demo"+2+3);
    }
}
```