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MANIPAL UNIVERSITY JAIPUR

Faculty of Engineering
School of Information Technology
B.Tech (Information Technology)
III Semester
Mid-Term I Examination, Session: July 2022 – November 2022
IT 2103 Object-Oriented Programming
(CLOSED BOOK)

Duration: 1 Hours   **Max. Marks:20**

Instructions:

- Answer all questions. No need of any Calculator.
- Missing data, if any, may be assumed suitably.
- Assume no grammatical errors in any program.

1. (a) Predict the Output of following statements   [2+2]
   - (i)   System.out.println("Sessional I" + (10 > 6) + "Q1");
   - (ii)   System.out.println("I Score"+ 20/5 + 1 + "in MTE-I");
   - (iii)   System.out.print(" Hello "); System.out.println(" Welcome "); System.out.println(" Sessional I");
   - • (iv)   System.out.println("MTE I" + 10/5*4 + "MTE I");

   (b) Explain the difference between type casting and type promotion by taking suitable examples.

2. Complete the following Java program as per the commented specifications: [5]

```java
import java.util.Scanner;
class Test
{
    public static void main(String args[])
    {
        String name; int age; boolean isMale; boolean isMarried; // Variable Decalarions
        Scanner SC = new Scanner (System.in);

        /*Complete the Program as Follows
        (i)   Read the values of name, age, isMale and isMarried variables declared above from
              keyboard using Scanner instance 'SC' [All Variables are Declared Above]
        (ii)  Prints one of the following messages on System.out based upon the mentioned
              conditions
              (a) Display message "Mr" on Monitor if isMale is true
              (b) Display message "Miss" on Monitor if both isMale and isMarried are false
              (c) Display message "Mrs" on Monitor if isMale is false but isMarried is true
        */
    } // End of method
}// End of class
```

3. (a) Consider a class named 'Book' with various categories of variables as per following table   [5+3]

Variable Name	object or class variable	scope	type	Constant Yes/No
book_title	object	class scope only	String	No
book_price	object	class scope only	double	No
no_of_pages	object	class scope only	int	No
no_of_books	class	Globally Visible	int	No
color	class	Globally Visible	String	Yes with value "RED"

The class provides constructors so that any Book instance can be created either with only book_title or with (book_title and book_price) or with (book_title, book_price and no_of_pages).
The class provides an object method as 'public void displayValues()' which displays the values of all instance-fields (object variables) provided in the class to System.out.
The class provides an object method named as 'public int isEqual(Book other)' which compares the values of instance-fields of 'this' reference with 'other' reference and returns an integer value as follows:
   (i)   return 1 if book_price of 'this' reference is greater than the book_price of 'other' refence
   (ii) returns -1 if book_price of 'this' reference is less than to the book_price of 'other' refence
   (iii) returns 0 if book_price of 'this' reference is equal to the book_price of 'other' refence

You have to provide Java Code for the class named 'Book' as per above description.

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(b) Assume 'Book' class of QNo3(a) is available here. Complete the following class as per commented specification

```java
class Q3bTest
{
    public static void main(String args[])
    {
        /* Complete the Code as per commented specification given below
        (a)  Create three Book type instances of your choice.
        (b)  Display the attribute values of instances created in part (a)
        (c)  Demonstrate how you can invoke/use 'isEqual()' method of 'Book' class using instances
             created in Part (a) above.
        /*
    }// End of Method
}// End of class
```

4. Identify the errors in the following Java code program written in file name 'MTE1.java'   [3]

```java
import java.util.*;
package Q4
public class MTE1
{
    private    String    name = "Question 4";
    private    final     int       age;
    protected  static    final      sex = 'M';
    public     static    void       show()
    {
        static  int   a = 10;
        public  float b = 3.5f;
        System.out.println("Hello "+ name);
    }// End of show Method
}// End of class Student
```