

**2017****MCA****4th SEMESTER EXAMINATION****JAVA PROGRAMMING LAB****PAPER—MCA-407****(Practical)***Full Marks : 100**Time : 3 Hours**The figures in the margin indicate full marks.**Candidates are required to give their answers in their own words as far as practicable.**Illustrate the answers wherever necessary.**Answer any two questions selecting it by a lucky draw.***2×35**

1. Write a JAVA program to find the volume of a box has its sides  $w$ ,  $h$ ,  $d$  means width, height, and depth. Its volume is  $v = w * h * d$  and also find the surface area given by the formulae  $s = 2(wh + hd + dw)$ . Taking – Keyboard Input and Command Line Input.

*(Turn Over)*

2. Write a JAVA program to find the sum of digits of a given number.
3. Draw the following figure, where N is no. of rows and its value is to be given by input.

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      *                               *
     * *                             * *
    * * *                           * * *
   * * * *                          * * * *
  * * * * * * * * * * * * * * * *

```

where,  $N = 5$ .

4. Design a class to represent a bank account. Include the following members :

Data members :

- Name of the depositor.
- Account number.
- Type of account.
- Balance amount.

Methods :

- To assign initial values
- To deposit an amount
- To withdraw an amount after checking balance.

- To display the name and balance.
  - To transfer an amount from one account to another.
5. Write a package called `Clear`, it contains one public method `clrscr()`. It is used to clear the screen. Import the package and use it in another program. Add another public method `starline()`. It prints the line of 15 stars.
6. Write a JAVA program that create an **abstract** class called **Dimension**. Create two subclasses **Rectangle** and **Triangle**. Include appropriate methods for both the subclasses that calculate and display the area of the rectangle and triangle.
7. An electrical board charges the following rates to domestic users to discourage large consumption of energy :
- For the first 100 units – 60p per unit  
For next 100 units – 80p per unit  
Beyond 300 units – 90p per unit
- All users are charged a minimum of Rs.50.00. If the total amount is more than Rs.300.00 then an additional surcharge of 15% is added.

Write a program to read the names of users and number of units consumed and print out the charges with names.

8. Create a class called **Box** having following properties :
- (a) Three instance variables for three dimensions
  - (b) Three constructors – one with no argument, one with one argument and another with three arguments
  - (c) A method to calculate volume of the Box

Write a java program to create three objects of class **Box** using three different constructors and test it.

9. Write a program that will take names of 4 cars and Mileages/hour. Then print the name of cars according to descending values of Mileages/hour.
10. Write a program for user defined exception that checks the internal and external marks, if the internal mark is greater than 30, raise the exception **Internal Mark Exceeds**. If the external mark is greater than 70, exception is also raised and displays the message the **External Marks Exceeds**.

11. Write a program to :

- (a) Print the name, priority and Thread group of the thread.
- (b) Change the name of the current thread to "JAVA".
- (c) Displays the details of the current thread.

12. Write a program to implement simple calculator using applet.

Viva Voce :            20 marks

P.N.B. :                10 marks

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