ST. XAVIER'S COLLEGE
KOLKATA
(AUTONOMOUS)

1st SEMESTER EXAMINATION
NOVEMBER - DECEMBER 2014
M.Sc. Computer Science

CMSM4157

LAB 2; OBJECT ORIENTED PROGRAMMING LAB

Wednesday & Thursday,
10th December & 11th December 2014
10:00 am onwards
3 hours
Full Marks : **80**

READ THESE INSTRUCTIONS FIRST:

- Of the questions attempted, the answers to only the first required number of questions (as stipulated in the question paper) will be evaluated. **So please do not attempt extra questions**.
- Use fountain pen or ball-point pen of **blue** or **black ink**.
- Answer in your own words as far as practicable.
- Do not write anything on the Question paper other than your Roll No.

At the end of the examination, fasten all your work securely together.

The marks are given in **brackets [ ]** at the end of each question or part question.

SET: 1
PROGRAM CODE: 45; SAMPLE OUTPUT(S): 15; VIVA: 20

1. Write a program in Java to find out the frequency of the words starting with any vowel present in a set of words passed as command line arguments. All the words should be unique.

2. (a) Write a program in Java to find the GCD of two numbers.
   (b) Write a program in Java to reverse an array of characters of size 'n', where 'n' is a command line argument.

3. Create a base class called 'Vehicle' that stores number of wheels and speed. Create the following derived classes: 'Car' that stores number of passengers and 'Truck' that stores the load limit. Write a suitable main ( ) method to create objects of these classes and display all the information about Car and Truck. Also, compare the speed of the two vehicles, Car and Truck and display "faster" or "slower" if Car is respectively faster or slower than Truck.

4. Write a Java program to take a sentence as an input. Now individually reverse all the words that are present in the input sentence.

5. Write a program that creates a base class called 'Number'. This class holds an integer value and contains a virtual function called displayNum ( ). Create two derived classes called 'HexNum' and 'OctalNum' that inherit 'Number'. Override displayNum ( ) in the derived classes so that it displays the value in Hexadecimal and Octal, respectively. Write a main () function to create objects of type 'HexNum' and 'OctalNum' classes and display the hexadecimal and octal form of the supplied integer value. Note: Use base class object to call a function.

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