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**FIRST PRELIMINARY EXAMINATION 2012-2013**  
**COMPUTER APPLICATIONS**

**Std: X**  
**Date: 28-9-2012**  
**Session II**

**MM: 100**  
**TIME: 2HRS**

This paper is divided into two sections. You are to answer all questions from Section A and only four questions from Section B.

The intended marks for questions or parts of questions are given in brackets.

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SECTION A  
[attempt all questions]

**Question 1.**

The following program is supposed to find and print the prime numbers lying in the range z to n. Some parts of the program have been replaced by 1 to 5 and are underlined. Fill in these parts so that the program runs correctly. [10]

```
public static void prime(int n)
{
    int flag=0;

    for(int i=3;i< 1; i++)
    {
        for(int j=2;....2....; ++j)
        {

            if(....3..... ==0) flag = 1;
        }
        if(flag == 4....)
            System.out.println(.....5.....+"is prime);
    } }
```

**Question 2.**

- a. What are the smallest and largest integer values for the primitive data type short?
- b. What do you understand by the term data abstraction?
- c. What is meant by 'Inheritance'? Give an example.
- d. What will be the result stored in x and y after evaluating the following. Assume that initially x=- 2 and y = 5
  - i. X = ++y-x;
  - ii. Y +=x;

State one use of writing a constructor in a class.

- e. Write the Java statements to print the evaluated results of the following expressions [2]

- i.  $x^2+2x/x+y$
- ii.  $2\sqrt{r(r+h)}$

**Question 3.**

- a. Study the program segment given below and then answer the questions following it: [4]

```

Class Display
{
    private short a;private int b;
    public static void main(String x[])
    {
        System.out.println(20+"*"+30+ "="+20*30);
        System.out.println(20+"*"+31+ "="+21*30);
    } }

```

- i. How many times will the compiler call the constructor? Give reasons.
  - ii. What are the values of a and b, if not assigned explicitly?
- b. State the difference between Pure functions and Impure functions. [2]
- c. Read the program segment given below and then answer the questions following it. [2]

```

class Record
{
    public void method_info(String x)
    {
        char a="A", b="a"; // ASCII values are stored here
        int c=a++ +b;
    } }

```

- i. What value is stored in c after the method gets executed?
- ii. What is the value of a after the execution of the method?

**Question 4.**

- a. Illustrate the "?" operator. [2]
- b. What is the difference between post and pre increment factors? [2]
- c. if a=4, give values of ++a & a++ [2]
- d. Explain the use of a Constructor and Destructor in a class [2]
- e. Illustrate Insertion sort method on the following numbers [2]

2    8    1    9    4    3

**Section B**  
[Attempt any four]

**Question 5.**

Write a program to accept 10 names within an array. Accept a name and then apply the Binary Search technique to check whether the accepted name is present in it or not. Display relevant messages.

**Question 6.**

Define a class called Mobike with the following description:

Instance variables	Data Members
int bno	to store bike number
int phno	to store phone number
String name	to store name of customer
int days	to store no. of days the bike is taken on rent
Member Methods:	
void input()	to input & store details of customer
void compute()	to computer the rental charge

The rent for the bike is charged on the following basis:

First five days       Rs. 500 per day

Next five days       Rs. 400 per day

Rest of the days     Rs. 200 per day

void display() display details

**Question 7.**

Define a Java method to find frequency of each vowel in the accepted String. Call the above method through its main method

**Question 8.**

Using a double subscripted variable WAP in java to enter data to form a 6 x 7 array and get a print out as follows:

SUN	MON	TUES	WED	THURS	FRI	SAT
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28					

**Question 9.**

Write a java code to print the time period of a pendulum given by the following formula:

$T=2\pi \sqrt{l/g}$ , knowing that l stands for length of the pendulum and g, the acceleration due to gravity. [15]

**Question 10.**

Write a program in Java to accept a word and check whether it's a Palindrome word or not. A palindrome word is one which reads the same backwards and forwards. EG. MADAM