

**2015**  
**SECTION A (40 MARKS)**  
*Attempt all questions*

**Question 1**

- (a) What are the default values of the primitive data type **int** and **float**? [2]  
 (b) Name any two OOP's principles. [2]  
 (c) What are identifiers? [2]  
 (d) Identify the literals listed below: [2]  
     (i) 0.5 (ii) 'A' (iii) false (iv) "a"  
 (e) Name the wrapper classes of **char** type and **boolean** type. [2]

**Question 2**

- (a) Evaluate the value of **n** if the value of p = 5, q = 19  
 int n = (q-p)>(p-q) ? (q-p) : (p-q); [2]  
 (b) Arrange the primitive data types in ascending order of their size: [2]  
     (i) char (ii) byte (iii) double (iv) int  
 (c) What is the value stored in variable **res** given below: [2]  
 double res = Math.pow("345".indexOf('5'),3);  
 (d) Name the two types of constructors. [2]  
 (e) What are the values of **a** and **b** after following function is executed, if values are passed are 30 and 50:  
 void paws(int a, int b) [2]  
     { a=a+b;  
       b=a-b;  
       a=a-b;  
       System.out.println(a+" "+b);  
     }

**Question 3**

- (a) State the data type and value of **y** after the following is executed: [2]  
 char x='7';  
 y=Character.isLetter(x);  
 (b) What is the function of **catch** block in exception handling? Where does it appear in a program? [2]  
 (c) State the output when the following program segment is executed:+ [2]  
 String a= "Smartphone", b= "Graphic Art";  
 String h=a.substring(2,5);  
 String k=b.substring(8).toUpperCase();  
 System.out.println(h);  
 System.out.println(k.equalsIgnoreCase(h));  
 (d) The access specifier that gives the most accessibility is ..... and the least accessibility is ..... [2]  
 (e) (i) Name the mathematical function which is used to find **sine** of an angle given in radians? [2]  
     (ii) Name a string function which removes blank spaces provided in the prefix and suffix of string  
 (f) (i) What will be the code print? [2]  
 int arr[]=new int[5];  
 System.out.println(arr);  
     (i) 0 (ii) value stored in arr[0] (iii) 0000 (iv) garbage value  
     (ii) Name the keyword which is used to resolve the conflict between method parameter and instance variables/fields. [2]  
 (g) State the package that contains the class: [2]  
     (i) BufferedReader (ii) Scanner  
 (h) Write the output of the following program code: [2]  
 char ch; int x=97;  
 do  
 {  
 ch=(char)x;  
 System.out.println(ch+" ");  
 if(x%10==0)  
 break;  
 ++x;  
 } while(x<=100);  
 (i) Write Java expressions for [2]  
 $\frac{a^2 + b^2}{2ab}$

(j) If  $\text{int } y=10$ , then find  $\text{int } z=(++y * (y++ + 5))$ ;

**2015****SECTION B (60 MARKS)***Attempt any four questions***Question 4**Define a class **ParkingLot** with the following description:

Instance variables/data members:

int vno – To store the vehicle number

int hours – To store the number of hours the vehicle parked in the parking lot

double bill – To store the bill amount

Member methods:

void input() – To input and store the vno and hours.

void calculate() – To compute the parking charge at the rate of Rs. 3 for the first hour or part thereof, and Rs. 1.50 for each additional hour or part thereof.

void display() – To display the detail

Write a main method to create an object of the class and call the above methods. [15]

**Question 5**

Write two separate programs to generate the following patterns using iteration (loop) statements:

|           |               |
|-----------|---------------|
| (a) *     | (b) 5 4 3 2 1 |
| * #       | 5 4 3 2       |
| * # *     | 5 4 3         |
| * # * #   | 5 4           |
| * # * # * | 5             |

[15]

**Question 6**Write a program to input and store roll numbers, names and marks in 3 subjects of **n** number students in five single dimensional array and display the remark based on average marks as given below: (The maximum marks in the subject are 100. Average marks = Total marks / 3)

|                     |             |
|---------------------|-------------|
| Average marks       | Remark      |
| 85 – 100            | EXCELLENT   |
| 75 – 84             | DISTINCTION |
| GAMES GAMES 60 – 74 | FIRST CLASS |
| 40 – 59             | PASS        |
| Less than 40        | POOR        |

[15]

**Question 7**

Design a class to overload a function Joystring() as follows:

(i) void Joystring(String s, char ch1, char ch2) with one string argument and two character arguments that replaces the character argument **ch1** with the character argument **ch2** in the given string **a** and prints the new string.Example: Input value of s="TECHNALAGY"  
ch1='A', ch2='O'

Output: "TECHNOLOGY"

(ii) void Joystring(String a) with one string argument that prints the position of the first space and the last space of the given string s.

Example:

Input value of s="Cloud computing means Internet based computing"

Output: First index : 5

Last index : 36

(iii) void Joystring(String s1, String s2) with two string arguments that combines the two strings with a space between them and prints the resultant string. (Use library functions)

Example:

Input value of s1="COMMON WEALTH"

Input value of s2="GAMES"

Output: COMMON WEALTH GAMES [15]

**Question 8**

Write a program to input twenty names in an array. Arrange these names in descending order of alphabets using bubble sort technique. [15]

**Question 9**

Using a switch statement write a menu driven program to:

(i) To find and display all the factors of a number input by the user (including 1 and excluding the number itself).

Sample input: n=15 sample output: 1, 3, 5

(ii) To find and display the factorial of a number input by the user (the factorial of a non-negative integer **n**, denoted by **n!**, is the product of all integer less than or equal to **n**).

Sample input: n=5 Sample output: 5! = 1x2x3x4x5 = 120

For an incorrect choice an appropriate error message should be displayed. [15]