
COMPUTER APPLICATIONS

(Theory)

(Two hours)

Answers to this Paper must be written on the paper provided separately.

*You will **not** be allowed to write during the first **15** minutes.*

This time is to be spent in reading the question paper.

The time given at the head of this Paper is the time allowed for writing the answers.

This Paper is divided into two Sections.

*Attempt **all** questions from **Section A** and **any four** questions from **Section B**.*

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

SECTION A (40 Marks)

*Attempt **all** questions*

Question 1

- (a) Integer.parseInt() State the conversion happening in this statement. Which package this method belong. [2]
- (b) State why class is called as composite data type. Justify with example [2]
- (c) What is difference between Boolean literals and character literals. Give example. [2]
- (d) Explain the meaning of keyword new and return in java. What is the use ? [2]
- (e) Differentiate between operator and expression [2]

Question 2

- (a) Name any two OOP 's principles. Explain it. [2]
- (b) State one similarity and dissimilarity between while and do while loop. [2]
- (c) What is conditional operator ?. Give its syntax. [2]
- (d) What are the two ways of handling exceptions . [2]

(e) Differentiate between static and non static variables .

[2]

Question 3

(a) What is meant by an infinite loop ?. Give an example.

[2]

(b) What are the two ways of invoking functions .

[2]

(c) Attempt the following :

(i) Give return type of the following inbuilt methods.

- a. endsWith()
- b. equalsIgnoreCase()
- c. indexOf()

(ii) Differentiate between bubble sort and selection sort.

[2]

(iii) Write a java expression for the following :

a. $y = | Ax^3 + bx^2 + c |$

$$z = (a^2 + b^2) / 2ab$$

[2]

[2]

(iv) What are the values stored in a and b ?

```
double a = Math.abs(Math.min(-3.56,-6.89));  
double b = Math.sqrt ( Math.floor(36.4));
```

[2]

(v) What will be the output :

```
String a = " 2222";  
int z = Integer.valueOf(a);  
double w = Double.valueOf(a);  
System.out.println("z = " +z);  
System.out.println("w = " +w);
```

[2]

(d) What will be the output if x = 5 i. 5 * ++x ii. 5 * x++ [2]

(e) Differentiate between toLowerCase() and toUpperCase() methods.

(f) Write the output of the following : [2]

```
String x = "hello";
```

```
String y = "world";
```

```
i. System.out.println(x+y);
```

```
ii. System.out.println(x.length());
```

```
iii. System.out.println(x.charAt(3));
```

```
iv. System.out.println(x.equals(y));
```

[2]

SECTION B (60 Marks)

Attempt *any four* questions from this Section.

*The answers in this Section should consist of the **Programs in either Blue J environment or any program environment with Java as the base.** Each program should be written using **Variable descriptions/Mnemonic Codes** such that the logic of the program is clearly depicted.*

Flow-Charts and Algorithms are not required.

Question 4

Write a class and store the given names in a single dimensional array and sort these names in alphabetical order using Bubble Sort technique only.

input : Apple Orange Guava Mango Pineapple

Output : Apple Guava Mango Orange Pineapple

[15]

[15]

Question 5

Using switch statement write a menu driven program .

1. To accept a number and check whether it is a spy number or not
note: spy number is number whose sum of digits is equal to the product of its digits.
example : 1124
sum = 1 + 1 + 2 + 4 = 8
product = 1 * 1 * 2 * 4 = 8
- 2 To accept a number and check whether it is Narcissistic number or not
Note: Narcissistic number is whose cube sum of individual digit is equal to the number itself [15]
example : 407 = 4*4*4 + 0*0*0 +7*7*7

Question 6

Write a program to print the sum of negative numbers, sum of positive even numbers and sum of positive odd numbers from a list of numbers(N) entered by the user. The list terminates when the user enters a zero. [15]

Question 7

Write a program to input any string to calculate the total number of characters and vowels present in the string and also reverse the string : [15]

Example : INPUT
Enter String : SNOWY
OUTPUT
Total number of characters : 05
Number of Vowels : 01
Reverse string : YWONS [15]

Question 8

Write a program to initialize an array of 5 names and initialize another array with their respective telephone numbers. Search for name input by the user in the list . If found , display "search successful " and print the name along with the telephone number, else display " search unsuccessful . Name not found". [15]

Question 9

Write a class to overload a function series() as follows

- (i). double series (double n) which takes one double argument and returns the sum [15]

$$\text{sum} = \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \dots \frac{1}{n}$$

- (ii) double series (double x , double n) which returns the sum of the series

$$\text{sum} = \frac{1}{x^2} + \frac{4}{x^5} + \frac{7}{x^8} + \frac{10}{x^{11}} \dots \text{to } n \text{ terms}$$