

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) Name any two OOP'S principles.
- (b) Mention two different styles of expressing a *comment* in a program.
- (c) Which element is num[9] of the array num?
- (d) Differentiate between *operator* and *expression*.
- (e) If $m = 5$ and $n = 2$ output the values of m and n after execution in (i) and (ii):-

(i) $m - = n ;$

(ii) $n = m + m/n;$

[10]

Question 2

- (a) Explain the term *for loop* with an example.
- (b) What is a *compound statement*? Give an example.
- (c) State the difference between *Constructor* and *Method*.
- (d) State one similarity and one difference between *while* and *do while loop*.
- (e) Explain, with the help of an example, the purpose of *default* in a *switch statement*.

[10]

This Paper consists of 4 printed pages.



Question 3

- (a) What will be the output of the following, if $x = 5$ initially?
- (i) $5 * ++x$
 - (ii) $5 * x ++$ [2]
- (b) What is the output of the following?
- ```
char c = 'A';
short m = 26;
int n = c+m;
System.out.println(n);
```
- [2]
- (c) Explain the meaning of *break* and *continue* statements. [3]
- (d) (i) What is *call by value*?
- (ii) How are the following passed?
- (1) Primitive types.
  - (2) Reference types. [3]
- (e) Enter any two variables through constructor parameters and write a program to swap and print the values. [4]
- (f) What do the following functions return for:-
- ```
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));` [4]
- (g) Differentiate between *toLowerCase()* and *toUpperCase()* methods. [2]



SECTION B (60 Marks)

*Attempt **any four** questions from this Section.*

*The answers in this Section should consist of the **Program in Blue J environment with Java**. 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 with name **employee** and **basic** as its data member, to find the gross pay of an employee for the following allowances and deduction. Use meaningful variables.

Dearness Allowance = 25% of Basic Pay

House Rent Allowance = 15% of Basic Pay

Provident Fund = 8.33% of Basic Pay

Net pay = Basic Pay + Dearness Allowance + House Rent Allowance

Gross Pay = Net Pay – Provident Fund. [15]

Question 5

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

Example: INPUT

Enter string : SNOWY

OUTPUT :

Total number of characters : 05

Number of Vowels : 01

Reverse string : YWONS [15]



Question 6

Write a program using a function called area() to compute the area of a:-

- (i) circle ($\pi * r^2$) where $\pi = 3.14$
- (ii) square (side * side)
- (iii) rectangle (length * breadth)

Display the menu to output the area as per User's choice.

[15]

Question 7

Write a program to bubble sort the following set of values in ascending order:-

5, 3, 8, 4, 9, 2, 1, 12, 98, 16

Output: 1
2
3
4
5
8
9
12
16
98

[15]

Question 8

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 9

Write a program to initialize an array of 5 names and initialize another array with their respective telephone numbers. Search for a name input by the User, in the list. If found, display "Search Successful" and print the name along with the telephone number, otherwise display "Search unsuccessful. Name not enlisted".

[15]