
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 two types of java programs. [2]
- (b) Define instance variable . Give an example [2]
- (c) Differentiate between linear search and binary search. [2]
- (d) Explain with example do - while loop [2]
- (e) Why do we need constructor and destructor in java program. [2]

Question 2

- (a) What is the result produced by $2 - 10 * 3 + 100 / 11$? Show the steps. [2]
- (b) What is the difference between local variable and instance variable? [2]
- (c) `int x =20, y = 10, z;`
What is the value of z in
`z = ++x * (y --) - y ?`
Show the steps. [2]
- (d) What is the purpose of default in a switch? [2]

(e) What will be the output of the following code?

```
float x = 7.898;  
System.out.println(Math.ceil(x);  
System.out.println(Math.floor(x);
```

[2]

Question 3

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

[2]

(b) State the difference between if-else if ladder and switch...case.

[2]

(c) Attempt the following :

(i) Explain the concept of constructor overloading with an example.

(ii)

```
String s = "application";  
int p = s.indexOf('a');  
System.out.println(p);  
System.out.println(p+s);
```

[2]

[2]

(iii)

```
String st = "PROGRAM";  
System.out.println(st.indexOf(st.charAt(4)));
```

(iv)

```
int a = 0;  
if(a>0 && a<20)  
a++;  
else a- ;  
System.out.println(a);
```

[2]

[2]

(v)

```
int a= 5, b = 2,c;  
if (a>b || a != b)  
c = ++a+-b;  
System.out.print(c+ " "+a+ " "+b);
```

[2]

(d) Name and explain any two jump statements . [2]

(e) Find the errors and rewrite the following statement : integer array.

(f)

```
int i = 1;
while(i++<=1)
{
i++;
System.out.print(i + " ");
}
System.out.print(i);
```

```
int a = new int(5);
for (int i=0; i<=5; i++)
a[i] = i;
```

 [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 menu driven program for the following series :

i) $1/4 + 1/8 + 1/12 + \dots\dots\dots n$ terms.

ii) 1,8, 27 ,64 , 125,n terms. [15]

[15]

Question 5

Write a program to input a sentence and print the number of characters in the longest word of the given sentence :

input : "India got the independence"

output : 12

Question 6 Write a program to overload the method pattern() to display a numbers or pattern of characters using users choice [15]

Type 1 for pattern of numbers	Input : 1	Input : 2
Type 2 for pattern of letters	Enter the number of rows	Enter the last character
	5	F
	1	output :
	2 1 2	ABCDEF
	3 2 1 2 3	BCDEF
	4 3 2 1 2 3 4	CDEF
	5 4 3 2 1 2 3 4 5	DEF
		EF
		F

Question 7

Write a program to accept 10 int values into an array and find the second lowest in the given array without sorting the array .

Sample input : int a[] = {1,4, 5,6,7,3,2}

output : 2

Question 8

- Write a menu driven program [15]
- Input a string and arrange all the alphabets of the string in alphabetical order and display the new string.
 - Input a word and convert it to a piglatin word.
(hint : the Piglatin word is formed by taking the substring from first vowel position and then concatenating it with the letters from first letter till the first vowel i.e. before the first vowel. Finally a string "AY" is added at the last of the word formed.

Sample input: LONDON

Sample output: ONDONLAY

Question 9

Write a menu driven program for the following :

- Accept a number and check if its Disarium number [15]
- Accept a number and check if its Emirp number or not

Disarium number : if sum of its digits powered with their respective positions is number itself
eg $175 = 1^1 + 7^2 + 5^3$

Emirp number is a number which is prime backwards and forwards
eg : 13 and 31 are both prime numbers