COMPUTER APPLICATONS

(THEORY)

(Two Hours)

This paper is divided into two sections.

*You are to answer **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.*

While answering questions form this Part, indicate briefly your working and reasoning, wherever required.

Question 1

(a) State the difference between while and do-while statement. **[2]**

(b) What is break in switch statement. **[2]**

(c) What do you mean by 'this' keyword. **[2]**

(d) What is meant by an infinite loop? Give an example. **[2]**

(e) State the difference between constructor and function (method). **[2]**

Question 2

(a) Name the following **[4]**

   i) A package needed to perform input and output tasks.

   ii) A function that returns index of last occurrence of a specified character.

   iii) A function to remove leading and trailing space of string.

   iv) A OOPs principal that implement function overloading.

(b) Write any two Non primitive data type. **[2]**

(c) Distinguish between 'char' and 'String'. **[2]**

(d) Write an equivalent Java expression for **[2]**

   i) $s = ut + \dfrac{1}{2}at^2$

   ii) $r = \dfrac{-b + \sqrt{b^2 - 4ac}}{2a}$

Question 3

(a) What do you understand by prefix and postfix operators? Give example. **[2]**

(b) Give the output of the following. **[4]**

```
char ch='A';
int x = 32, y = 2;
```

   i) System.out.println(ch+y);

   ii) System.out.println(ch+x);

   iii) System.out.println(++ch);

   iv) System.out.println((char)(ch+x+y));

(c) What do you mean by Object. **[2]**

(d) Find the value of z in the following program segment. **[2]**

```
int x = 5, y = 12, z;
z = (x>= y ? x – y : y – x );
```

(e) if String x = "Computer", y = "Applications"; **[4]**
   What do the following functions return for:

   i) x.compareTo(y);

   ii) y.indexOf(y.charAt(8));

   iii) x.length( ) > y.length( );

   iv) y.indexOf('i',4);

(f) Explain Function. Write the syntax of user defined function. **[4]**

(g) Difference between default and parameterized constructor. **[2]**

SECTION-B (60 Marks)

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

Question 4   **[15]**

Define a class Stock having the following description:

    Data members are name, quantity, rate

    Member functions are   i) public void input( ) [To input name, quantity and rate]

                                  ii) public void sell(int x) [reduce x quantity from stock after checking stock]

                                  iii) public void add(int y) [add y quantity into stock]

                                  iv) public void display( ) [display current stock position]

Question 5   **[15]**

A man is paid the hourly rate (R) for the first 35 hours, he works in a week. There after, he is paid at 1.5 time that hourly rate (R) for the next 25 hours he works in a week, and at twice the hourly rate (R) for a further 10 hours in a week. He is not allowed to work for more than 70 hours in a week.
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Taking the number of hours worked (H) and the rate per hour (R) as inputs, the weekly wages (W) are to be calculated and printed. Write a JAVA program for the above situation and print the weekly wages.

Question 6   **[15]**

Write a program to input a number and display sum of first and last digit only.

    e.g.   **input** num = 3459   **output**   sum = 3 + 9 = 12

                        num = 568   **output**   sum = 5 + 8 = 13

Question 7   **[15]**

Write a program to input value of x and n. Display sum of following series

$$sum = \frac{x}{1!} + \frac{x^3}{2!} + \frac{x^5}{3!} + \dots \dots \frac{x^{2n-1}}{n!}$$

Question 8   **[15]**

Write a program to input a name and display name in following format.

    e.g.   **Input** name = "Amit Kumar Verma"   **Output**   "Verma, A.K."

                      name = "Ajay Yadav"   **Output**   "Yadav, A."

Question 9   **[15]**

Write a program to input a string. Convert all vowels in lower case and all consonant in Upper case.
                    (A string may be upper, lower and special characters)

    e.g.   **Input** st = "WELCome TO School"   **Output**   "WeLCoMe To SCHooL"

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