

Oct-22/TE/Insem-546

T.E. (Electronics & E & TC)

FUNDAMENTALS OF JAVA PROGRAMMING

(2019 Pattern) (Semester - I) (304185) (Elective - I)

Time : 1 Hour]

[Max. Marks : 30

Instructions to the candidates :

- 1) Answer Q1 or Q2, Q3 or Q4.
- 2) Neat diagrams must be drawn wherever necessary.
- 3) Figures to the right indicate full marks.
- 4) Assume suitable data, if necessary.

Q1) a) Draw and explain JVM architecture. [5]

- b) The straight line method of computing the yearly depreciation of the value of an item is given by

$$\text{Depreciation} = \frac{\text{Purchase price} - \text{Salvage value}}{\text{Years of service}}$$

Write a Java program

to determine the salvage value of an item when the purchase price, years of service and the annual depreciation is given. [8]

- c) Write a Java assignment statement to evaluate the following expression. [2]

$$\text{Torque} = \frac{2m_1m_2}{m_1 + m_2} * g$$

OR

Q2) a) Write a short note on control statements in Java. [7]

- b) For a certain electrical circuit with an inductance L and resistance R,

the damped natural frequency is given by $\text{Frequency} = \sqrt{\frac{1}{LC} - \frac{R^2}{4C^2}}$

Write a Java program which will accept L, C and R values from the user and will display the frequency. [8]

P.T.O.

- Q3)** a) Explain a concept of constructor overloading with suitable example. [8]
- b) Explain following : [4]
- i) Static variables
 - ii) Static methods
- c) Write a program in Java to calculate the factorial of any number given. [3]

OR

- Q4)** a) What is a constructor? What are its special properties? [4]
- b) Write a Java program to design a class date, including the following members. [8]
- A) Data members :
 - 1) day
 - 2) month
 - 3) year
 - B) Methods :
 - 1) Constructor to initialize the date object
 - 2) Display method to display date in format **dd:mm:yyyy**
- Write a program to invoke all the methods.
- c) Explain access specifiers in Java. [3]
