Programme: Master of Computer Application   **Session:** 2015-16   **Full Marks:** 10
Course/Subject Name: Numerical & Statistical Methods   **course/Subject Code:** CS 4201
Assignment No: 1   **Last Date of Submission:** 31st March 2016

SECTION – A

Choose the correct option: **[0.5x10=5]**

1. Solve the system by elimination, if the system is inconsistent or has dependent equations, say so ,

   (i) -x-8y= -7   (ii)   (iii)   (iv)Inconsistent system.

 2. How many litres of a 10% sugar must be mixed with a 50L of a 90% solution to get a 50% solution?

 3. Newton's forward difference interpolation is used when calculating the value of a point near,

   (i) x_0 (ii) X_n (iii) x_∞ (iv) None of the above

   4. Newton's backward difference interpolation is used when calculating the value of a point near,

   (i) x_0 (ii) X_n (iii) x^∞ (iv) None of the above.

   5. In the solution of ordinary differential equation in ,   is a function of above , then which pair of methods become identical,
   (i) Simpsons rule & Trapezoidal rule   (ii) Trapezoidal rule & Eulers method
   (iii) Simpsons rule & Runge Kutta method (iv) Eulers method & Runge Kutta method

6. Simpsons rule   is applicable to,

 i. Odd no of intervals,   ii. Even no of intervals,
iii. Odd or even no of intervals,   iv. None of the above.

7. Which of the following formula does not require that the interval of integration be divided into an even no of intervals,

   i.Simpsons formula,   ii. Weddle formula,
   iii. Trapezoidal rule,   iv. None of the above.

8. Which of the following formula is most accurate for numerical integration?

 i. Simpsons rule,   ii. Trapezoidal rule,
 iii. Weddle's formula,   iv. Gausss Quadrature formula.

9. $=$

    i. y_1-y_0,   ii. $Y_2-2y_1+y_0$,   iii. (i)& (ii) both,   iv. None of these.

10. $=$

    i. y_0 ii. y_1,   iii. Y_0-y_1,   iv. None of these.

SECTION –B

Answer any <u>Five questions</u> from the following within 50 words   **[1x5=5]**

        1. Define Interpolation.

        2. Write down the formula to use Simpsons rule.

        3. Write down the formula to use Trapezoidal rule.

        4. Write the mathematical expression for Taylor's series.

        5. Write down the Taylors series expansion of.

        6. What is Newton's forward difference Interpolation?

        7. What is Newton's backward difference Interpolation?