Date: 22/10/16
Time: (2 hours)
Total Marks: 50

Subject Code: 05191201
Subject Title:Computer oriented numerical &statistical method
Course: BCA / IMCA Semester: 3

(05)

## Q-1) Solve MCQ

1  which of the following is not an error
A )absolute      B) percentage      C) truncation      D) flow

2  Which of the following is rounding off 2.3155 to 3 decimal places
A)2.314      B) 2.315      C) 2.316      D)2.3155

3  Which of the following method is used to solve nonlinear equation
A)gauss elimination B)gauss jordon C)gauss seidle D)bisection

4  Which of the following method is used to solve linear equation
A )gauss jordon B) bisection C)secant method D)langrange method

5  Which of the following is used to find intermideate value of function
A ) langrange method B)regula falsi C) gauss elimination D)none

(05)

## Q-2) Answer the following (1 line)

1  Write types of errors.
2  Explain rounding off error with example.
3  Write down formula of langrange method.
4  Write down formula of newtons interpolation formula
5  Write formula for finding 2 constants a,b of straight line y=a+bx

(20)

## Q-3) Answer the following questions (long) (Attempt any 4 from 6)

1  find roots of the equation $x^3 - 12 = 0$ using bisection method.
2  solve $x - \cos x = 0$ using regula falsi method.
3  solve $x^3 - x - 7 = 0$ using secant method.
4  solve system of linear euations using guass elimination method.
   $x - 2y + z = 3, x + y - z = 4, x - y - z = 2$
5  solve system of linear euations using guass jaccobbi method.
   $15x - 2y + z = 13, x + 12y - z = 14, x - y - 15z = 12$
6  solve system of linear euations using guass seidle method.
   $15x - 2y + 2z = 15, 2x - 16y - z = 15, 2x + y - 17z = 14$

**Q-4) Answer the following questions ( Long) (Attempt any 4 from 6)** (20)

1 Find the value of y when x=12 using Newton's forward interpolation formula.

| x | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|---|----|----|----|----|----|----|----|----|----|
| y | 42 | 77 | 84 | 96 | 105 | 116 | 125 | 144 | 169 |

2 Find the value of f(3) using Newton's divided difference formula

| x | 0 | 1 | 2 | 4 | 5 | 6 |
|---|---|----|----|---|---|----|
| y | 1 | 14 | 15 | 5 | 6 | 19 |

3 Compute f(0.3) for the data using Lagrange's formula.

| x | 0 | 1 | 3 | 4 | 7 |
|---|---|---|----|-----|-----|
| y | 1 | 3 | 49 | 129 | 813 |

4 Find the best-fit values of a and b so that $y = a + bx$ fits the data given in the table

| x | 0 | 1 | 3 | 4 |
|---|---|-----|-----|-----|
| y | 1 | 1.8 | 3.3 | 6.3 |

5 Fit a second-degree parabola to the following data taking x as the independent variable.

| x | 0 | 1 | 2 | 3 | 4 |
|---|----|----|---|----|----|
| y | -4 | -1 | 4 | 11 | 20 |

6 Find the value of y when x=86 using Newton's backward interpolation formula.

| x | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 |
|---|----|----|----|----|----|----|----|----|----|
| y | 32 | 67 | 84 | 94 | 103 | 114 | 126 | 144 | 160 |

*** All the Best***

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