Enrollment No: _____ Exam Seat No:_____

C.U.SHAH UNIVERSITY

Winter Examination-2015

Subject Name : COMPUTER ORIENTED NUMERICAL METHODS

Subject Code : 4CS02BCO2 Branch :BCA
Semester :II Date :19/11/2015 Time :10:30 To 1:30 Marks : 70 Marks
Instructions:

(1) Use of Programmable calculator & any other electronic instrument is prohibited.
(2) Instructions written on main answer book are strictly to be obeyed.
(3) Draw neat diagrams and figures (if necessary) at right places.
(4) Assume suitable data if needed.

Q-1 **Attempt the following questions:** **(14)**
(MCQ/Short Type of Questions=1 mark*14=14 marks)

a) Bisection method is also known as _____ method. 01

b) False_position method is also known as _____ method. 01

c) Write formula for Newton's Forward Difference Interpolation method. 01

d) What is graph? 01

e) What is null Graph? 01

f) What is Polinomial? 01

g) What is Interpolation? 01

h) What is Integration? 01

i) Write any two methods for Integration. 01

j) Give definition of Iterative method 01

k) Give definition of leaf related to tree 01

l) Give definition of Root note related to tree 01

m) What is path? 01

n) What is binary Tree? 01

Attempt any four questions from Q-2 to Q-8

Q-2 **Attempt all questions** **(14)**

a) Solve using Gauss-jordan Method **07**

2X+3Y+3Z=2

3X+5Y-2Z=10

2X-5Y=4Z=-7

b) Solve using Gauss- Elimination Method **07**

X+2Y-3Z=0

2X-Y+Z=0

X+Y+Z=3

Q-3 **Attempt all questions** **(14)**

a Apply newton's backward method for finding out the number of students who obtained marks 36 or more, but less than 40. **07**

Marks	20	25	30	35	40
Number of Students	20	45	115	210	225

b Apply Langrange's method to find log656 using following data **07**

Logx	654	658	659	661
y(x)	2.8156	2.8182	2.8189	2.8202

Q-4 **Attempt all questions** **(14)**

a Find root using bisection method **07**

$f(x)=x^3-4x-9$

b Find the approx. value of y corresponding to x=1 using Eular method. Given that **07**

$\frac{dy}{dx}$= x+y and y =1 when x=0 ?

Q-5 **Attempt all questions** **(14)**

a Find root using Newton Raphson method **07**

$f(x)= x^3-3x-1=0$

b Using RK-II compute y(0.2) when **07**

y(0)=1 taking h=0.1 and

$\frac{dy}{dx}=x^2+y^2$

Q-6 **Attempt all questions** **(14)**

a Evaluate using simpson's 1/3 rd rule **07**

S	0	10	20	30	40	50	60
V	47	58	64	65	61	52	38

b **07**

$\int_0^1 3^x dx$ Evaluate Considering five sub-intervals by using trapezoidal rule

Q-7 **Attempt all questions** **(14)**

a Solve the following using Jacobi's method accurate to four significant digits. **07**

20x1+x2-2x3=17
3x1+20x2-x3=-18
2x1-3x2+20x3=25

b Solve the following equation using Gauss-seidel method **07**

10x1+x2+2x3=44
2x1+10x2+x3=51
x1+2x2+10x3=61

Q-8 **Attempt all questions** **(14)**

a Find y(2.35) using Newton's Forward Interpolation method **07**

x	2.0	2.25	2.50	2.75	3.0
y(x)	9.00	10.06	11.25	12.56	14.00

b **07**

Evaluate $\int_0^6 \frac{dx}{x^2+1}$ using simpson's 3/8 rule taking h=1