Enrollment No:-_____   Exam Seat No:-_____

C.U.SHAH UNIVERSITY
Summer-2015
Subject Code: 4CS02BC02/4CS02ICO1 **Subject** Name: Computer Oriented Numerical Methods

Course Name:B.C.A./B.Sc. (IT)   Date: 15/5/2015

Semester:II   Marks:70

                                                 Time:10:30 TO 01:30

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Instructions:
1) Attempt all Questions of both sections in same answer book/Supplementary.
2) Use of Programmable calculator & any other electronic instrument prohibited.
3) Instructions written on main answer book are strictly to be obeyed.
4) Draw neat diagrams & figures (if necessary) at right places.
5) Assume suitable & perfect data if needed.

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Q1. Attempt following.
    1. What is the meaning of iterative methods? (2)
    2. Write a formula used in N-R method. (2)
    3. What is a difference between newton's forward difference interpolation and newton's backward difference interpolation? (2)
    4. Define interpolation. (2)
    5. What is numerical integration? (2)
    6. Compare False position and secant method. (2)
    7. What is boolean algebra? (2)

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

Q2. Attempt following.
    1. Find the roots of equation $x^3-4x-9=0$ using Secant method. (7)
    2. Find the roots of equation $x^3-2x-5=0$ using False position method. (7)

Q3. Attempt following.
    1. Find the roots of equation $x^3-5x+3=0$ using Bisection method. (7)
    2. Solve the equations using Guass Jordan method-
    $X + Y + Z = 2$, $X - 2Y + Z = 5$, $X + 3Y + 2Z = 2$ (7)

Q4. Attempt following.
    1. Solve the equations using Guass Elimination method-
    $2X+8y+2z=14$, $x+6y-z=13$, $2x-y+2z=5$ (7)
    2. Solve the equations using Guass Seidel method-
    $5X - 3Y + Z = 1$, $2X + 5Y + 3Z = 4$, $2X - 2Y + 5Z = -5$ (7)

Q5. Attempt following.
    1. Find the value of y(3.15) using newton's forward difference interpolation formula. (7)

X	2	3	4	5	6
Y	5.65	10.06	12.15	14.56	16.2

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2. Find the value of y(4.25) using newton's backward difference interpolation formula.

X	2.5	3.0	3.5	4.0	4.5
Y	11.5	13.56	15.89	18.25	20.56

(7)

Q6. Attempt following.

1. Calculate $\int_0^2 x^2 dx$ using ten intervals by trapezoidal method. (7)
2. Calculate $\int_0^1 (3x^2 + e^x)\, dx$ using Simpson's 3/8 rule. (7)

Q7. Attempt following.

1. Using R – K II, with y(1)=5, and given that $^{dy}/_{dx} = XY$
   find y(1.5)(h=0.1) (7)
2. Explain matrix representation of graph path with example. (7)

Q8. Attempt following.

1. Describe stone's representation theorem in Boolean algebra. (7)
2. Explain hasse diagram with example. (7)

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