Enrollment No:-_____   Exam Seat No:-_____

C.U.SHAH UNIVERSITY
Summer-2015

Subject Code: 4CS02IMR1   **Subject Name: Computer Oriented Mathematical Reasoning**
Course Name: 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 questions.
1. Write the differences between Guass Elimination and Guass Jordan method.   (2)
2. What do you mean by interpolation?   (2)
3. Write the differences between newton's forward and newton's backward method. (2)
4. Write a formula of trapezoidal method.   (2)
5. Write a formula of N-R method.   (2)
6. What is transportation problem?   (2)
7. Which is the best method to solve transportation problem?   (2)

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

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

Q3. 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 Jordan method-
    $X+y+z=3$, $2x+3y+4z=9$, $x+2y-3z=0$ (7)

Q4. Attempt following.
1. Find the value of y(2.35) using newton's forward difference interpolation formula.(7)

X	2	2.25	2.5	2.75	3.0
Y	9.0	10.06	11.25	12.56	14.0

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	9.75	12.45	15.70	19.52	23.75

                                                                                  (7)

Q5. Attempt following.
1. Find the value of y when x=2.5 using Lagrangian Interpolation.   (7)

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X	0	1	2	3
Y	0	2	8	27

    2.   Calculate $\int_0^1 x^3 dx$ using five intervals by trapezoidal method.   (7)

Q6. Attempt following.

    1. Calculate $\int_1^2 e^{-x/2} \, dx$ using four intervals by Simpson's 1/3 rule.   (7)

    2. Calculate $\int_0^6 \frac{dx}{x^2+1}$ using Simpson's 3/8 rule.   (7)

Q7. Attempt following.

    1. Find the roots of equation $x^3-5x+3=0$ using Secant method.   (7)

    2. Find the roots of equation $x^3-x-4=0$ using N -R method.   (7)

Q8. Attempt following.

1. Obtain an initial basic feasible solution to the following transportation problem using Least Cost method.   (7)

from	To A	B	C	D	available
o1	11	13	17	14	250
o2	16	18	14	10	300
o3	21	24	13	10	400
requirement	200	225	275	250	

    2. Obtain an initial basic feasible solution to the following transportation problem using North west corner method.

    (7)

from	To A	B	C	D	available
o1	2	3	11	7	6
o2	1	0	6	1	1
o3	5	8	15	9	10
requirement	7	5	3	2	

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