Kathmandu University

First In-Semester Exam-2025

Department of Artificial Intelligence, Panchkhal

Level: B.Tech Artificial Intelligence	Course: AIMA 203
Year: II	Semester: II
Time: 60 minutes	F.M. : 20

1. Round off the digits 45.321 and 12.987 upto two decimal places and find the error in their product after rounding off. [2]
2. Find a root of $x^3 - 4x - 9 = 0$, using bisection method, with absolute error less than 10^2. [4]
3. Describe error due to truncation. Find a root of $f(x) = xe^x - 1 = 0$, correct to 2 decimal places. [1+3]

Kathmandu University

First In-Semester Exam-2025

Department of Artificial Intelligence, Panchkhal

Level: B.Tech Artificial Intelligence	Course: AIMA 203
Year: II	Semester: II
Time: 60 minutes	F.M. : 20

1. Round off the digits 45.321 and 12.987 upto two decimal places and find the error in their product after rounding off. [2]
2. Find a root of $x^3 - 4x - 9 = 0$, using bisection method, with absolute error less than 10^2. [4]
3. Describe error due to truncation. Find a root of $f(x) = xe^x - 1 = 0$, correct to 2 decimal places. [1+3]

4. Find a real root of the equation $x^2 + y = 1, x + y^2 = 7$, using the method of iteration, correct up-to 2 decimal places. [4]

5. Solve using LU-factorization method. $3x_1 - x_2 = -1, \quad -x_1 + 3x_2 - x_3 = 7, \quad -x_2 + 3x_3 = 7$. [4]

6. Show that the matrix $A = \begin{bmatrix} 25 & 24 & 10 \\ 66 & 78 & 37 \\ 92 & -73 & -80 \end{bmatrix}$ is ill-conditioned.

7. Find a real root of the equation $x^2 + y = 1, x + y^2 = 7$, using the method of iteration, correct up-to 2 decimal places. [4]

8. Solve using LU-factorization method. $3x_1 - x_2 = -1, \quad -x_1 + 3x_2 - x_3 = 7, \quad -x_2 + 3x_3 = 7$. [4]

9. Show that the matrix $A = \begin{bmatrix} 25 & 24 & 10 \\ 66 & 78 & 37 \\ 92 & -73 & -80 \end{bmatrix}$ is ill-conditioned.