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MATRIC NO:17/ENG01/003

DEPARTMENT: CHEMICAL ENGINEERING

ENG 382 ASSIGNMENT 3

1a. Gauss-Siedel Method using Microsoft Excel







USING MATLAB TO SOLVE GAUSS-SIEDEL METHOD

* Commandwindow
* Clear
* Clc
* A=[2 2 -4 2 6 -2;4 -2 2 4 2 -6;2 6 -6 -2 4 2;10 4 -2 -2 4 2;-6 -2 4 6 2 6;8 6 2 -12 -6 -4]
* B=[12;60;-45;-9;48;-81]
* T=inv(A)\*B

SOLUTION From MatLAB

A =

 2 2 -4 2 6 -2

 4 -2 2 4 2 -6

 2 6 -6 -2 4 2

 10 4 -2 -2 4 2

 -6 -2 4 6 2 6

 8 6 2 -12 -6 -4

B = T=

 12 1.50000

 60 -3.50000

 -45 4.0000

 -9 6.0000

 48 3.0000

 -81 -1.50000

3. MATRIX-INCERSE METHOD USING EXCEL



**CODE FOR** **A^-1 CELL=** **=MINVERSE(C4:H9)**

**CODE FOR B CELL= =MMULT(C12:H17,N4:N9)**

4. MATRIX-INVERSE METHOD USING MATLAB

* commandwindow
* clear
* clc
* A=[2 2 -4 2 6 -2;4 -2 2 4 2 -6;2 6 -6 -2 4 2;10 4 -2 -2 4 2;-6 -2 4 6 2 6;8 6 2 -12 -6 -4]
* B=[12;60;-45;-9;48;-81]
* AI=inv(A)
* T=inv(AI)\*B

MATLAB SOLUTION

A =

 2 2 -4 2 6 -2

 4 -2 2 4 2 -6

 2 6 -6 -2 4 2

 10 4 -2 -2 4 2

 -6 -2 4 6 2 6

 8 6 2 -12 -6 -4

B =

 12

 60

 -45

 -9

 48

 -81

AI =

 -0.1514 0.0775 0.0423 0.0986 -0.0528 -0.0493

 -0.2746 0.2723 0.4061 -0.1080 0.1174 0.0540

 0.1655 -0.0188 -0.1315 -0.0012 0.1643 0.1256

 -0.4577 0.3427 0.3991 -0.0411 0.0012 -0.1045

 0.5458 -0.2676 -0.3732 0.0458 0.0915 0.1021

 -0.0775 -0.0728 -0.0094 0.0892 0.0117 -0.0446

T =

 756.0000

 384.0000

 702.0000

 498.0000

 -816.0000

 510.0000