## CS ASSIGNMENT

1) Solve the follow. linear system of eq. s. using Jacobi iteration method

$$5x + 2y + 2 = 12$$
  
 $x + 4y + 2z = 15$   
 $x + 2y + 5z = 20$ 

1) Taking initial approximation > (2,2,2)

and iteration

Similarly:  3rd iteration:  78 = 0.9957  72 = 1.008  73 = 2.085  28 = 2.9257  29 = 2.982  3th iteration:  79 = 1.0021  79 = 2.0032  79 = 2.0032  79 = 2.0032  79 = 2.0032  79 = 2.0032  79 = 2.0032  70 = 2.0032  70 = 2.0032  70 = 2.0032  70 = 2.0032  70 = 2.0032  70 = 2.0032  70 = 2.0033  70 = 1.0063  70 = 1.9989  70 = 2.0059  71 = 1.001  70 iteration:  70 iteration:  71 = 1.001  72 = 2.0013  73 = 2.0037  74 = 2.0041  75 iteration:  70 iteration:  71 = 1.001  72 = 2.0097  73 = 1.0004  74 = 2.0087  74 = 2.0087  75 iteration:  76 iteration:  77 iteration:  78 = 2.09993  79 = 2.0087  79 = 2.0087  79 = 2.0087  70 iteration:  71 = 1.0004	9	
3rd iteration: $718 = 0.9957$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.008$ $713 = 1.0021$ $714 = 0.9676$ $714 = 0.9676$ $714 = 0.9676$ $714 = 0.9676$ $714 = 0.9676$ $714 = 0.9676$ $714 = 0.921$ $715 = 1.0063$ $715 = 1.0063$ $715 = 1.0063$ $715 = 1.0063$ $715 = 1.0063$ $715 = 1.0063$ $715 = 1.0063$ $716 = 1.9984$ $717 = 1.001$ $718 = 0.9885$ $718 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$ $719 = 1.001$	- Cimilarly,	gth iteration:
$7_3 = 1.008$ $7_3 = 1.008$ $7_4 = 2.085$ $7_5 = 2.992$ $7_4 = 0.9676$ $7_4 = 0.9676$ $7_5 = 1.0021$ $7_4 = 0.9676$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_7 = 1.001$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$	314	
$7_3 = 1.008$ $7_3 = 1.008$ $7_4 = 2.085$ $7_5 = 2.992$ $7_4 = 0.9676$ $7_4 = 0.9676$ $7_5 = 1.0021$ $7_4 = 0.9676$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_5 = 1.0063$ $7_7 = 1.001$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 0.9885$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$ $7_8 = 1.001$	iteration:	78= 0.9957
$43 = 2.085$ $23 = 2.992$ $3^{th}$ iteration:  4th iteration: $3^{th}$ iteration:		4 = 1.9969
23 = 2.992  4th iteration:-  24 = 1.0021  24 = 0.9676  25 = 3.0021  24 = 2.002  24 = 2.9644  10th iteration:-  25th iter	1:008	
4th iteration: $x_3 = 1.0021$ $x_4 = 0.9676$ $y_3 = 2.0032$ $y_4 = 2.002$ $y_4 = 2.002$ $y_5 = 2.0021$ $y_6 = 0.9283$ $y_{10} = 1.9984$ $y_8 = 1.0063$ $y_8 = 1.0063$ $y_8 = 1.0063$ $y_8 = 2.0259$ $y_8 = 2.0259$ $y_8 = 2.0259$ $y_8 = 2.0057$ $y_9 = 2.0013$	2- 2-085	
$74 = 0.9676$ $29 = 2.0022$ $24 = 2.9644$ $10^{th}$ iteration: $3^{th}$ iteration:	3 - 2.992	9th iteration 1-
$74 = 0.9676$ $29 = 2.0022$ $24 = 2.9644$ $10^{th}$ iteration: $3^{th}$ iteration:	4th it-2 to 2	
	I LEXAMON :-	
$34 = 2.002$ $34 = 2.9644$ $10^{th}$ iteration: $34 = 2.9644$ $34 = 0.9283$ $34 = 1.9984$ $34 = 2.0259$ $34 = 2.0259$ $34 = 2.0259$ $34 = 2.0259$ $34 = 2.0057$ $34 = 1.001$ $34 = 1.001$ $34 = 1.001$ $34 = 1.001$ $34 = 1.9956$	xy = 0.0021	45 = 2.0032
$\begin{array}{cccccccccccccccccccccccccccccccccccc$	yy = 2000	$z_2 = 3.0021$
Sth iteration: $ 76 = 1.0063$ $75 = 1.0063$ $75 = 2.0259$ $75 = 3.0057$ $76 = 1.001$ $76 = 0.9885$ $76 = 1.9956$	Zu = 2002	toth
75 = 1.0063 $75 = 1.0063$ $75 = 2.0259$ $75 = 3.0057$ $76 = 1.001$ $76 = 0.9885$ $76 = 0.9885$ $76 = 1.9956$ $76 = 1.9956$ $76 = 1.9956$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$		10° iteation 1-
75 = 1.0063 $75 = 1.0063$ $75 = 2.0259$ $75 = 3.0057$ $76 = 1.001$ $76 = 0.9885$ $76 = 0.9885$ $76 = 1.9956$ $76 = 1.9956$ $76 = 1.9956$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$ $77 = 1.001$	5th iteration!	0 - 0 2022
$75 = 1.0063$ $75 = 2.0259$ $75 = 3.0057$ $11^{th} iteration: -$ $6^{th} iteration: -$ $76 = 0.9885$ $76 = 1.9956$ $76 = 1.9956$ $76 = 2.986$ $712 = 0.9993$ $712 = 1.9993$ $712 = 1.9993$ $712 = 1.9993$ $712 = 2.0087$ $713 = 1.0004$ $713 = 1.0004$		
$75 = 2.0259$ $75 = 3.0057$ $11^{th}$ iteration:	715 = 1.0A63	
$25 = 3.0057$ $11^{th}$ iteration: $311 = 1.001$ $311 = 2.0013$ $312 = 3.001$ $313 = 1.0004$ $311 = 1.0001$ $311 = 1.0004$ $311 = 1.0004$ $311 = 1.0004$ $311 = 1.0004$ $311 = 1.0004$		2,0= 2,9583
6th iteration: $311 = 1.001$ $311 = 1.001$ $311 = 2.0013$		11th 5120400 .
$   \begin{array}{rcl}                                     $		THEXIXION :-
$   \begin{array}{rcl}                                     $	6th iteration:	7. = 1.001
76 = 0.9885 $74 = 1.9956$ $76 = 1.9956$ $76 = 2.9894$ $712 = 0.9993$ $712 = 1.9923$ $712 = 1.9923$ $712 = 1.9923$ $712 = 1.9923$ $712 = 1.9923$ $712 = 1.9923$ $713 = 1.0004$ $713 = 1.0004$		
$y_6 = 1.99.56$ $z_6 = 2.9884$ $y_{12} = 0.9993$ $y_{12} = 1.9993$ $y_{12} = 1.9993$ $y_{13} = 2.0087$ $y_{13} = 1.0004$ $y_{13} = 1.0004$	X6 = 0.9885	
$26 = 2.984$ $12^{th}$ iteration! $7^{th}$ iteration! $7_{12} = 0.9993$ $7_{12} = 1.9993$ $7_{12} = 1.9993$ $7_{12} = 2.9993$ $7_{12} = 2.9993$ $7_{13} = 3.0041$ $7_{13} = 1.0004$		51 - 2.001
$7^{th}$ iteration:- $2^{12} = 0.9993$ $1^{12} = 1.9993$ $1^{12} = 1.9993$ $1^{12} = 1.9993$ $1^{12} = 1.0087$ $1^{13} = 1.0004$	26 = 2.9884	12th itanbara!
$   \begin{array}{rcl}                                     $	The second secon	· · · · · · · · · · · · · · · · · · ·
$   \begin{array}{rcl}                                     $	7th iteration:	7/12 = 1.9993
$y_7 = 2.0087$ $z_7 = 3.0041$ $13^{th}$ iteration 1- $13_{13} = 1.0004$	74 = 1.0041	
$z_{7} = 3.0041$ $13^{th}$ iteration 1-		16 5 (11)
113= 1.0004	THE RESIDENCE OF THE PARTY OF T	13th iteration
1/13 = 1.0004		The state of the s
700		103 = 1.0004
YIS = D DADS		y13 = 2.0005
213 = 3.0004		7 213 = 3.0004

$$\chi_{14} = 0.9997$$
  
 $\chi_{14} = 1.9997$   
 $\chi_{14} = 2.9997$ 

So, the soft is (0.9997, 1.9997, 2.9997)
$$\approx (1,2,3)$$

Described Some street system of equ's using fraus Scidel method

2) Taking mital approximation -> (0,0,0)

$$\begin{array}{rcl}
& 15t \text{ witheration} \\
& \chi_1 &= \frac{1}{10} \left[ 12 - y_0 - z_0 \right] = \frac{1}{10} \left[ 12 - 0 - 0 \right] = 1.2 \\
& y_1 &= \frac{1}{10} \left[ 13 - 2\chi_0 - z_0 \right] = \frac{1}{10} \left[ 13 - 2(1.2) - 0 \right] = 1.06 \\
& z_1 &= \frac{1}{10} \left[ 14 - 2\chi_0 - 2y_0 \right] = \frac{1}{10} \left[ 14 - 2(1.2) - 2(1.06) \right] = 0.378
\end{array}$$

2nd iteration

$$24 = \frac{1}{10} \left[ 12 - 1.0002 - 1.0001 \right] = 9.9998 = 1$$

$$44 = \frac{1}{10} \left[ 13 - 2(1) - (1.0001) \right] = 1$$

$$24 = \frac{1}{10} \left[ 14 - 2(1) - 2(10) \right] = 1$$