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Courses » Matrix Solvers

Announcements

Course

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## Unit 8 - Week 7: Unit 7

## Course outline

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- Lecture 31: Positive definiteness of a matrix (Contd.)
- Lecture 32 : Basic Iterative Methods: Jacobi and Gauss-Siedel
- Lecture 33: **Basic Iterative** Methods: Matrix Representation
- Lecture 34: Convergence Rate and Convergence Factor for

## Week 7 Assignment 7

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Due on 2018-09-19, 23:59 IST.

1 point

If A is a symmetric positive definite matrix, which one can be a set of Eigen value of A

- a) 2 + 3i, 2 3i, 4
- b) 2 + 3i, 2 3i, -4
- c) 2, -3, 4

1)

- d) 2, 3, 4

  - ( c)

No, the answer is incorrect. Score: 0

**Accepted Answers:** 

2)

1 point  $A = R^T R$  is a positive definite matrix. What can be said about the solution of Rx = b

- a) It may have infinite solution
- b) It has unique solution
- c) It may have no solution
- d) None of the above

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A project of

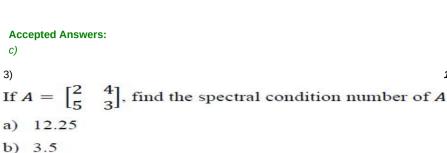




Funded by

1 point

Materials Quiz: Week 7 Assignment 7 Feedback for Week 7 Week 8 : Unit 8 Week 9: Unit 9 Week 10 : Unit 10 Week 11 Week 12 **Download** Videos **Assignment** Solution Interactive Session with Students



- c) 1.125
- d) 0.285
  - a)
    b)
    c)
    d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

4) 1 point Check for which matrix A, Ax = b can be solved using Gauss-Siedel method

a) 
$$A = \begin{bmatrix} 2 & 3 & 4 \\ 5 & 7 & 8 \\ 9 & 10 & 11 \end{bmatrix}$$

b) 
$$A = \begin{bmatrix} 2 & 1 & 0 \\ 1 & 2 & 0 \\ 0 & 1 & 1 \end{bmatrix}$$

c) 
$$A = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 1 & 3 \\ 1 & 4 & 1 \end{bmatrix}$$

d) 
$$A = \begin{bmatrix} 2 & 1 & 1 \\ 1 & 2 & 1 \\ 1 & 1 & 2 \end{bmatrix}$$

(a) (b) (c)

( d)

No, the answer is incorrect.

Score: 0

**Accepted Answers:** 

b)

5) In which case the iteration step  $x^{k+1} = ax^k + t$  will not converging **1** point

- a) a is asymmetric
- b) a is diagonally dominant
- c) ais singular
- d) None of the above
- a)b)

	○ c)		
	(a)		
	No, the answer is incorrect. Score: 0		
	accepted Answers:		
C)			
6) R 3	1 point atte of convergence is a basic iterative process of $Ax = b$ directly depend	de	
	Spectral condition number of $A$ .	.1.	
32.00	condition number of $A$ .		
	Spectral condition number of iterative matrix A.		
d)	Spectral radius of iterative matrix A.		
	( a)		
	( b)		
	С)		
	(d)		
	lo, the answer is incorrect.		
	ccepted Answers:		
d,			
Market Salary	7) <b>1 point</b> If the iteration matrix has largest eigen value 0.9.what can be the optimum SOR		
	1.21		
3500	1.84		
	1.39		
	1.04		
u)	1.04		
	( a)		
	(b)		
	С)		
	( d)		
	lo, the answer is incorrect.		
Α	ccepted Answers:		
c)			
What is the range of relaxation factor for a successive under relaxation			
a)	$\omega \leq 1.5$		
b)	$\omega \leq 1$		
c)	$\omega = 1$		
d)	$\omega = 2$		

a) b) c) d)  No, the answer is incorrect. Score: 0  Accepted Answers: b)  9) With which SOR factor an iterative matrix is bond to diverge	1 point
a) $\omega = 1$ b) $\omega < \omega_{opt}$ c) $\omega > \omega_{opt}$	
d) $\omega = 2$ a) b) c) d)	
No, the answer is incorrect.  Score: 0  Accepted Answers:  d)	
10 Which of the following matrix cannot be solved using SOR  a) Identity matrix b) Permutation matrix c) SPD matrix d) Diagonally Dominant matrix	1 point
a) b) c) d) No, the answer is incorrect. Score: 0 Accepted Answers: b)	
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