

X

NPTEL

reviewer3@nptel.iitm.ac.in ▼

Courses » Matrix Solvers

Announcements

Course

Ask a Question

Progress

Mentor

FAQ

Unit 11 - Week 10 : Unit 10

Course outline

How to access the portal

Week 1 : Unit 1

Week 2 : Unit 2

Week 3 : Unit 3

Week 4 : unit 4

Week 5 : unit 5

Week 6 : unit 6

Week 7 : Unit 7

Week 8 : Unit 8

Week 9 : Unit 9

Week 10 : Unit 10

Lecture 46 :
Conjugate gradient methods

Lecture 47 :
Conjugate gradient methods(Contd.)

Lecture 48 :
Conjugate gradient methods(Contd.) and Introduction to GMRES

Lecture 49 :

Assignment 10

The due date for submitting this assignment has passed. **Due on 2018-10-10, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Conjugate gradient method is applicable for any 1 point

- a) Diagonally dominant matrix
- b) Positive semi definite matrix
- c) Upper triangular matrix
- d) None of the above

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

2) Auxiliary vector product by is D-Lanczos is A-conjugate, this means that 1 point

- a) $P^T P$ is diagonal
- b) $P^T A P$ is Hessenberg
- c) $P^T A P$ is diagonal
- d) $P^T P$ is upper triangular

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -



A project of



In association with



Funded by

- Lecture Materials
- Quiz : Assignment 10
- Feedback for Week 10

Week 11

Week 12

Download Videos

Assignment Solution

Interactive Session with Students

Which one is not true for a conjugate gradient method

- a) $P^T P$ is symmetric
- b) $P^T A P$ is symmetric
- c) $P^T A P$ is not symmetric
- d) None of the above

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

4)

1 point

The residuals at successive iteration levels r_j and r_{j+1} in a conjugate gradient method a

- a) Orthogonal
- b) Dependent
- c) A-orthogonal
- d) Orthonormal

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

5) Convergence of C-G depends directly on

1 point

- a) Condition number of the eigenvector matrix of A
- b) Condition number of A
- c) Square root of condition number of A
- d) Square root of spectral condition number of A

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

6)

1 point

Conjugate gradient method uses recursive relation for

- a) Auxiliary vector p
- b) Residual r
- c) Solution vector x
- d) All of the above

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

7) Which one uses oblique projection method

1 point

- a) Conjugate gradient
- b) D-Lanczos algorithm
- c) Steepest decent
- d) GMRES

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

8) In GMRES, which of the steps is followed

1 point

- a) Recursion of residual vector
- b) L-U decomposition
- c) Least square solution
- d) All of the above

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

9)

1 point

GMRES is not applicable for

- a) Skew symmetric matrix
- b) A non-singular matrix with one of the diagonal elements zero
- c) Symmetric matrix
- d) None of the above

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

d)

10. What is the convergence criteria of GMRES

1 point

- a) Number of steps = number of rows of A
- b) Residual norm γ_m is small enough
- c) Solution vector $x_m - x_{m-1}$ is small enough
- d) Break of Arnoldi steps

- a)
- b)
- c)
- d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

Previous Page

End