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NPTEL

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Unit 12 - Week 11

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○ Lecture 51 : Numerical issues in BICG and polynomial based formulation
○ Lecture 52 : Conjugate gradient squared and Biconjugate gradient

Week 11 Assignment 11

The due date for submitting this assignment has passed.
As per our records you have not submitted this   **Due on 2018-10-17, 23:59 IST.**
assignment.

1) Which of the matrix cannot be solved by BICG   **1 point**
   a) Non-diagonal matrix
   b) Singular matrix
   c) Non-symmetric matrix
   d) None of the above

   ○ a)
   ○ b)
   ○ c)
   ○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

2) For a non-symmetric matrix BICG uses   **1 point**
   a) Orthogonal projection
   b) One-dimensional projection
   c) Oblique projection
   d) None of the above

   ○ a)
   ○ b)
   ○ c)
   ○ d)

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Which one is true for a BICG method

a) $p_i^T p_j = 0 \ i \neq j$

b) $p_i^T p_i = 1$

c) $p_i^T A p_j = 1 \ i \neq j$

d) $p_i^{*T} A p_j = 0 \ i \neq j$

○ a)

○ b)

○ c)

○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
d)

4)   *1 point*

Through BICG iterations, which of the following equations system is not solved

a) $Ax = b$

b) $A^T x^* = b^*$

c) $Ax^* = b^*$

d) None of the above

○ a)

○ b)

○ c)

○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

5) Computational complexity arises into BICG due to   *1 point*

a) Large spectral radius

b) Matrix transpose and vector multiplication

c) High number of iteration

d) Non-lining

○ a)

○ b)

○ c)

○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
b)

6)   **1 point**

To avoid instabilities in BICG which of the following processes are done?

    a) Polynomial functions are used for recursion

    b) Recursion is avoided by least square minimization

    c) Modified-Gram-Schmidt is used

    d) Direct solution is used

  ◯ a)

  ◯ b)

  ◯ c)

  ◯ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

a)

7)   **1 point**

ADI is

    a) Direct solution method

    b) Iterative method

    c) Least square minimization method

    d) Spectral decomposition method

  ◯ a)

  ◯ b)

  ◯ c)

  ◯ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

b)

8) For non-overlapping blocks in block relaxation method   **1 point**

    a) V_i is independent to W_i

    b) V_i is orthogonal to W_i

    c) V_i is same as W_i

    d) None of the above

  ◯ a)

  ◯ b)

  ◯ c)

  ◯ d)

No, the answer is incorrect.

Score: 0

Accepted Answers:

c)

9)   *1 point*

Which of the following solvers cannot be parallelized?

   a) Gauss-Seidel
   b) Jacobi
   c) Block Krylov-subspace
   d) All of the above can be parallelized

   ○ a)
   ○ b)
   ○ c)
   ○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
a)

10)   *1 point*

Which of the following factors is not a cause of overhead in a parallel program

   a) Distribution
   b) Synchronization
   c) Iteration
   d) Communication

   ○ a)
   ○ b)
   ○ c)
   ○ d)

No, the answer is incorrect.
Score: 0

Accepted Answers:
c)

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