

Course outline

How does an NPTEL online course work?

Assignment 0

Lecture Material

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

● Lecture 34 : Nonlinear solver with Jacobian in PETSc

● Lecture 35 : Reaction-diffusion system in PETSc

● Lecture 36 : Time stepping in PETSc

● Lecture 37 : Heat transport using PETSc

● Lecture 38 : PETSc - Turing patterns

○ Quiz : Assignment 7

● Feedback Form

Week 8

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Detailed Solution

Live Interactive Session

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Assignment 7

The due date for submitting this assignment has passed.

Due on 2021-03-10, 23:59 IST.

As per our records you have not submitted this assignment.

1) Which of the following function sets all components of a vector to a single scalar value?

1 point

- a. VecSetType
- b. VecSet
- c. VecSetFromOptions
- d. VecCreate

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. *VecSet*

2) Which of the following function creates a new vector of the same type as an existing vector?

1 point

- a. VecSetType
- b. VecDuplicate
- c. VecCreate
- d. VecGetType

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. *VecDuplicate*

3) Which of the following function is used to set the local and global sizes of a matrix?

1 point

- a. MatSetType
- b. MatSetFromOptions
- c. MatSetSizes
- d. MatGetType

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. *MatSetSizes*

4) Which of the following function is used in PETSc to set up the internal matrix data structures for later use?

1 point

- a. MatSetType
- b. MatSetFromOptions
- c. MatCreate
- d. MatSetUp

No, the answer is incorrect.
Score: 0

Accepted Answers:
d. *MatSetUp*

5) Which function in PETSc, sets the function to compute the Jacobian as well as the location to store the matrix?

1 point

- a. SNESSetFunction
- b. SNESSetFromOptions
- c. SNESSetJacobian
- d. None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. *SNESSetJacobian*

6) Which function in PETSc creates an empty timestepper?

1 point

- a. TSSetType()
- b. TSSetUp()
- c. TSSetProblemType()
- d. TSCreate()

No, the answer is incorrect.
Score: 0

Accepted Answers:
d. *TSCreate()*

7) Which function in PETSc gets the time of the most recently completed step?

1 point

- a. TSSetTime()
- b. TSGetTime()
- c. TSGetTimeStep()
- d. TSGetStepNumber()

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. *TSGetTime()*

8) Which function in PETSc allows one to reset the time?

1 point

- a. TSSetTime()
- b. TSGetTime()
- c. TSGetTimeStep()
- d. TSGetStepNumber()

No, the answer is incorrect.
Score: 0

Accepted Answers:
a. *TSSetTime()*

9) Which function in PETSc sets the maximum (or final) time for time stepping?

1 point

- a. TSGetMaxTime()
- b. TSSetMaxTime()
- c. TSSetMaxSteps()
- d. None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
b. *TSSetMaxTime()*

10) Which PETSc function creates a global vector from a DM object?

1 point

- a. DMCreateLocalVector()
- b. DMGetGlobalVector()
- c. DMCreateGlobalVector()
- d. DMCreateMatrix()

No, the answer is incorrect.
Score: 0

Accepted Answers:
c. *DMCreateGlobalVector()*