X

NPTEL

reviewer4@nptel.iitm.ac.in ▾

Courses » Introduction to Finite Volume Methods II

Announcements **Course** Ask a Question Progress FAQ

Unit 8 - week 7 - Fluid Flow Computation: Incompressible Flows

Register for Certification exam

Course outline

- How to access the portal
- Week 1 - Linear solvers
- Week 2 - Linear solvers + Convection term discretisation
- Week 3 - Convection term discretisation
- week 4 - Convection term discritisation + High resolution schemes
- week 5 - High resolution schemes + Temporal discritisation
- week 6 - Temporal discretisation + Discretisation of the Source Term, Relaxation and Other Details

Assignment 7

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment. **Due on 2019-03-20, 23:59 IST.**

1) Characteristics of explicit transient scheme is *1 point*

- It needs to solve a system of equations at each time step
- Low computational efficiency
- Simplifies the parallelization of computational mesh
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Simplifies the parallelization of computational mesh

2) Characteristics of backward Euler Implicit transient scheme is *1 point*

- The scheme is always stable
- Solution can proceed rapidly by using large time steps
- This is low order and less accurate for large time steps
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

3) Characteristics of Crank-Nicolson transient scheme is *1 point*

- The scheme is second order accurate
- Solution is stable for CFL ≤ 2 when using upwind scheme for advection term discretization
- Both of the above

4) Maximum allowable size of time step in non-uniform or variable time stepping method is governed by **1 point**

- Depends on spatial discretization methods
- Depends on temporal discretization methods
- Depends on both spatial and temporal discretization
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Depends on both spatial and temporal discretization

5) Which is true for explicit over-relaxation method **1 point**

- It is sometimes used to accelerate convergence
- It usually increases the stability of the solution
- Both of the above
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
It is sometimes used to accelerate convergence

6) Which is true for explicit under-relaxation method **1 point**

- It is sometimes used to accelerate convergence
- It usually increases the stability of the solution
- Both of the above
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
It usually increases the stability of the solution

7) Which is true for implicit under-relaxation method **1 point**

- The relaxation factor does not modify the diagonal
- The relaxation factor modifies the right hand side of the linear system of equations
- The relaxation factor modifies the equation mathematically
- All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
The relaxation factor modifies the right hand side of the linear system of equations

8) Which of this is true for E-Factor relaxation **1 point**

- The characteristic time interval is related to the time required to diffuse and convect a change of ϕ_c across the element
- The E-Factor is equivalent to an Element CFL number
- The solution in a smaller element advances more slowly than in a coarser element

All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
All of the above

Previous Page End