Unit 7 - Week 6

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

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Week 5

Week 6

- Lecture 26: Introduction to Heat Transfer Phenomena
- Lecture 27: Numerical Methods for Solving Governing Equation
- Lecture 28: Finite Volume Method for Convection and Diffusion Problems
- Lecture 29: Different Discretization Schemes
- Lecture 30: Assessment of Discretization Schemes
- Quiz : Assignment 6
- Solution for Assignment 6

Week 7

Week 8

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Assignment 6

The due date for submitting this assignment has passed. **Due on 2020-03-11, 23:59 IST.**
As per our records you have not submitted this assignment.

1) Prandtl number is the ratio of .....to..... *1 point*

- Momentum diffusivity and Thermal diffusivity
- Thermal diffusivity and Kinematic viscosity
- Kinematic viscosity and Mass diffusivity
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Momentum diffusivity and Thermal diffusivity

2) The advantage of the Finite volume method is that the integral conservation is satisfied exactly over the ..... *1 point*

- Boundary node
- Computational node
- Control volume
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Control volume

3) Discretization scheme should have *1 point*

- Conservativeness
- Boundness
- Transportiveness
- All of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
All of the above

4) .....means that the flux of ϕ leaving a control volume across a certain face must be equal to the flux of ϕ entering the adjacent control volume through the face. *1 point*

- Conservativeness
- Boundness
- Transportiveness
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Conservativeness

5) The central differencing scheme does not have the.....property. *1 point*

- Transportiveness
- Conservativeness
- Boundness
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Transportiveness

6) A numerical method translates a differential equation into.....one *1 point*

- Algebraic
- Integral
- Geometric
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Algebraic

7) .....is a combination of the central difference scheme and upwind difference scheme. *1 point*

- Hybrid differencing scheme
- Power law scheme
- Both a & b
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
Hybrid differencing scheme

8) Newton's law of cooling is *1 point*
(Where q=Rate of heat transfer per unit area, Q= Rate of heat transfer
h=heat transfer coefficient, T_s= Surface temperature, T_∞= Surrounding temperature)

- $q = h(T_s - T_\infty)$
- $q = (T_s - T_\infty)$
- $Q = h(T_s - T_\infty)$
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
$q = h(T_s - T_\infty)$

9) First order of forward difference formula is *1 point*

- $\frac{f(x+dx)-f(x)}{dx}$
- $\frac{f(x-dx)-f(x)}{dx}$
- $\frac{f(x+dx)-f(x-dx)}{dx}$
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
$\frac{f(x+dx)-f(x)}{dx}$

10) Fourier law of heat conduction is *1 point*
Where k = thermal conductivity,
$\frac{dT}{dx}$ = Temperature gradient,
q = Rate of heat transfer per unit area, Q= Rate of heat transfer

- $q = \frac{dT}{dx}$
- $q = k\frac{dT}{dx}$
- $Q = k\frac{dT}{dx}$
- None of the above

No, the answer is incorrect.
Score: 0
Accepted Answers:
$q = k\frac{dT}{dx}$