Assignment 11

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

1) Which one of the following represents a two-dimensional steady-state energy equation with constant properties without any source term?

\[ \nabla \cdot \left( \frac{\nabla u}{\rho} \right) = 0 \]

1 point

Accepted Answers:

2) The convective flux vector in convection-diffusion for general variable \( \phi \) is represented as

\[ \nabla \cdot \left( \phi \mathbf{V} \right) \]

1 point

Accepted Answers:

3) The diffusion flux in east face center with central difference scheme for uniform grid can be written as

\[ J_{x} = \frac{D_{x}}{L_{x}} ( C_{i+1} - C_{i-1}) \]

1 point

Accepted Answers:

4) The net mass outflow from the two-dimensional cell \( P \) is

\[ \sum F_{x} = \frac{u_{x}}{L_{x}} ( C_{i+1} - C_{i-1}) \]

1 point

Accepted Answers:

5) In the first discretized equation of two-dimensional convection-diffusion equation using first order spatial scheme, the coefficient \( a_{x} \) is

\[ a_{x} = \frac{-D_{x}}{L_{x}} \]

0 points

Accepted Answers:

6) Which one of the following is correct?

- The Barrow's criterion is used as a necessary condition for convergent iterative method.
- The Barrow's criterion is used as a sufficient condition for convergent iterative method.
- The Barrow's criterion is used as both sufficient and necessary conditions for convergent iterative method.

None of the above

0 points

Accepted Answers:

7) Quadratic Upwind Interpolation for Convective Kinematics scheme is second order accurate in space.

- True
- False

None of the above

1 point

Accepted Answers:

8) For 2D flow problem, the cell Peclet number is also known as cell Reynolds number.

- True
- False

None of the above

1 point

Accepted Answers: