Assignment 10

The due date for submitting this assignment has passed.
As per our rules, you have not submitted this assignment.

1. The accuracy of mean value approximation when applied to find the cell-averaged value of source term is:
   - 1st order
   - 2nd order
   - 3rd order
   - None of the above
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - 2nd order

2. Which of these theorems is used to transform the general diffusion term into surface-based integral in the finite volume method?
   - Stress theorem
   - Cut theorem
   - Gauss divergence theorem
   - Legendre theorems
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - Gauss divergence theorem

3. The diffusion flux at the face center for uniform grid can be written as:
   - $-A_{x} \nabla \cdot \vec{u}$
   - $-A_{x} \nabla \cdot \vec{u}$
   - $-A_{x} \nabla \cdot \vec{u}$
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - Gauss divergence theorem

4. The discretized equation for source-free one-dimensional steady heat conduction equation in uniform grid is:
   - $T_{i+1} = T_{i+1} + T_{i}$
   - $T_{i+1} = T_{i+1} + T_{i}$
   - $T_{i+1} = T_{i+1} + T_{i}$
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - $T_{i+1} = T_{i+1} + T_{i}$

5. The discretized equation for source-free one-dimensional unsteady heat conduction equation using explicit method is:
   - $aT_{i+1} = aT_{i} + \alpha_{i-1} T_{i-1}$
   - $aT_{i+1} = aT_{i} + \alpha_{i-1} T_{i-1}$
   - $aT_{i+1} = aT_{i} + \alpha_{i-1} T_{i-1}$
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - $aT_{i+1} = aT_{i} + \alpha_{i-1} T_{i-1}$

6. Which one of the following is correct for the volume integral using mean value approximation in three-dimensional flow?
   - Product of the integrand at the face center and the volume of the control volume
   - Product of the integrand at the control volume center and the volume of the control volume
   - Product of the integrand at the face center and the surface area of the control volume
   - Product of the integrand at the control volume center and the surface area of the control volume
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - Product of the integrand at the face center and the volume of the control volume

7. In finite volume method, the unit surface-normal is generally considered pointing outward in a cell.
   - True
   - False
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - True

8. For one-dimensional steady state diffusion problem, the diffusion flux leaving the exit face is not same as the diffusion flux entering the inlet face.
   - True
   - False
   - No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   - False