Unit 9 - Week 7

Assignment 7

The due date for submitting this assignment has passed.

Due on 2018-09-30, 23:59 IST.

As per our records you have not submitted this assignment.

1. The value of Prandtl number for a fully turbulent boundary layer at constant surface temperature is given by which of the following?
   a. 0.0026
   b. 0.006
   c. 0
   d. none of these

   Accepted answer: b.

2. What is a hydrodynamically fully developed region in fluid flowing inside a pipe?
   a. A region where velocity profile of the fluid is independent of the axial location
   b. A region where velocity profiles of the fluid is independent of the radial location
   c. A region where velocity profiles of the fluid is independent of a constant location
   d. does not vary with flux

   Accepted answer: a.

3. The value of Prandtl number for a fully turbulent boundary layer at constant surface temperature is given by which of the following?
   a. 0.0026
   b. 0.006
   c. 0
   d. none of these

   Accepted answer: b.

4. The Prandtl number is related to the Reynolds number in turbulent flows as
   a. $\frac{\nu}{\mu}$
   b. $\frac{V}{u}$
   c. $10^{12}$
   d. does not vary with $Re$

   Accepted answer: a.

5. The flow of fluid inside a circular conduit, the conductivity of temperature at a given $\theta$ cannot be used to define a 3D thermally fully developed flow.
   a. True
   b. False

   Accepted answer: b.

6. For the case of a constant Prandtl number with a thermally hydrodynamically fully developed flow being laminar in nature, the Prandtl number $Pr$ has a constant value.
   a. True
   b. False
   c. none of these

   Accepted answer: a.

7. One of the important statements of a thermally fully developed flow is that, the heat transfer coefficient is a function of the flow direction.
   a. True
   b. False

   Accepted answer: a.

8. The velocity distribution is valid only for the case of constant surface temperature.
   a. True
   b. False
   c. none of these

   Accepted answer: a.

9. The Stanton factor equation is valid only for the case of constant surface temperature.
   a. True
   b. False

   Accepted answer: a.

10. The Stanton factor and Dittus-Boelter equations cannot be used for situations where the length of the conduit has a 1.5 stress length under the developing entrance region.
   a. True
   b. False
   c. none of these

   Accepted answer: a.