Assignment 08: Drag, Lift and Cavitation

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment.

Module 8: Drag, Lift and Cavitation

Assignment 8

Important notes:
(i) All questions are mandatory
(ii) No negative marking for the wrong answer
(iii) All questions have only one correct answer

1) What is the dimension for drag coefficient?
   - N/s
   - m/s
   - kg/N
   - Dimensionless
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Dimensionless

2) Bodies with a larger cross section will have________
   - Lower drag
   - Higher drag
   - Same drag
   - No drag
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Higher drag

3) Drag force is directly proportional to ________
   - thermal conductivity
   - molecular weight of the fluid
   - density of fluid
   - flow speed
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   density of fluid

4) For a streamlined body, to achieve low drag coefficient, the boundary layer must_______
   - flow over the body
   - be attached to the body
   - move away from the body
   - move parallel to the body
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   be attached to the body

5) Twin vortices form due to drag for a cylindrical body (in case of viscous fluid) when the Reynolds number (Re) is
   - 2 – 30
   - 40 – 70
   - > 90
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   2 – 30
6) With the decrease in the viscosity, Reynolds number ________
   - Increases
   - Decreases
   - Same
   - Independent
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 
   Increases

7) Cavitation is a process of
   - Liquid formation
   - Vapor formation
   - Neither vapor nor liquid formation
   - None of these
   No, the answer is incorrect.
   Score: 0
   Accepted Answers:
   Vapor formation

8) Due to cavitation phenomena, the life of blades
   - Increases
   - Remain unaffected
   - Decreases
   - None of these
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 
   Decreases

9) The cavities grow further if
   - Liquid pressure and flow velocity are low
   - Liquid pressure and flow velocity are high
   - Liquid pressure is large and the flow velocity is low
   - Liquid pressure is low and the flow velocity is large
   No, the answer is incorrect.
   Score: 0
   Accepted Answers: 
   Liquid pressure is low and the flow velocity is large

10) Degree of cavitation depends on the
    - Density of the fluid
    - Velocity
    - Vapor pressure
    - All of these
    No, the answer is incorrect.
    Score: 0
    Accepted Answers: 
    All of these

11) When \( Re = 10^3 \cdot 2 \times 10^5 \), the drag co-efficient (\( C_D \)) is equal to
    - \( 1 - 1.2 \)
    - 0.44
    - 0.30
    - 0.10
    No, the answer is incorrect.
    Score: 0
    Accepted Answers: 
    1 – 1.2

12) A body is so manufactured that it is called a wing, aerofoil or blade if
    - The drag is larger than
    - The lift is larger than the drag
    - Drag and lift are equal
    - None of the above
    No, the answer is incorrect.
    Score: 0
    Accepted Answers: 
    The lift is larger than the drag

13) The lift coefficient reaches to zero at a certain angle of attack \( \alpha \) which is called zero lift angle. As the angle of attack increases from the zero lift angle, the lift coefficient
    - Remains constant
    - Decreases
14) According to Stokes’ equation, the drag coefficient ($C_D$)

- $C_D = \frac{16}{Re}$
- $C_D = \frac{64}{Re}$
- $C_D = \frac{24}{Re^2}$
- None of the above

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

Increases

15) For flow ($0.2 < Re < 5$) around a sphere, modification of stokes equation by Oseen by partly taking account the effect of inertia terms and he found that

- $C_D = \frac{24}{Re}$
- $C_D = \frac{16}{Re} \left[ 1 + \frac{3}{16} Re \right]$
- $C_D = \frac{24}{Re} \left[ 1 + \frac{3}{16} Re \right]$
- None of the above

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