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Unit 6 - Week 4

Assignment 4

The due date for submitting this assignment has passed. Due on 2019-08-28, 23:59 IST.
As per our records you have not submitted this assignment.

The following questions **may have more than one correct answers**. Read and analyse the question carefully before selecting the answer (s).
Marks will be awarded only if all the correct answers are selected.
No partial marks will be awarded.

1) Compute the Reynolds Number of RMS Titanic ship cruising at a speed of 2 m/s in still sea. Length of ship = 270m, density and viscosity of saline water =1000kg/m3 and 0.0018kg/(s.m), respectively. ***1 point***

- 3 million
- 30 million
- 300 million
- 3000 million

No, the answer is incorrect.
Score: 0

Accepted Answers:
300 million

2) Flow Separation occurs on a body due to ***1 point***

- Adverse Pressure Gradient
- Non-viscous flow
- High value of Reynolds Number
- Viscous Flow

No, the answer is incorrect.
Score: 0

Accepted Answers:
Adverse Pressure Gradient
Viscous Flow

3) Which of the following statements is/are true w.r.t. Boundary Layer on a flat plate ? ***1 point***

- Flow inside the boundary layer is ir-rotational
- Viscous effects are negligible inside the boundary layer
- Bernoulli's equation is valid inside boundary layer
- Pressure remains constant in a direction perpendicular to the plate inside boundary layer

No, the answer is incorrect.
Score: 0
Accepted Answers:
Pressure remains constant in a direction perpendicular to the plate inside boundary layer

4) Which of the following statements is/are true regarding Reverse Swing Bowling in Cricket? ***1 point***

- It swings in a direction towards the rougher side
- Flow on both sides of the ball is Turbulent
- It swings in a direction towards the smooth side
- Flow on one side of the ball is Laminar

No, the answer is incorrect.
Score: 0
Accepted Answers:
Flow on both sides of the ball is Turbulent
It swings in a direction towards the smooth side

5) Why are Golf Balls dimpled ? ***1 point***

- To decrease turbulence
- To reduce drag
- To delay separation
- To increase their range

No, the answer is incorrect.
Score: 0
Accepted Answers:
To reduce drag
To delay separation
To increase their range

6) Strips are attached to aircraft models used for wind tunnel testing, to ensure that : ***1 point***

- Flow on the model separates at the same location as on the full-scale aircraft
- Boundary layer transition on the model occurs at the same location as on the full-scale aircraft
- Mach Number on the model becomes sonic at same location as on the full-scale aircraft
- Cameras can record the correct location at which pressure taps have been put

No, the answer is incorrect.
Score: 0
Accepted Answers:
Boundary layer transition on the model occurs at the same location as on the full-scale aircraft

7) Which of the following statements is/are true regarding use of Vortex Generators (VGs) for flow separation control? ***1 point***

- Their control effectiveness depends on their streamwise position
- The strength of circulation by the VGs increases with increase in their blade height
- The magnitude of the circulation generated increases with increase in their yaw angle

Text Transcripts

- [ ] They are effective only in Turbulent Flow

No, the answer is incorrect.
Score: 0

Accepted Answers:
The strength of circulation by the VGs increases with increase in their blade height
They are effective only in Turbulent Flow

8) A Bourdon Tube can be used to measure : ***1 point***

- [ ] Total Pressure exerted by any fluid
- [ ] Absolute pressure exerted by any fluid
- [ ] Gauge pressure exerted by air or a gas
- [ ] Gauge pressure exerted by a liquid

No, the answer is incorrect.
Score: 0

Accepted Answers:
Gauge pressure exerted by air or a gas
Gauge pressure exerted by a liquid

9) Calibrated Airspeed (CAS) stands for the Indicated Airspeed (IAS) corrected for : ***1 point***

- [ ] Instrument error
- [ ] Instrument and Position errors
- [ ] Instrument and Position errors, and Compressibility correction
- [ ] Instrument and Position errors, and Compressibility and Pressure correction

No, the answer is incorrect.
Score: 0

Accepted Answers:
Instrument and Position errors

10) Which of the following flow pictures are applicable for viscous flow ? ***1 point***

- [ ]
- [ ]
- [ ]
- [ ]

No, the answer is incorrect.
Score: 0

Accepted Answers: