Unit 12 - Week 10-Turbulence I

Assignment 10

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

Due on 2019-10-09, 23:59 IST.

1) It is intended to resolve high frequency fluctuations induced by small scale eddies in the highly turbulent flow over a flat plate, of the following which method is more suitable to solve this problem *1 point*

- RANS
- LES
- Both a and b
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
LES

2) What happens to the pressure drag if flow in the boundary layer suddenly transits to turbulent in the flow past a sphere *1 point*

- Increase
- Decrease
- Remains unaltered
- increases and then decreases

No, the answer is incorrect.
Score: 0

Accepted Answers:
Decrease

3) Air at 25°C and 1 atm from a blower made to flow over a long flat plate with a velocity of bulk velocity 8 m/s. Take critical Reynolds number (Re_{cr}) as = $5'10^5$. If the bulk velocity is doubled (i.e. 16 m/s), what happens to boundary layer thickness *1 point*

- Decrease by two times
- Decrease by four times
- Increase by two times
- Increase by four times

No, the answer is incorrect.
Score: 0

Accepted Answers:
Decrease by two times

4) Air at 152.77 m/s is blowing parallelly over the surface of 4-m-high and 10-m-long wall. If the air outside is at 5°C and the surface temperature of the wall is 12°C, estimate the rate of heat loss from that wall by convection *1 point*

- ~ 5.12 kW
- ~ 9 kW
- ~ 2.5 kW
- ~ 17 .23 kW

No, the answer is incorrect.
Score: 0

Accepted Answers:
~ 9 kW

5) If the flow in the boundary layer suddenly becomes turbulent (assume Reynolds number is doubled), the resultant Stanton number becomes *1 point*

- Double
- Quadruple
- Reduced by half
- Remains unaltered

No, the answer is incorrect.
Score: 0

Accepted Answers:
Double