Assignment 6

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

Due on 2020-10-20, 23:59 IST

1. For an incompressible supersonic nozzle flow, the exit Mach number is fixed by the area ratio if desired pressure ratio is maintained.

   - (a) TRUE
   - (b) FALSE

   *The answer is incorrect.*

   Accepted Answer:
   (a) TRUE

2. Which of the following flow parameters is an important design feature of diffuser incorporated in a supersonic wind tunnel?

   - (a) stagnation temperature rise
   - (b) Static temperature rise
   - (c) stagnation pressure rise
   - (d) Static pressure rise

   *The answer is incorrect.*

   Accepted Answer:
   (d) Static pressure rise

3. Subsonic flow in convergent-divergent nozzle flow_________as an isentropic nozzle.

   - (a) only one
   - (b) only two
   - (c) only two or three
   - (d) either one or two

   *The answer is incorrect.*

   Accepted Answer:
   (d) either one or two

4. A supersonic wind tunnel operates at a reservoir pressure of 1.0 atm with test section Mach number of 2.5. It incorporates a diffuser towards end of the tunnel for decelerating air at a very low Mach number under atmospheric condition. If the stagnation pressure ratio corresponding to normal shock at Mach 2.5 is 0.461, then the diffuser efficiency is ________

   *The answer is incorrect.*

   Accepted Answer:
   (0.461)

5. The Mach number at the throat is ________

   *The answer is incorrect.*

   Accepted Answer:
   (0.5)

6. The Mach number at the exit is ________

   *The answer is incorrect.*

   Accepted Answer:
   (0.5)

7. The exit area (in m^2) is ________

   *The answer is incorrect.*

   Accepted Answer:
   (Type Range) 0.0.20.02

8. The exit temperature (in K) is ________

   *The answer is incorrect.*

   Accepted Answer:
   (Type Range) 75.102

9. The exit pressure (in atm) is ________

   *The answer is incorrect.*

   Accepted Answer:
   (Type Range) 0.015.0.025

10. The mass flow rate (in kg/s) through the nozzle is ________

    *The answer is incorrect.*

    Accepted Answer:
    (Type Range) 0.541.650

2 points