Assignment 0

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

Due on 2020-09-14, 23:59:15

The following questions may have more than one correct answer. Read and analyze the questions carefully before selecting the answer(s).

1. Wave Drag can be reduced by using:
   - Thin Wings
   - High Energy
   - Supercritical airfoils
   - Wings
   Accepted Answers
   - Thin Wings
   - High Energy
   - Supercritical airfoils

2. Which of the following statements is true TRUE as the altitude increases in the Thermosphere of International Standard Atmosphere?
   - Temperature decreases, and Dynamic Viscosity decreases
   - Temperature remains constant, and Pressure increases
   - Temperature decreases, and Sonic Speed decreases
   - Temperature remains constant, and Dynamic Viscosity increases
   Accepted Answers
   - Temperature decreases, and Dynamic Viscosity decreases
   - Temperature remains constant, and Pressure increases

3. Which of the following statement(s) is/are TRUE about the Auxiliary Power Unit?
   - The Auxiliary Power Unit (APU) is utilized to provide power for:
   - Starting up the engine for takeoff
   - Air conditioning of the passenger cabin when engine is switched off after landing
   - Air conditioning of the passenger cabin when engine is switched off before takeoff
   Accepted Answers
   - Starting up the engine for takeoff
   - Air conditioning of the passenger cabin when engine is switched off after landing

4. Which of the following is favorable for an airplane operation?
   - Tailwind during Cruise, but headwind during Landing
   - Tailwind during both Cruise and Landing
   - Headwind during both Cruise and Landing
   - Tailwind during Cruise, but headwind during Landing
   Accepted Answers
   - Tailwind during Cruise, but headwind during Landing

5. Threat available from a turbine engine:
   - Increases with altitude increases
   - Increases up to the tropopause and then decreases
   - Remains constant all altitudes
   - Decreases with altitude increases
   Accepted Answers
   - Increases with altitude increases

6. The true rate of an aircraft remains a total pressure $P_t = 54.031$ N/m². The static pressure $P_s = 45.542$ N/m²; density is $0.6417$ kg/m³ and the rate of specific heat of the atmosphere is 1.4. The indicated speed (m/s) is
   - 157.8 m/s
   - 162.0 m/s
   - 170.2 m/s
   - 187.5 m/s
   Accepted Answers
   - 162.0 m/s

7. The absolute ceiling of an aircraft is the altitude above which it:
   - Can never reach.
   - Cannot sustain level flight as a constant speed.
   - Can perform accelerated flight as well as straight and level flight at constant speed.
   - Can perform straight and level flight at a constant speed only.
   Accepted Answers
   - Cannot sustain level flight as a constant speed.

8. The minimum velocity of the steady level flight of the aircraft corresponding to the load factor $n = 1$ is termed as:
   - Cruise Speed
   - Takeoff Stall Speed
   - Unstick Speed
   - Stall Speed
   Accepted Answers
   - Takeoff Stall Speed

9. The Drag Diversion Mach (M_D) number of an aircraft is:
   - A fixed number for a given aircraft.
   - Always higher than the Critical Mach number ($M_c$).
   - Equal to the critical Mach number ($M_c$) at zero angle of attack.
   - The Mach number at which a shock wave first appears on the aircraft.
   Accepted Answers
   - Always higher than the Critical Mach number ($M_c$).

10. Which of the following statements is true TRUE with respect to Supercritical Airfoils?
   - They have a large Leading edge radius
   - They have a flat upper surface
   - They have a reflexed upper surface in trailing edge
   - They delay the onset of wave drag
   Accepted Answers
   - They have a flat upper surface
   - They have a reflexed upper surface in trailing edge
   - They delay the onset of wave drag