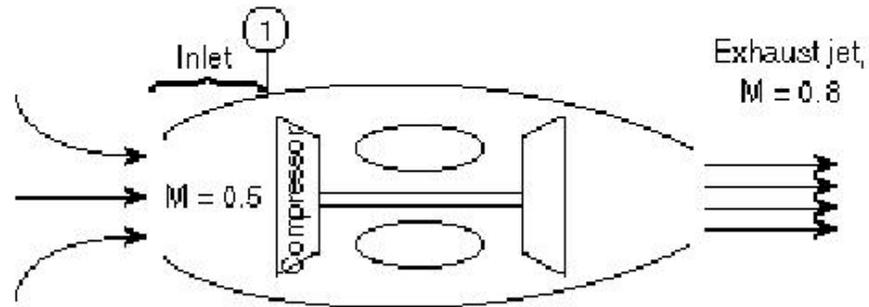


Chapter 6 Question #19

Consider an engine that is operating while an aircraft is parked motionless on the ground. **For the fluid which stagnates on the spinning rotor blades, which of the following is true?**

Atmosphere:

T_{atm}
 P_{atm}
 $M = 0$



- 1) $T_{T1} = T_1 > T_{atm}$
- 2) $T_{atm} > T_{T1} > T_1$
- 3) $T_1 = T_{atm} > T_{T1}$
- 4) $T_{atm} = T_{T1} > T_1$
- 5) I don't know

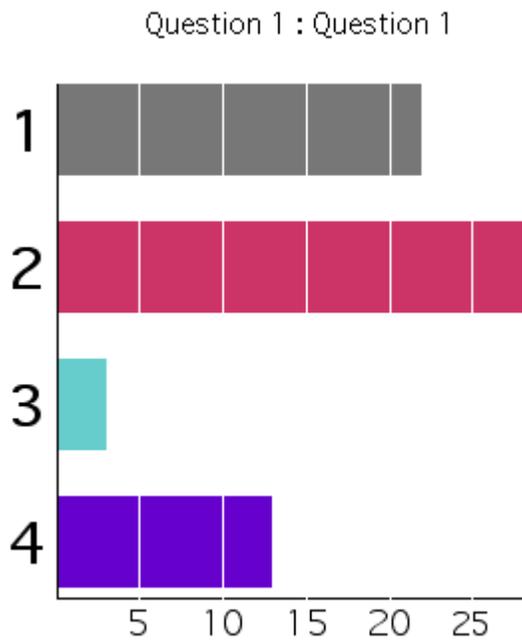
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Chapter 6 Question 19 Answer:

(1) $T_{T1} = T_1 > T_{atm}$

The flow stagnates on a moving body (the spinning fan blade). Thus the scenario is similar to a supersonic aircraft flying through the atmosphere. The stagnation temperature is elevated above the static temperature of the atmosphere. On the blade itself, the static and stagnation temperatures are the same, since the flow is not moving relative to the blade.

Class Response (2003):



Class Response (2002):

Question 4 : Question 4

