Assignment 1

Due on 2019-08-14, 23:59 IST.

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

1) All spontaneous processes are

   - Entropy increases
   - Irreversible
   - Non-reversible adiabatic
   - Adiabatic

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   Entropy increases

2) A 2-litre electric resistance heater in a room is turned on and left on for 60 mins. The amount of energy transferred to the room by the heater is

   - 40 W
   - 150 W
   - 30 W
   - 400 W

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   150 W

3) A 50 L tank contains nitrogen gas at 300 kPa and 300 K. Heat is transferred to the nitrogen in the tank and the pressure of nitrogen rises to 600 kPa. The work done during this process is

   - 500 J
   - 1500 J
   - 300 J
   - 600 J

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   1500 J

4) A 3.0 °C colder water is used to cool the water which is 35 °C. Water mass of 1 point = 0.5 L. The water on the tap during the experiments provides is

   - 725 J
   - 80 J
   - 180 J
   - 14.7 J

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   14.7 J

5) A 2-kilowatt drink is to be cooled from 10°C to 0°C. The mass of each cantered drink is 0.5055 kg. The drinks can be treated as water and the energy stored in the aluminum can itself be negligible. The amount of heat transfer from the 5 cantered drinks is

   - 20 J
   - 30 J
   - 15 J
   - 18 J

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   30 J

6) A 1 kg of feed water initially at 12 °C is to be heated to 96 °C in a tank equipped with a 1.0 W electric heating element inside. The specific heat of water can be taken to be 4.18 kJ/kg °C, and the heat lost from the water during heating can be neglected. The time it takes to heat the water to the desired temperature is

   - 10 min
   - 15 min
   - 7 min
   - 12 min

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   7 min

7) An ordinary egg with a mass of 6.1 kg and a specific heat of 3.33 kJ/kg °C is dropped into boiling water at 95°C. If the initial temperature of the egg is 25°C, the maximum amount of heat transfer to the egg is

   - 12 J
   - 30 J
   - 12 J
   - 18 J

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   30 J

8) Entropy is

   - An extensive property
   - An intensive property
   - A part property
   - A reference property

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   An extensive property

9) A change in state involving a decrease in entropy can be spontaneous only if it is exothermic

   - True
   - False

   No, the answer is incorrect.
   Score: 0
   Accepted Answers
   True

10) Ideal gas has zero energy at 0 °C.

    - True
    - False

    No, the answer is incorrect.
    Score: 0
    Accepted Answers
    False