

Unit 6 - Week 5

Course outline

How does an NPTEL online course work?

Week 1

Week 2

Week 3

Week 4

Week 5

• Specific Heats

• Air Parcel and Potential Temperature

• Moisture Parameters

○ Saturation Mixing Ratio and Relative Humidity

• Pseudo-Adiabatic Processes

○ Quiz : Assignment 5

○ Assignment 5 Solutions

Week 6

Week 7

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Assignment 5

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

Due on 2020-03-04, 23:59 IST.

1) The dry static energy of an air parcel of fixed mass is 1 point

- gained energy
- lost energy
- internal energy
- constant

No, the answer is incorrect.
Score: 0

Accepted Answers:
constant

2) The heat supplied to ideal gas at constant volume is equal to 1 point

- zero
- change in pressure
- change in internal energy
- change in temperature

No, the answer is incorrect.
Score: 0

Accepted Answers:
change in internal energy

3) The difference between the specific heats at constant pressure and constant volume of dry air is 1 point

- 287 J/K/kg
- 532 J/K/kg
- 752 J/K/kg
- 0 J/K/kg

No, the answer is incorrect.
Score: 0

Accepted Answers:
287 J/K/kg

4) Find the water vapor pressure of a parcel of moist air having pressure 975 hPa and mixing ratio 1.80 g/kg at 15 °C. 1 point

- 724.425 hPa
- 512.350 hPa
- 254.125 hPa
- 742.521 hPa

No, the answer is incorrect.
Score: 0

Accepted Answers:
724.425 hPa

5) Calculate the change in enthalpy when 3 kg of ice at 0 °C. is heated to liquid water at 40 °C. (Given that, for water $C_p = 4183.9 + 0.1250 \times T$ J/K/kg). 1 point

- 15 Joule
- 10 Joule
- 5 Joule
- 45 Joule

No, the answer is incorrect.
Score: 0

Accepted Answers:
15 Joule

6) For a temperature change of 10 degree C of a gas, the saturation vapor pressure becomes approximately 1 point

- half
- double
- one fourth
- four times

No, the answer is incorrect.
Score: 0

Accepted Answers:
double

7) The latent heat of condensation is equal to the latent heat of 1 point

- melting
- freezing
- vaporization
- boiling

No, the answer is incorrect.
Score: 0

Accepted Answers:
vaporization

8) The wet bulb temperature of unsaturated air approaching the wet bulb is 1 point

- zero
- greater than air temperature
- less than air temperature
- equal to dry air temperature

No, the answer is incorrect.
Score: 0

Accepted Answers:
less than air temperature

9) The atmosphere contains mainly diatomic gases, therefore the ratio of specific heats at constant pressure and volume is 1 point

- 3:2
- 5:3
- 7:5
- 5:2

No, the answer is incorrect.
Score: 0

Accepted Answers:
7:5

10) Calculate the work done in compressing isothermally 2 kg of dry air to 1/10 of its volume at 15 °C. (Hint: use $R_d = 287$ J/K/kg, $\ln(1/10) = -2.303$) 1 point

- -45.5×10^5 J
- -3.5×10^6 J
- 45.5×10^5 J
- 3.8×10^5 J

No, the answer is incorrect.
Score: 0

Accepted Answers:
 3.8×10^5 J