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Unit 2 - Pre-requisite ASSIGNMENT

Course outline

How to access the portal

Pre-requisite ASSIGNMENT

Quiz : WEEK 0 - ASSIGNMENT - 0

WEEK 1

WEEK 2

WEEK 3

WEEK 4

Solution of Assignment Problems

WEEK 0 - ASSIGNMENT - 0

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-08-10, 23:59 IST.**

Based on the prerequisites of the course viz. thermodynamics/applied thermodynamics/ energy conversion/Heat and Mass Transfer

1) How many independent properties are required to define the state of moist air (which is treated as a binary mixture of ideal gases)? **1 point**

- Four
- Three
- Two
- Temperature, total pressure and any one humidity parameter

No, the answer is incorrect.

Score: 0

Accepted Answers:

Three

2) Which among the following, is NOT true for a Refrigerator and Heat Pump (HP)? **1 point**

- Both HP and refrigerator transfer heat from low temp. reservoir to high temp reservoir, but these temperatures are typically lower in the case of heat pumps.
- HP is a device which is used to provide heating in conditioned space, while refrigerator provides cooling.
- The COP of HP is greater than the COP of Refrigerator.
- Convective or radiative room heaters are better options for winter heating as compared to heat pumps.

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- Total pressure difference between air and water.
- Temp difference between air and water.
- Difference in partial pressures of water vapour.
- All of the above.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Difference in partial pressures of water vapour.

4) During the condensation of a refrigerant using cooling water, which is the best configuration for the condenser? **1 point**

- Counter-Flow heat exchanger.
- Parallel-Flow heat exchanger.
- Cross-Flow heat exchanger.
- Any of the above.

No, the answer is incorrect.

Score: 0

Accepted Answers:

Any of the above.

5) Why and where are fins typically used in an air-cooled heat exchanger? **1 point**

- On the air side, because the convective resistance is higher on the air side.
- On the refrigerant side, because the convective resistance is lower on the air-side.
- On the air side, because the convective resistance is lower on the air side.
- It can be on either side to increase the heat transfer area.

No, the answer is incorrect.

Score: 0

Accepted Answers:

On the air side, because the convective resistance is higher on the air side.

6) What should be the Joule Thomson Coefficient for a refrigerant? **1 point**

- Positive
- Negative
- Zero
- Any of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

Positive

7) Why is an expander (instead of an expansion valve) typically NOT used in a refrigeration system? **1 point**

- The expander increases the irreversibility in the cycle and reduces the COP of cycle.
- The expansion valve follows the same expansion process but at a lower cost.
- The expander cannot handle low temperature refrigerant due to lubrication concerns.
- The useful work output of the expander is generally small, but it adds to complexity

No, the answer is incorrect.

Score: 0

Accepted Answers:

The useful work output of the expander is generally small, but it adds to complexity

8) What does 1 Ton of refrigeration (TR) refer to? 1 point

- 1000 Watt of cooling
- 1000 kg of refrigerant
- 3.516 kW of cooling
- 3.516 kJ of cooling

No, the answer is incorrect.

Score: 0

Accepted Answers:

3.516 kW of cooling

9) Which thermodynamic property remains constant in a "Desert Cooler" and "Cooling Tower"? 1 point

- Both WBT and RH remain constant
- WBT remains constant in a desert cooler.
- WBT remains constant in a Cooling Tower.
- Enthalpy remains constant in both.

No, the answer is incorrect.

Score: 0

Accepted Answers:

WBT remains constant in a desert cooler.

10) For the same inlet and exit temperatures of two fluids without any phase change, the LMTD for counterflow configuration is always: 1 point

- Smaller than LMTD for parallel flow and cross flow
- Greater than LMTD for parallel flow and cross flow
- Same as LMTD for parallel flow and cross flow
- Greater than LMTD for parallel flow and smaller than cross flow

No, the answer is incorrect.

Score: 0

Accepted Answers:

Greater than LMTD for parallel flow and cross flow

End

