

# Unit–3

## Pure Substances and Perfect Gas Mixtures

**1. A pure substance has:**

- A) Uniform chemical composition
- B) Different chemical composition
- C) Only liquid phase
- D) Only gaseous phase

**Answer:** A) Uniform chemical composition

**2. The temperature at which a liquid changes into vapor is called:**

- A) Triple temperature
- B) Saturation temperature
- C) Critical temperature
- D) Freezing temperature

**Answer:** B) Saturation temperature

**3. Dryness fraction of wet steam is:**

- A) Greater than 1
- B) Equal to 1
- C) Less than 1
- D) Equal to 0

**Answer:** C) Less than 1

**4. Steam with dryness fraction equal to 1 is called:**

- A) Wet steam
- B) Dry saturated steam
- C) Superheated steam
- D) Compressed liquid

**Answer:** B) Dry saturated steam

**5. The critical point is the point where:**

- A) Solid changes to liquid
- B) Liquid and vapor become identical
- C) Vapor changes to solid

D) Pressure becomes zero

**Answer:** B) Liquid and vapor become identical

**6. Perfect gas obeys:**

A) Newton's law

B) Ideal gas equation

C) Fourier law

D) Hooke's law

**Answer:** B) Ideal gas equation

**7. According to Dalton's law:**

A) Total pressure = Product of partial pressures

B) Total pressure = Sum of partial pressures

C) Total pressure = Difference of pressures

D) None

**Answer:** B) Total pressure = Sum of partial pressures

**8. The gas constant is represented by:**

A) C

B) R

C) H

D) S

**Answer:** B) R

**9. The pressure exerted by an individual gas in a mixture is called:**

A) Total pressure

B) Gauge pressure

C) Partial pressure

D) Absolute pressure

**Answer:** C) Partial pressure

**10. Steam heated above saturation temperature is called:**

A) Wet steam

B) Superheated steam

C) Saturated liquid

D) Compressed liquid

**Answer:** B) Superheated steam

## Part B: Fill in the Blanks

1. A substance having uniform composition is called \_\_\_\_\_ substance.

**Answer:** pure

2. Dryness fraction is represented by \_\_\_\_\_.

**Answer:** x

3. Steam containing water particles is called \_\_\_\_\_ steam.

**Answer:** wet

4. The temperature at which boiling starts is called \_\_\_\_\_ temperature.

**Answer:** saturation

5. A perfect gas follows the \_\_\_\_\_ gas equation.

**Answer:** ideal

6. The universal gas constant is denoted by \_\_\_\_\_.

**Answer:** R

7. Total pressure in gas mixture equals the \_\_\_\_\_ of partial pressures.

**Answer:** sum

8. The pressure exerted by each gas separately is called \_\_\_\_\_ pressure.

**Answer:** partial

9. Steam above saturation temperature is called \_\_\_\_\_ steam.

**Answer:** superheated

10. The point where solid, liquid and vapor coexist is called \_\_\_\_\_ point.

**Answer:** triple