



**1. Explain the term critical point, critical temperature and critical pressure.**

In the T-S diagram the region left of the waterline, the water exists as liquid. In right of the dry steam line, the water exists as a super heated steam. In between water and dry steam line the water exists as a wet steam. At a particular point, the water is directly converted into dry steam without formation of wet steam. The point is called critical point. The critical temperature is the temperature above which a substance cannot exist as a liquid, the critical temperature of water is  $374.15^{\circ}\text{C}$  The corresponding pressure is called critical pressure.

**2. Define dryness fraction (or) What is the quality of steam?**

It is defined as the ratio of mass of the dry steam to the mass of the total steam.

**3. Define enthalpy of steam.**

It is the sum of heat added to water from freezing point to saturation temperature and the heat absorbed during evaporation.

**4. How do you determine the state of steam?**

If  $V > v_g$  then it is super heated steam,

$V = v_g$  then it is dry steam and

$V < v_g$  then it is wet steam.

**5. Define triple point.**

The triple point is merely the point of intersection of sublimation and vapourisation curves.

**6. Define heat of vapourisation.**

The amount of heat required to convert the liquid water completely into vapour under this condition is called the heat of vapourisation.



**7. Define latent heat of evaporation or Enthalpy of evaporation.**

The amount of heat added during heating of water up to dry steam from boiling point is known as Latent heat of evaporation or enthalpy of evaporation.

**8. Explain the term super heated steam and super heating.**

The dry steam is further heated its temperature raises, this process is called as superheating and the steam obtained is known as superheated steam.

**9 Explain heat of super heat or super heat enthalpy.**

The heat added to dry steam at 100oC to convert it into super heated steam at the temperature  $T_{sup}$  is called as heat of superheat or super heat enthalpy.

**10 Explain the term critical point, critical temperature and critical pressure.**

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**UNIT –II PROPERTIES OF PURE SUBSTANCE**

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**13. How do you determine the state of steam?**

If  $V > v_g$  then super heated steam,  $V = v_g$  then dry steam and  $V < v_g$  then wet steam.

**14. Define triple point.**

The triple point is merely the point of intersection of sublimation and vapourisation curves.

**15 Explain the terms, Degree of super heat, degree of sub-cooling.**

The difference between the temperature of the superheated vapour and the saturation temperature at the same pressure. The temperature between the saturation temperature and the temperature in the sub cooled region of liquid.

**16. What is the purpose of reheating?**

The purpose of reheating is to increase the dryness fraction of the steam passing out of the later stages of the turbine.