UNIT-3

| S.No | | Questions | BT | CO | PO |
|---|---|---|---|---|---|
| **Part–A(Short Answer Questions)** | | | | | |
| 1 | | Define latent heat of ice? | 1 | 2 | 1 |
| 2 | | What is a pure substance? | 1 | 2 | 1 |
| 3 | | What is saturation temperature and saturation pressure? | 1 | 3 | 1 |
| 4 | | What is wet steam and dry steam? | 1 | 3 | 1 |
| 5 | | Define dryness fraction (quality of steam). | 1 | 3 | 1 |
| 6 | | Draw the P–V–T surface for water and discuss the triple point and critical point. | 1 | 3 | 1 |
| 7 | | Define critical point. | 1 | 3 | 2 |
| 8 | | Explain Mollier chart. | 1 | 3 | 2 |
| 9 | | What is superheated steam? | 1 | 3 | 2 |
| 10 | | What is a Carnot engine? | 1 | 3 | 2 |
| **Part– B(Long Answer Questions)** | | | | | |
| 11 | a) | Explain :i) Sensible heat ii) Latent heat iii) Saturated liquid and saturated vapour iv) Dryness fraction v) Enthalpy of a wet steam vi) Enthalpy of a dry steam vii) Enthalpy of a super-heated steam | 1 | 3 | 3 |
| | b) | Write short notes on “Mollier diagram”. Why do is bars on the Mollier diagram diverge from one another | 2 | 3 | 2,3 |
| 12 | a) | What is the difference between critical point and triple point? | 2 | 3 | 2,3 |
| | b) | Explain neat sketch bucket calorimeter | 3 | 3 | 3 |
| 13 | a) | Draw P-V diagram for water and a pure substance other than water | 3 | 3 | 3 |
| | b) | Explain neat sketch throttling calorimeter | 3 | 3 | 2,3 |
| 14 | a) | Write the clapeyron equation and point out its utility | 2 | 3 | 2 |
| | b) | One kg of ice at -50C is exposed to the atmospherewhichisat200C. Ice melt sand comes in to thermal equilibrium with the atmosphere. Determine the entropy increase of the universe. | 4 | 3 | 2 |
| 15 | a) | Draw the phase equilibrium diagram for a pure substance on T-s plot with relevant constant property lines. | 4 | 3 | 2 |
| | b) | Explain the terms, Degree of superheat, degree of sub-cooling | 3 | 3 | 2 |
| 16 | a) | Explain Dalton's law of partial pressure | | 3 | 2 |
| | b) | Steam initially at2 MPa, 3000C expands reversibly and adiabatically inasteamturbineto500C.Determinetheidealworkoutputofthe Turbine per kg of steam? | 3 | 3 | 2 |