

GOVERNMENT COLLEGE (A), RAJAHMUNDRY
I B.Sc. INDUSTRIAL CHEMISTRY
SEMESTER-II
MODEL PAPER (From 2023-234)
Course - 4: MATERIAL & ENERGY BALANCES AND UTILITIES IN CHEMICAL
INDUSTRY

Time: 2¹/₂ hrs.

Maximum Marks: 50

PART- A

Answer ALL the questions. Each carries SEVEN marks

5 x 7 = 35 M

1. Explain with examples how v/v, w/v and w/w of liquid mixtures is calculated
(OR)
2. Write notes on i) Humidity and ii) Saturation
3. Explain the flow diagram for material balance with recycle for distillation.
(OR)
4. Explain the flow diagram for material balance with and without recycle for Evaporation.
5. Define heat capacity and explain in detail about heat capacity of pure gases at constant Pressure
(OR)
6. Explain in detail about heat capacity of mixture of gases at constant pressure.
7. Describe in detail about various water treatment procedures
(OR)
8. Write an essay on different types of boilers and their functioning
9. Explain in detail about i) compressors and ii) ejectors.
(OR)
10. Explain in detail about i) Reciprocating pumps and ii) centrifugal pumps.

PART- B

Answer any FIVE of the following questions. Each carries THREE marks 5 x 3 = 15 M

11. How the equivalent weights of different compounds are calculated. Explain.
12. Explain in brief, the concept of limiting reagent.
13. Explain the flow diagram for material balance without recycle for crystallization
14. Write a note on sensible heats in liquids.
15. How enthalpy changes of gas mixtures are calculated. Explain.
16. Write a note on processing of air.
17. Describe in brief steam generation procedures.
18. Explain briefly about blowers.