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Seat No.: _____



No. Of Printed Pages : 02

SARDAR PATEL UNIVERSITY

Bachelor of Science (SEMESTER-5) EXAMINATION- 2022

US05CICV24 : (Mass Transfer)

Date : 14/11/2022, Monday

Time : 10:00A.M. TO 01:00 P.M.

Total Marks: 70

Note: Figures to the right indicate full marks of the questions.

Q. 1 Multiple Choice Questions. (All are compulsory)

[10]

1. For separating mixtures with almost same boiling point _____ distillation is used.
(a) Simple (b) Flash (c) Azeotropic (d) Steam
2. _____ is the temperature at which a liquid mixture of given composition start to Vaporize as temperature increases.
(a) Dew point (b) Bubble point
(c) Feed point (d) None of these
3. In fractionation, the section below the feed plate or tray is called as _____.
(a) Rectifying section (b) Stripping section
(c) Reboiler (d) Downcomer
4. In absorption insoluble component of the gas is called _____.
(a) Solute gas (b) Carrier gas
(c) Cake (d) None of these
5. _____ Towers are widely used for absorption.
(a) Plate (b) Tray
(c) Vacuum (d) Packed
6. Gas absorption is also term as _____.
(a) Drying (b) Scrubbing
(c) Adsorption (d) Extraction
7. In Agitated crystallizer supersaturation is achieved by _____.
(a) Evaporation (b) Adiabatic evaporation (c) Cooling (d) Heating
8. Leaching is _____ operation.
(a) Solid-liquid (b) Solid-solid
(c) Gas-liquid (d) Gas-Gas
9. For ceramic products, _____ dryer is used.
(a) Tunnel (b) Spray (c) Tray (d) None of these
10. Drum dryer is useful for drying _____.
(a) Granules (b) Slurries (c) Sheets (d) None of these

[2]

(P.T.O.)

Q. 2 Short Answer Questions. (Attempt any 10 out of 12)

[20]

1. Enlist Various types of distillation.
2. State Roul't's law with equation.
3. Define the term reflux ratio.
4. Enlist various types of packings.
5. Define the term Tie-Line.
6. What is channelling in packed column.
7. What is Magma?
8. Give classification of crystalliser.
9. Define : Solubility
10. What is constant rate period & Falling rate period.
11. Enlist various accessories used in evaporator.
12. Define the term absolute humidity.

Q.3 Answer the given questions

- A. With neat sketch discuss the fractionating column in detail.
- B. Write a note on Simple distillation.

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Or

- A. Write a note on Flash distillation.
- B. Write a note on various plates used in distillation column.

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Q.4 Answer the given questions

- A. Write about mixer settler battery for counter current extraction.
- B. Discuss about packed column used in gas absorption with neat and clean diagram.

Or

- A. Write a note on mechanically agitated vessels used for gas absorption.
- B. Give construction and working of Spray column used in liquid - liquid extraction with neat sketch.

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Q.5 Answer the given questions

- A. Give construction and working of Basket extractor with suitable diagram.
- B. Explain construction and working of Swenson-Walker crystalliser with suitable Diagrams.

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Or

- A. Explain vacuum crystalliser with suitable diagram.
- B. Write a note on Pachuca tank.

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Q.6 Answer the given questions

- A. Explain in details about forward feed evaporator.
- B. Write note on Drum dryer.

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Or

- A. Give construction and working of Spray dryer with suitable diagrams.
- B. Write comparison between forward feed and backward feed evaporator.

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