

{35}



Seat No.: _____

No. of Printed Pages: 02

SARDARPATELUNIVERSITY
Bachelor of Science (Semester 5th) Examination -2025
(Industrial Chemistry) US05MAICH02
Fluid Mechanics & Mechanical Operation.

Date: 06/10/2025

Time: 10:00 AM to 12:30 PM

Monday

Total: 50 Marks

Q. 1 Choose the correct answer.

[10]

- (1) A manometer is a device primarily used to measure _____.
(A) Fluid Flow Rate (C) Fluid Viscosity
(B) Static Pressure (D) Pump Efficiency
- (2) Which of the following is not a type of fluid-moving machinery typically used for gases?
(A) Blower (C) Centrifugal Pump
(B) Compressor (D) Rotary Pump
- (3) Which method of size separation relies on the differential settling velocities of particles in a fluid?
(A) Industrial Screening (C) Filtration
(B) Froth Flotation (D) Air Separation / Elutriation
- (4) Jaw crushers and gyratory crushers are most commonly classified as _____.
(A) Fine Grinders (C) Primary Crushers
(B) Secondary Crushers (D) Ultrafine Grinders
- (5) The process of separating particles into segments based on their size using screens of different mesh sizes is called _____.
(A) Filtration (C) Screening
(B) Sedimentation (D) Cycloning
- (6) Which industrial filter consists of vertical leaves and is often used in batch operations to recover solids?
(A) Plate and Frame Filter Press (C) Sand Filter
(B) Rotary Drum Filter (D) Leaf Filter
- (7) A continuous thickener is primarily designed for _____.
(A) Filtration (C) Sedimentation
(B) Size Reduction (D) Mixing
- (8) The process of "kneading" a highly viscous material is an example of:
(A) Mixing liquids with liquids (C) Mixing liquids with solids
(B) Mixing solids with solids (D) Mixing viscous masses
- (9) A conveyor that transports bulk material by suspending it in a stream of air is called _____.
(A) Screw Conveyor (C) Pneumatic Conveyor
(B) Belt Conveyor (D) Bucket Elevator
- (10) Which mixer is most suitable for blending low-viscosity liquids or creating emulsions?
(A) Ribbon Blender (C) Propeller Agitator
(B) Tumbler Mixer (D) Double Arm Kneader



{4}

{P.T.O.}



- Q.2 (A) Derive the continuity equation. [05]
(B) Derive an equation for Bernoulli's theorem and write its limitations. [05]

OR

- Q.2 (A) Write notes on: U-tube manometer. [05]
(B) Write a note on the centrifugal pump. [05]

- Q.3 (A) Derive an equation for the angle of nip while selecting crushing rolls. [05]
(B) Enlist the construction and working of a ball mill. [05]

OR

- Q.3 (A) Explain the working of grizzlies and trammels. [05]
(B) Write the difference between a jaw crusher and a gyratory crusher. [05]

- Q.4 (A) Write the construction and working of rotary drum filters. [05]
(B) Explain froth flotation in detail. [05]

OR

- Q.4 (A) Write a note on filter media and its characteristics. [05]
(B) Write notes on plate and frame filters. [05]

- Q.5 (A) Write objectives of mixing and discuss the mixing tank. [05]
(B) Discuss flow patterns in a mixing tank. [05]

OR

- Q.5 (A) Write a note on mixing equipment for mixing solids with solids. [05]
(B) Write a note on the belt conveyor. [05]

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