



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE

(Grant-in-Aid) (Autonomous)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120

Seat No.: _____



Bachelor of Science (Semester – 2) Internal Theory Examination March – 2025

US02MAICH01: PROCESS CALCULATION AND ENGINEERING EQUIPMWNT DRAWING

Date: 04 / 03 / 2025

Time: 12:45 P.M. TO 02:15 P.M.

Day: TUESDAY

Total Marks: 30 Marks

Q. 1 Answer the following Multiple-Choice Questions. (All are compulsory) [06]

1. A pressure of 2 atm is equal to _____ mm Hg.
(A) 1520 mm Hg (B) 1700 mm Hg
(C) 1400 mm Hg (D) 1620 mm Hg
2. Which of the following is unit of Volumetric flow rate?
(A) cal (B) kcal/h
(C) kg/h (D) m³/h
3. Which of the following is not an example of unit operation?
(A) Distillation (B) Gas absorption
(C) Nitration (D) Extraction
4. Which of the following is an example of size reduction equipment?
(A) Shell & Tube heat exchanger (B) Roll crusher
(C) Fractionating column (D) Horizontal evaporator
5. Purest form of natural water is _____.
(A) Sea water (B) River water
(C) Lake water (D) Rain water
6. Temporary Hardness in water is caused by presence of _____.
(A) Calcium Carbonate (B) Calcium Bicarbonate
(C) Calcium chloride (D) Magnesium Carbonate



Q-2 For gaseous mixtures prove that Pressure% = Volume% = Mole% [06]

OR

Q-2 A gas mixture contains 0.274 kmol of HCl, 0.337 kmol of N₂ and 0.089 kmol of O₂. Calculate [06]
(a) Average molecular weight of gas and (b) Volume occupied by this mixture at 405.3 kPa and 303 K.

Q-3 Draw the neat sketch of any five types of valves used in chemical engineering systems. [06]

OR

Q-3 Draw and name five standard symbols used in heat transfer equipment used in chemical engineering processes. [06]

Q-4 Sketch the following dryers: (a) Tray dryer (b) Spray dryer [06]

OR

Q-4 Sketch a Fractionating column. [06]

Q-5 Name various methods for boiler water treatment. Explain anyone. [06]

OR

Q-5 Describe disadvantages of hard water. [06]

... Best Of Luck ...

