

SEAT No. _____

No. of Printed Pages : 2

[98/A34]

Sardar Patel University
B.Sc. (Second Semester) Examination
28th March 2018

Subject code: US02CICV02 (Mechanical operations)
Industrial Chemistry Vocational

Time: 2:00 pm to 4:00 pm

Total Marks: 70

Q-1 Answer the following MCQ'S:

(10)

- I. The filter used to remove small amount of solids to produce sparkling clear liquid is Known as _____
a. Clarifying filters b. cake filter c. both a & b d. none
- II. The filter medium used for an _____ slurry is polypropylene cloths
a. Acidic b. Alkaline c. Neutral d. Aromatic
- III. The material which is when placed in a magnetic field are repelled is called
a. Diamagnetic b. paramagnetic c. ortho magnetic d. meta magnetic
- IV. The classifier which use hydraulic water for classifier
a. Double cone classifier b. hydraulic jig
c. Both a & b d. none
- V. Turbine impeller consists of _____ blades
a. one b. two c. three d. all of these
- VI. Baffled tank _____ formation of swirling and vortex in the reactor
a. increases b. promotes c. No effect d. prevent
- VII. Pneumatic conveyer is employed for transportation of
a. dust, chips or any light material b. lumps and coarse solids
c. finely divided solids d. liquids
- VIII. The forces acting on the solids in ball mill are _____
a. Centrifugal b. Gravity c. both a & b d. none of these
- IX. The crusher in which movable jaw is pivoted at the top is _____
a. Roll crusher b. Blake jaw crusher
c. Dodge Jaw crusher d. Gyratory jaw crusher
- X. If the fall of particle through stationary fluid is impeded by the other particles, the process is called _____
a. Hindered settling b. free settling c. none d. both a & b

(1)

(P.T.O.)

Q-2 Answer the following short question (Any Ten)

(20)

- I. Define: Filtration.
- II. Write the difference between gravity filters & centrifugal filters
- III. Name any two clarifying filters
- IV. Explain the function of: a) promoters b) collectors
- V. Why alum is the most frequently used as coagulant?
- VI. Name zones formed in continuous thickener.
- VII. Write the objectives of mixing operation
- VIII. Sketch the flow pattern in agitated vessel
- IX. Explain the terms: a) filling ratio b) impellers
- X. Differentiate between blake jaw crusher and gyratory jaw crusher.
- XI. Write Rittinger's law.
- XII. What is difference crushing and grinding?

Q-3 Discuss construction, working and applications of the following filter (Any 2):

- I. Plate & frame filters
- II. Leaf filters
- III. Rotary filters
- IV. Suspended batch centrifugal

(10)

Q-4 a. Write a short note on electrostatic separator

(05)

Q-4 b. Write a short note on Magnetic drum separator

(05)

OR

Q-4 a. Explain double Forth flotation cell

(05)

Q-4 b. Explain Dorr thickener

(05)

Q-5 a. Discuss the constructional feature of mixing tank

(05)

Q-5 b. Write a note on bucket elevator.

(05)

OR

Q-5 a. Write note on mixing solids with solids.

(05)

Q-5 b. Explain about flow patterns in mixing tanks.

(05)

Q-6. Write a note on jaw crusher and roll crusher

(10)

OR

Q-6 a. Differentiate grizzlies and trammels

(05)

Q-6 b. Differentiate between open circuit and closed circuit grinding

(05)

X

2