

Sardar Patel University
B.Sc. (Second Semester) (NO)
External Exam
Saturday 15th October 2016
Subject code: US02CICV02 (Mechanical Operations)
Industrial Chemistry Vocational

Time: 02:00 pm to 04:00 pm

Q1. Answer the following multiple choice questions: [10]

1. 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. leaf filter

2. The filter medium used for alkaline slurry is made up of _____ cloth

- a. Cotton
- b. Nylon
- c. Silk
- d. Rayon

3. A granular material used to increase the porosity of the filter cake is _____

- a. Filter cloth
- b. Additive
- c. Filter aid
- d. Inhibitor

4. The separation of solids from a suspension in a liquid by gravity settling is called

- a. Sedimentation
- b. Distillation
- c. Filtration
- d. None of these

5. The material which is when placed in a magnetic field are repelled is called

- a. Diamagnetic
- b. paramagnetic
- c. ortho magnetic
- d. none of these

6. Paddle impeller consists of _____ blades.

- a. one
- b. two
- c. three
- d. more than four

7. Swirling and vortex formation is the feature of

- a. baffled tank
- b. un baffled tank
- c. overhead tank
- d. underground tank

8. For mixing viscous masses and pastes _____ equipment is employed

- a. agitated tank
- b. tumbling mixer
- c. kneader
- d. Sigma mixer

9. Bucket conveyor is employed for transportation of

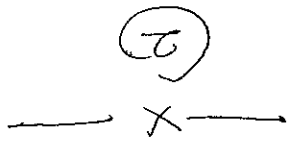
- a. dust, chips or any light material
- b. lumps and coarse solids
- c. finely divided solids
- d. pastes

10. _____ crusher is a reciprocating machine

- b. Jaw
- b. Ball mill
- c. roll
- d. All of these



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Q6. With a neat diagram explain in detail principle, construction and working of hammer mill. [10]

OR

Q6. With a neat diagram explain in detail principle, construction and working of jaw crusher. [10]

Q5. Discuss the general construction and mixing operation for the following:
a) tumbling mixer b) Muller mill [10]

OR

Q5. Discuss giving details the various designs of impellers [10]

- iv. Forth flotation cell
- iii. Magnetic pulleys
- ii. Magnetic drum separator
- i. Electrostatic separator

Q4 Write note on (Any 2) [10]

Q3. Explain different factor affecting rate of filtration also discuss about factors which should be considered while selecting a filter medium. [10]

OR

Q3. Write note on
i. Plate & frame filters ii. Leaf filters [10]

- 10. Give in brief classification of size reduction equipments.
- 11. Differentiate between gyratory crusher and jaw crusher.
- 12. What do you mean by critical speed?
- Q3. Write note on
- 1. Explain constant rate filtration and constant pressure filtration
- 2. Classify the filters
- 3. Write the difference between gravity filters & centrifugal filters
- 4. What is sedimentation?
- 5. Explain terminal & hinder settling velocity
- 6. List any two functions of the thickener.
- 7. Write the objectives of mixing operation
- 8. Sketch the flow pattern in agitated vessel
- 9. State various types of mixing

Q2. Answer the following short questions (Any ten) [20]