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SARDAR PATEL UNIVERSITY
B.Sc. Industrial Chemistry
(Semester -5TH) EXAMINATION
1st November 2018, Thursday
Course No. : US05CICH05
(Mechanical Operations)

Total Marks: 70**Time: 10:00am to 1:00pm****Q.1 Answer the given multiple choice questions.****[10]**

1. Filter media polypropylene cloth is used when slurry is
a) acidic c) neutral
b) alkaline d) all of the above
2. A granular material used to increase the porosity of the filter cake is
a) Filter media c) Filter aid
b) Cake d) none of these
3. In rotary drum filter operated with vacuum _____ takes place.
a) Filtration b) washing c) Partial Drying d) All of the above.
4. The classifier which uses hydraulic water for classification is
a) Double cone classifier c) both (a) and (b)
b) Hydraulic jig d) None of these
5. The rate of settling of a particle depends upon its
a) Size b) Density c) Concentration d) All of these
6. Pneumatic conveyer is employed for transportation of
a) Dust, chips or any light material c) Lumps and coarse solids
b) Finely divided solids d) None of these
7. A propeller agitator produces mainly
a) axial flow b) radial flow c) transversal flow d) None of these.
8. In Jaw Crusher size reduction takes place by
a) attrition b) compression c) cutting d) impact
9. Gizzlies are used for separating
a) coarse solids b) fine solids c) solids of any size d) None of these
10. To get a fine talc powder from its granules, the equipment used is
a) Roll crusher b) Ball mill c) Jaw crusher d) Gyratory crusher

Q.2 Attempt any Ten.**[20]**

- i. List any four filtermedia.
- ii. What is filter aid? Why it is added during filtration.
- iii. Write the difference between gravity filters and centrifugal filters.
- iv. Explain the function of collectors and frothing agents.
- v. Differentiate Hindered settling and Terminal settling.
- vi. List any two functions of thickeners.
- vii. Write the function of Idler and trippers in belt conveyor.
- viii. Discuss Turbine impeller in detail.
- ix. List any two ways for prevention of swirling.
- x. Write the difference between Blake Jaw Crusher and Dodge jaw crusher.
- xi. Explain Open Circuit grinding and Closed Circuit grinding.
- xii. Write any two difference between Jaw Crusher and Gyratory Crusher.

(1)

[P.T.O.]

- Q.3a)** Write a note on: Plate and Frame filter press. [5]
b) Discuss different factors which affects the rate of filtration. [5]

OR

- Q.3a)** With the help of diagram explain working of leaf filter. [5]
b) Explain working of Rotary filter. [5]

- Q.4a)** With the help of diagram explain working of Gravity Settling Tank. [5]
b) Write a note on: Hydraulic Jig. [5]

OR

- Q.4a)** Discuss Electrostatic Precipitator. [5]
b) Explain working of Cyclone Separator. [5]

- Q.5a)** Discuss working and construction of different equipments used for mixing solid with solids. [10]

OR

- Q.5a)** Write a note on: Bucket Conveyor [10]

- Q.6a)** Derive an equation for angle of nip in Roll crusher. [5]
b) Write a note on: Vibrating Screens. [5]

OR

- Q.6a)** Explain working of ball mill. [5]
b) Write any five differences between crushing and grinding. [5]