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No. of Printed Pages:2

SARDAR PATEL UNIVERSITY

B.Sc. Industrial Chemistry (Semester – 5TH) EXAMINATION 22nd NOVEMBER 2013, Friday Course No. : US05CICH05

(Mechanical Operations)

Total Marks: 70

Time: 10:30 to 1:30pm

Conti...

| Q.1 1. | Answer the given multiple choice questions. Filter media poly propylene cloth is used when slurry is | [10] |
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| 2 . | a) acidic b) Basic c) neutral d) all of the above Filters that are used to remove very small amount of solids to produce sparkling clear liquid are referred to as | |
| | a)Cake Filtersc)Both (a) and (b)b) Clarifying Filterd) None of these. | |
| 3. | Filters which are operated with less than atmospheric pressure is known as | |
| | a)Clarifying Filter c)vacuum filters b) Atmospheric filter d) None of these. | |
| 4. | The separation of solids from suspension in liquid by gravity settling is called | |
| | a) Filtration c)Sedimentation b) Mixing d)Evaporation | |
| 5. | The settling rate of a particle depends upon its | |
| 6. | a) Size b)Density c) Concentration d) All of the above The material which is when placed in a magnetic field is repelled is called | |
| 0. 7. | a) Diamagnetic b) Paramagnetic c) Ortho magnetic d) None of these Pneumatic conveyer is employed for transportation of | |
| 8 | a) Dust, chips or any light material b) Finely divided solids c) Lumps and coarse solids d) None of these | |
| | a) heavy loads and short runs b) small loads and long runs In ball mill the forces act are c) heavy loads and long runs d) none of these | |
| 9. | a) Gravitational force b)Centrifugal force c) Both a) and b) d) None of these | |
| 10. | Size reduction mechanism used in jaw crushers is a) attrition c) compression | |
| | a) attrition c) compression b) cutting d) impact | |
| • | | |
| Q.2 | Attempt any ten Explain constant rate filtration and constant pressure filteration. | [20] |
| ii. | List different filtermedia. | |
| iii. · | Write classification of filters. | |
| iv. v. | Name two devices work based on magnetic separation technique. Explain terminal settling and hindered settling velocity. | |
| v. vi. | List any two functions of thickneres. | |
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| vii. viii. | Draw diagram and explain working of mixing tank. Explain working of propeller impeller. | |
| ix | Explain homogeneous and heterogeneous mixing. | |
| X | Write classification of size reduction equipments. | |
| xi | State Rittinger's law and Kick's law | |
| xii | What is the difference between Blake jaw crusher and Dodge Jaw crusher. | |
| | white notes on a D Dista and Prome filters | |
| Q.3 | Write notes on : i) Plate and Frame filters the characteristic strap does to be iii) Rotary filter | [10] |
| | | [10] |
| Q.3 | Write notes on : i) Suspended Batch Centrifugal ii) Filter medium and its characteristics | |
| Q.4a) | Describe Magnetic Drum Separator | [5] |
| b) | Explain working of Double cone classifier. OR | (-) (, |
| Q.4a) | What is sedimentation? With the help of diagram explain working of continuous thickener. | [5] |
| b) | Explain the laboratory batch sedimentation test. | |
| Q.5a) | Discuss the terms "Swirling and Vortex". Also describe their preventive | [5] |
| | measures. | |
| b) | Discuss Screw conveyor. Be a state of a second state of the second | [5] |
| Q.5a) | With the help of diagram explain working of Belt conveyor. | (5 1 |
| (J. 5a) b) | Write a note on: i) Equipments used for mixing Viscous masses. | [5] [5] |
| Q.6a) b) | Derive an equation for angle of nip in crushing rolls. Differentiate Grizzlies and Tromels. | [5] [5] |
| | OR - Carden Constants | 1 Com |
| Q.6a) b) | Write a note on: Jaw Crusher. Write the difference between open circuit and closed circuit grinding. | [5] [5] |
| | (a) A substitution of page (10) and (20) and (20) and (10) and | |
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