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BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN CHEMICAL ENGINEERING
MECHANICAL UNIT OPERATIONS
FOURTH SEMESTER EXAMINATION

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Time: 3 Hours

Total Marks: 80

PART - A (3m x 10 = 30m)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Define screen capacity. What are the factors influencing Screen capacity?
2. Write about size, shape of the particle in mechanical unit operations
3. Differentiate silos and Hoppers
4. Write about tumbling mixer
5. Define mechanical efficiency
6. Define critical speed of a ball mill
7. Draw a neat diagram of Industrial thickener
8. What are the applications of Grizzly and Trommel?
9. What is the Principle of centrifugal filtration?
10. Write the principle of cake filtration

* PART - B (10m x 5 = 50m)

Note 1: Answer any five questions and each question carries 10 marks

2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. Explain differential and cumulative screen analysis to find out specific surface area.
12. Draw neat sketches of Bin storage, Flat bottomed, Sloped bottom bin silos and hoppers ?
13. Describe the working principle of mixing equipments (Ribbon Blender, and Tumbling mixtures) with the neat diagrams for solid mixtures
14. Calculate the critical speed of a Ball mill having a diameter of 800 mm and the diameter of the ball is 55 mm. find out the operating speed of the mill if it is 55% less than the critical speed

15. Draw line sketches of Roll mill. Explain the critical speed of a Ball mill and angle of nip of a crushing roll
16. Explain the construction and working of Grizzly and Trommel with neat diagrams
17. Explain the process of Batch sedimentation and identify various Zones
18. Explain the working principle of continuous centrifugal with a neat diagram

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