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10NT834

Eighth Semester B.E. Degree Examination, June/July 2018
Mechanical Operations

Time: 3 hrs.

Max. Marks:100

**Note: Answer FIVE full questions, selecting
at least TWO questions from each part.**

PART – A

- 1 a. Give a short note on particle shape and measurement of particle shape. (06 Marks)
- b. Define screen. Explain ideal and actual screens. Mention applications. (08 Marks)
- c. Write a note on effectiveness of screen. (06 Marks)
- 2 a. Briefly discuss industrial screening equipment. Add a note on applications. (08 Marks)
- b. With a neat sketch, explain gyratory screen. Mention its merits and demerits. (08 Marks)
- c. What is sedimentation? Explain with neat sketch. (04 Marks)
- 3 a. Discuss types of forces used for comminution. Add a note on criteria for comminution. (10 Marks)
- b. Give a short note on characteristics of comminuted products. (04 Marks)
- c. With a neat sketch, explain Ball milling. Mention its advantages and disadvantages. (06 Marks)
- 4 a. Write a note on mechanic of particle motion. (06 Marks)
- b. Derive an equation for 1 dimensional motion of particles through a fluid in gravitational and centrifugal field. (10 Marks)
- c. Explain sedimentation process by Coe theory. (04 Marks)

PART – B

- 5 a. Give a brief note on filtration system with a sketch. Mention parts. (04 Marks)
- b. What is rate of filtration? Explain with the help of Darcy's law. (06 Marks)
- c. With a neat sketch, explain classification of filtration. (10 Marks)
- 6 a. Give a short note on applications of agitation. (06 Marks)
- b. With a neat sketch, explain agitation equipment. Explain parts. (08 Marks)
- c. Describe flow patterns in agitated vessels with the neat sketch. (06 Marks)
- 7 a. Explain sampling of solids with examples. Mention importance. (05 Marks)
- b. Give a note on storage of solids with an example. Mention applications. (06 Marks)
- c. Define conveyor. Explain Bulk and bin storage with a neat sketch. (09 Marks)
- 8 a. Explain magnetic separation with an example. Mention applications. (06 Marks)
- b. With a neat sketch, explain electrostatic separation process. Add a note on importance. (06 Marks)
- c. Define flocculation. Explain in detail. Mention applications. (08 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.