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10NT834

Eighth Semester B.E. Degree Examination, June/July 2017
Mechanical Operations

Time: 3 hrs.

Max. Marks: 100

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

PART – A

- 1 a. Write a note on shape factor. (05 Marks)
b. Write a short note on effectiveness of screen. (05 Marks)
c. Differentiate between differential and cumulative size analysis. (10 Marks)
- 2 a. Briefly discuss industrial screening equipment. (08 Marks)
b. With a neat sketch explain gyratory screen. (08 Marks)
c. Explain sub sieve analysis in detail. Mention its applications. (04 Marks)
- 3 a. Write a note on types of forces used for comminution and criteria for comminution. (10 Marks)
b. With a neat sketch, explain free crushing and choke feeding. (10 Marks)
- 4 a. Derive an equation for one dimensional motion of particles through a fluid in gravitational and centrifugal field. (10 Marks)
b. Give a short note on Newton's regions and intermediate region. (10 Marks)

PART – B

- 5 a. What is rate of filtration? Explain with the help of Darcy's law. (06 Marks)
b. What is filter aids? Explain with examples. (04 Marks)
c. Explain any two industrial filters in detail with a neat labeled sketch. (10 Marks)
- 6 a. Discuss the types of impellers with a neat sketch. (12 Marks)
b. Elucidate the standard turbine design. (08 Marks)
- 7 a. Explain sampling of solids with examples. (05 Marks)
b. Write a note on storage of solids with an example. (05 Marks)
c. Write a note on belt conveyor and chain conveyor. (10 Marks)
- 8 a. With a neat sketch explain electrostatic separation. (05 Marks)
b. Explain the process of froth flotation process. (08 Marks)
c. With a neat labelled sketch explain, typical floatation circuits. (07 Marks)

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2. Any revealing of identification, appeal to evaluator and/or equations written eg, 42+8 = 50, will be treated as malpractice.