

(Following Paper ID and Roll No. to be filled in your Answer Books)

Paper ID : 2012351

Roll No.

B.TECH.

Regular Theory Examination (Odd Sem-III), 2016-17

FLUID FLOW AND SOLID HANDLING

Time : 3 Hours

Max. Marks : 100

SECTION - A

Note : Attempt all questions. Each question carries 2 marks. (10×2=20)

- 1) Enlist the properties of solids.
- 2) Name any two industrial screening equipments.
- 3) Define cleaning and grading.
- 4) What is finesse module?
- 5) What is Specific heat?
- 6) Explain in short major losses in pipes.
- 7) What is Pressure gauge?
- 8) Enlist any two types of manometers.
- 9) Write any two size reducing.
- 10) What is the function of Pitot tube?

SECTION - B

Note: Attempt any three questions. Each questions carries 10 marks. (3×10=30)

1. Explain Screen analysis. Draw a relationship graph between the fineness modules and average particle size.
2. Explain principles of size reduction in details.
3. Discuss the Rittinger's and Kick's Law.
4. In a Wheat milling experiment it was found that to grind 4.33 mm size grains to IS Sieve 35 (.351 mm opening), the power requirement was 8 Kw. Calculate the power requirement for milling of wheat by the same mill to IS sieve 15 (0.157 mm Opening). Using

- i) Rittingers law
- ii) Kick's Law.

Feed rate of milling is 200 kg/hr.

5. Explain reciprocating pump with figure.

SECTION - C

Note: Attempt all questions. Each question carries 10 marks. (5×10=50)

1. Explain the belt conveyor with figure.
2. Water is flowing through a pipe of 5 cm diameter under a pressure of 29.43 N/cm² (gauge) and with mean velocity

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of 2.0 m/sec. Find the total head or total energy per unit weight of the water at a cross-section, which is 5 m above the datum line.

3. Explain the
 - a) Coefficient of velocity, C_v with mathematical formula.
 - b) Coefficient of contraction, C_c with mathematical formula.
 - c) Coefficient of discharge, C_d with mathematical formula.
4. A centrifugal pump delivers water against a net head of 14.5 meters and a design speed of 1000 rpm. The vanes are curved back to an angle of 30° with periphery. The impeller diameter is 300 mm and outlet width 50 mm. Determine the discharge of the pump if manometric efficiency is 95%.
5. Explain the rotary pump with figure.

