

07/08/23

Printing Pages : 1

Paper Code : BFD-303

(B) (SVSU): 2022-2023/R

Enrollment No.

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

B. TECH. (FT)

II YEAR, III SEMESTER EXAMINATION

Fluid Flow and Solid Handling (FFSH)

[Time : 3:00 Hours]

[Max. Marks : 70]

NOTE:- ATTEMPT ALL THE QUESTIONS AS PER GIVEN INSTRUCTIONS.

Q1. ATTEMPT ANY THREE OF THE FOLLOWINGS

(5*3=15)

- A. Define Absolute pressure, Gauge pressure and vacuum pressure.
- B. Explain rotary pump with neat sketch.
- C. Describe venturimeter with sketch.
- D. State Pascal Law.

Q2. ATTEMPT ANY THREE OF THE FOLLOWINGS

(5*3=15)

- A. What is crusher? Explain the working of crusher.
- B. What is conveyor? Write types of conveyors.
- C. Explain working principle of gravity filtration equipment.
- D. What are the different types of sedimentation tanks? Explain any one.

Q3. ATTEMPT ANY FOUR OF THE FOLLOWINGS

(5*4=20)

- A. Derive Bernoulli's Equation. Write its assumptions.
- B. Explain the working of double acting reciprocating pump.
- C. A pitot static tube is used to measure the velocity of air flowing through a duct. The manometer shows a difference in head of 5 cm of water. If the density of air and water are 1.13 kg/m^3 and 1000 kg/m^3 determine the velocity of air. Assume the coefficient of the pitot tube as 0.98.
- D. Explain centrifugal pump with neat diagram.
- E. Calculate the pressure due to a column of .3m of a) water, b) an oil of specific gravity 0.8 c) mercury of specific gravity 13.6. A density of water 1000 kg/m^3

Q4. ATTEMPT ANY TWO OF THE FOLLOWINGS

(10*2=20)

- A. A venturimeter of $150 \text{ mm} \times 75 \text{ mm}$ size is used to measure the flow rate of oil having specific gravity of 0.9. The reading shown by the U tube manometer connected to the venturimeter is 150 mm of mercury column. Calculate the coefficient of discharge for the venturimeter if the flow rate is $1.7 \text{ m}^3/\text{min}$.
- B. Explain single acting reciprocating pump with neat sketch.
- C. An orifice of 8 cm diameter is fitted in a 20 cm diameter pipe that carries oil of specific gravity 0.8. The mercury manometer attached to the orifice shows a reading of 0.75 m. Calculate the oil flow rate through the pipe. Assume coefficient of discharge for orifice as 0.6.
