[43]

Seat No.: _____

No. Of Printed Pages : 02

SARDAR PATEL UNIVERSITY
Bachelor of Science (SEMESTER-5) EXAMINATION- 2022
US05CICH24: (Fluid Mechanics and Mechanical Operations)

Date : 14/11/2022, Monday
Time : 10:00 A.M. TO 01:00 P.M.

Total Marks: 70

Note: Figures to the right indicate full marks of the questions.

Q.1   Multiple Choice Questions. (All are compulsory)   [10]

1. Bernoulli's theorem simply_____.
   (a) Weight density.   (b) Mass density.
   (c) Material balance   (d) energy balance

2. Fluid which does not offer resistance to flow is known as_____.
   (a) Dynamic fluid.   (b) Hydro dynamic
   (c) Ideal fluid.   (d) Static fluid

3. A fluid which follows newton's low of viscosity is called_____.
   (a) Bingham.   (b) Newtonian fluids.
   (c) Real fluid.   (d) Non- newtonian fluids.

4. Cutters are size reduction equipment which gives the particle size and shapes of ranges_____.
   (a) 2 -10mm length   (b) 500 -1000mm length
   (c) 50-10mm length   (d) 100-1000mm length

5. Size reduction machine commonly reduce the size by_____.
   (a) Compression (b) Impact (c) Attrition (d) All of these

6. Sodium Ethyl Xanthat is a_____.
   (a) Promoter (b) collector (c) Frothing agents   (d) surfactant

7. The filter used to remove small amount of solids to produce sparkling clear liquid is known as _____.
   (a) Cake filter (b) Clarifying filters (c) Rotary filter (d) None of these

8. Rotary drum filter is a type Of_____.
   (a) Cake filter   (b) Clarifying filter
   (c) Pressure filter   (d) None of these

9. For mixing solids with solids _____ equipment is employed.
   (a) Agitated tank   (b) Tumbling mixer
   (c) Kneader   (d) Belt Conveyor

10. Propeller impeller consists of_____ blades.
    (a) One (b) Two (c) Three (d) More than four

P.T.O.

Q.2   **Short Answer Questions.**   (Attempt any 10 out of 12)   **[20]**
1. Write a difference between pipes and tubes.
2. Define the term Ideal Fluid & Real Fluid.
3. Define (i) Compressible fluid (ii) Incompressible fluid
4. State Rittinger's law.
5. Give a difference between open circuit grinding and closed circuit grinding.
6. Define the term crushing efficiency.
7. Write factors affecting the rate of filtration.
8. What is sedimentation?
9. Define the term Filtration.
10. Explain the function of idlers and tripper with belt conveyer.
11. Write importance of mixing and agitation.
12. State various types of mixing.

Q.3   **Answer the given questions**
A. Write a note on U-Tube Manometer.   [5]
B. Explain construction and working of centrifugal pump with suitable diagram.   [5]

OR

A. Derive an equation of Newton's law of viscosity.   [5]
B. Write a note on gear pump.   [5]

Q.4   **Answer the given questions**
A. Write a detail note on Jaw crusher.   [5]
B. What is size reduction? write classification of size reduction equipments.   [5]

OR

A. Write a note on Roll crusher.   [5]
B. Explain in details about Shaking and vibrating screen.   [5]

OR

Q.5   **Answer the given questions**
A. Write a note on Hydraulic jig   [5]
B. Explain construction and working of Plate and frame filter press with neat diagram   [5]

OR

A. Explain construction and working of centrifugal filtration with suitable diagram.   [5]
B. Write a note on Dorr thickener.   [5]

Q.6   **Answer the given questions**
A. Write a note on tumbling mixer.   [5]
B. Write a detail note on belt conveyer.   [5]

OR

A. Write short note on mixing solids with solids.   [5]
B. Explain in detail about double arm kneader.   [5]

———✕———