

17470

15116

3 Hours / 100 Marks

Seat No.

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- Instructions* – (1) All Questions are *Compulsory*.
(2) Figures to the right indicate full marks.
(3) Use of Steam tables, logarithmic, Mollier's chart is permitted.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in examination hall.

Marks

1. Attempt any TEN of the following :

20

- a) Define "Newton's Law of Viscosity".
- b) What are the various types of pipe fittings ?
- c) Give the principle of a centrifugal pump.
- d) Define "Real" and "Ideal" fluids.
- e) What is the principle of a venturimeter ?
- f) What are the purpose of pipe fittings ?
- g) What are the important properties of fluids ?
- h) Give the classification of flow measuring devices.
- i) Define : "Specific heat", "Heat capacity".
- j) State "Newtons Law of cooling".
- k) Define "Distillation", "Crystallization".
- l) Define "Dry bulb temperature", "Dew point."
- m) Give the "Fourier's law" of Heat conduction.
- n) What do you understand by absolute and relative humidity ?
- o) Define "Diffusion co-efficient", "Adsorption".

P.T.O.

- 2. Attempt any FOUR of the following :** **16**
- a) Describe the importance of fluid flow studies to textiles with suitable examples.
 - b) Explain the Reynolds experiment for fluid flow through pipes.
 - c) Explain the construction and working of a centrifugal pump with a well labelled diagram.
 - d) Explain the concept of energy losses and friction factor.
 - e) Explain the rheology of Newtonian fluids.
 - f) Explain the significance and need for pumping of liquids.
- 3. Attempt any FOUR of the following :** **16**
- a) Give the Bernoulli's equation of continuity and explain its significance.
 - b) Explain with a well labelled diagram, the construction and working of a venturimeter.
 - c) Explain the concept of energy conservation in textiles.
 - d) Describe the concept of heat transfer by Radiation.
 - e) Explain the modes of mass transfer by molecular diffusion and eddy diffusion.
 - f) Explain various filter aids and filter media with appropriate examples.
- 4. Attempt any FOUR of the following :** **16**
- a) Explain the concept of heat transfer, its rate and heat transfer coefficient.
 - b) Describe the concept of Black Body radiation.
 - c) Describe in details the diffusion and capillary theories of drying.
 - d) What are the applications of membrane technology to textile industry ? Also mention its advantages.
 - e) Give the applications of conduction heat transfer in textile industry.
 - f) Explain the application of convection heat transfer to textile industry.

- 5. Attempt any FOUR of the following :** **16**
- a) Describe the mechanism of heat flow through thick slab and thick cylindrical pipes.
 - b) Explain the concept of heat transfer by convection.
 - c) Explain the terms - dry bulb and wet bulb temperature.
 - d) Explain the concept of mass transfer operation and its classification.
 - e) Describe ultra-filtration and reverse osmosis techniques.
 - f) Explain the various applications of drying techniques to the textile industry.
- 6. Attempt any TWO of the following :** **16**
- a) Explain the importance of humidification operation in textile mills in various departments.
 - b) Explain the terms crystallization and evaporation and their applications in textile industries.
 - c) State the importance of fluid flow measurement in textiles and explain the method for measurement.
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