

17470

15162

3 Hours / 100 Marks

Seat No.

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- Instructions :** (1) All Questions are *compulsory*.
(2) Answer each next main Question on a new page.
(3) Figures to the right indicate full marks.
(4) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

Marks

1. Attempt any TEN :

20

- (a) State “Newton’s Law of Viscosity”.
- (b) What is the purpose of pipe fittings ?
- (c) What is the principle of working of a centrifugal pump ?
- (d) Define “Real” & “Ideal” fluids.
- (e) What are the various types of pipe fittings ?
- (f) Give the classification of flow measuring devices.
- (g) Define “Specific Heat”, “Heat capacity”.
- (h) Define “Density”, “Viscosity” of liquids.
- (i) Define “Heat transfer operation”.
- (j) State “Newton’s law of cooling”.
- (k) Define “Dew point”, “Wet bulb temperature”.
- (l) State “Fourier’s law of heat conduction.
- (m) Give the classification of Mass transfer operations.
- (n) What do you understand by absolute and relative humidity ?
- (o) Define “Extraction” and “Evaporation”.

P.T.O.

- 2. Attempt any FOUR :** **20**
- (a) Explain the importance of fluid flow to textiles.
 - (b) State Bernoulli's equation and explain the significance of it.
 - (c) Explain the construction and working of a orifice meter.
 - (d) Describe the Reynolds experiment for fluid flow through pipes.
 - (e) Explain the rheology of "Newtonian fluids".
 - (f) Explain the importance of fluid flow measurements in textile industry.
- 3. Attempt any FOUR :** **20**
- (a) Explain the concept of Energy losses and friction factor.
 - (b) With a neat and well labelled diagram, explain the construction and working of a centrifugal pump.
 - (c) Explain the concept of heat transfer by convection.
 - (d) Explain the modes of mass transfer by molecular diffusion and eddy diffusion.
 - (e) Explain the mechanism of heat flow through thick slab and thick cylindrical pipe.
 - (f) Explain the significance and need for the pumping of liquids.
- 4. Attempt any FOUR :** **20**
- (a) Explain the concept of energy conservation in textiles.
 - (b) Describe the concept of heat transfer by Radiation.
 - (c) Explain the Ultra filtration and Reverse osmosis techniques for filtration.
 - (d) Explain the various application of drying techniques used in textile industry.
 - (e) Describe the applications of conduction heat transfer in textile industry.
 - (f) Explain the concept of Black Body radiation.
- 5. Attempt any FOUR :** **20**
- (a) Explain the application of convection heat transfer to textile industry.
 - (b) Describe humidity and humidification. Also explain its importance to textile industry.
 - (c) Describe various filter aids and filter media with suitable examples.
 - (d) Explain the concept of Mass transfer operations and diffusion.
 - (e) Explain the diffusion and capillary theory of drying.
 - (f) Explain the applications of membrane technology to the textile industry.
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