

# 22670

**21222**

**3 Hours / 70 Marks**

Seat No.

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15 minutes extra for each hour

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- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Assume suitable data, if necessary.
- (4) Use of Non-programmable Electronic Pocket Calculator is permissible.
- (5) Mobile Phone, Pager and any other Electronic Communication devices are not permissible in Examination Hall.

**Marks**

- 1. Attempt any FIVE of the following:** **10**
- a) State the advantages of dye house planning.
- b) Write the formula for calculating production per day for continuous machine.
- c) Write the unit for BOD and COD with their norms in textile.
- d) List the dyes used for dyeing of wool fibre.
- e) Name any two chemicals which are used as cationic softeners.
- f) State any two causes of accidents in dye house.
- g) State any two fuels with their calorific value.

P.T.O.

- 2. Attempt any THREE of the following:** **12**
- a) Explain the method to calculate production of batch-wise machine in wet processing.
  - b) Describe water quality parameters used in textile wet processing.
  - c) Calculate energy required to dry 100 kg 100% cotton fabric in wet condition.
  - d) Describe advantages of good lighting in textile wet processing.
- 3. Attempt any THREE of the following:** **12**
- a) Describe the production norms for scouring of 100% cotton fabric on CBR machine.
  - b) Calculate quantity of water required for dyeing of polyester with disperse dye on jet machine [weight of fabric 100 kg]
  - c) Calculate electric energy required in unit for finishing of 100000 m on stenter machine. [L.D. = 8 m/kg]
  - d) Calculate the quantity of reactive dye required for dyeing of 100000 m fabric [if linear density of fabric is 8 m/kg and % shade is 2%]
- 4. Attempt any THREE of the following:** **12**
- a) Suggest the selection criteria for selection of location for modern process house.
  - b) Calculate numbers of CPB machine required for 50000 meter per day production.
  - c) Describe various ways to minimize energy consumption in Kier boiler J-box machine.
  - d) Calculate chemical consumption in bleaching of 100% cotton fabric in jigger machine with Hydrogen Peroxide [weight of fabric = 100 kg]
  - e) Describe types of accidents with examples in the dyehouse.

**5. Attempt any TWO of the following:****12**

- a) Suggest various tips for designing modern process house.
- b) Calculate total electric energy required and cost of electric energy for following data.
  - (i) quantity = 10000 m
  - (ii) width = 150 cm
  - (iii) M/C = Rotary screen printing for cotton fabric
  - (iv) number of colour = 8
- c) Calculate cost of water and quantity of water required for following data.
  - (i) quantity = 100000 m
  - (ii) linear density = 8 m/kg
  - (iii) process = reactive dyeing with 2% shade
  - (iv) cost of water = 16 RJ/m<sup>3</sup>

**6. Attempt any TWO of the following:****12**

- a) Calculate number of Gas singeing machines required for singeing of 100% cotton fabric with following data.

quantity = 100000 meter  
width = 150 cm  
GSM = 200 gm
  - b) Calculate total quantity of water and cost of water for following data.

quality = 100% cotton  
quantity = 50,000 meter cost of water 8 RS/m<sup>3</sup>  
linear density = 8 m/kg  
process = continuous unmercerised bleaching.
  - c) Calculate cost of chemical for dyeing of 100% cotton fabric  
quantity = 30,000 meter  
Linear density = 12 m/kg  
cost of dye = 400 RJ/Kg  
cost of NaCl = 10 RJ/Kg  
cost of Na<sub>2</sub>CO<sub>3</sub> = 20 RJ/Kg
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