THE TEXTILE ASSOCIATION (INDIA)
A.T.A. PART III EXAMINATION 2019
PAPER – A3.OC
PRE-TREATMENT AND DYEING (WET PROCESSING – I)

Date: 23.12.2019  MARKS: 100  Time: 10.00 am to 01.00 pm

Instructions:
1. Attempt any Six questions out of which Q.1 is Compulsory.
2. Answer each next question on new page.
3. Figures to the right indicate full marks.
4. Illustrate your answers with neat sketches & flow charts wherever necessary.
5. Use of non-programmable electronic pocket calculator is permissible.
6. Mobile and any other communication devices are not allowed in the Examination hall.
7. Assume suitable data wherever necessary.

Q.1  Attempt any Five
1. Describe the different systems of fabric inspection.
2. Elaborate the objectives of singeing process
3. Explain the different methods of desizing
4. Discuss the relevance of grey scales in determining the colour fastness of textiles.
5. Elaborate the principle involved in the optical whitening of textiles.
6. Draw a neat labeled diagram of a jigger dyeing machine and write its working principle.
7. Define the terms “Percentage shade” and “Percentage exhaustion” with one example.
8. Differentiate between dyes and pigments.

Q.2
1. Define reactive dyes? Write the sub-classification of reactive dyes. With reaction explain the type of dye fibre interaction between reactive dye and cotton fibre. Also write the structure of the reactive groups present in cold brand and vinyl sulphone reactive dyes
2. With a neat labeled diagram, explain the working and principle involved in scouring of cotton in Kier. Also explain the various changes taking in cotton.

Q.3
1. Draw a neat labeled diagram of a gas singeing machine and write its working principle as well as two advantages and two limitations.
2. 500 kg of cotton fabric is to be dyed with reactive dye for 2.6% shade keeping MLR 1:20 & using 50 gpl of common salt as exhausting agent and 20 gpl soda. If the stock dye solution concentration = 0.5%, Stock salt concentration = 10% i.e. 100 gpl & Stock soda concentration = 10% i.e. 100 gpl, Calculate the amount of dye solution, salt solution, soda solution & water.
Q.4
1 Elaborate the dyeing procedure of vinyl sulphone reactive dye and hot brand reactive dye on cotton with the help of neat dyeing ramp.
2 Draw a neat labeled diagram of a Continuous Bleaching Range machine and write its working principle as well as two advantages and two limitations.

Q.5
1 With a neat labeled diagram, explain the working principle of a jet dyeing machine. Also write the dyeing procedure of disperse dyes on polyester.
2 Elaborate the procedure for bleaching of cotton using hydrogen peroxide and bleaching of wool using sodium chlorite.

Q.6
1 Explain the procedure of dyeing silk and cotton using basic dyes
2 Discuss the classification of acid dyes and elaborate the procedure of dyeing of wool with acid dyes.

Q.7
1 Elaborate the procedure for industrial scouring of wool and degumming of silk.
2 Elaborate the distinct steps involved in the dyeing of cotton with vat dyes. Also write any two advantages and limitations of vat dyes.

Q.8
1 678 kg cotton fabric is to be dyed by using vat dye for 2.9% shade with MLR of 1:8. Find out the amount of dye and total dyeing solution required. Also find out the amount of Hydrose and alkali required if the desired concentration is 12 gpl and 8 gpl respectively. Find out the difference in consumption of dye & chemicals if the weight of fabric is wrongly written as 786 kg.
2 Write a detailed note on the different types of bleaching agents used in textile pre-treatments process.