Cationic reactive dyes. ⊕

MAJOR TEST
TXL242: Technology of Textile Coloration

Date: 17th Nov. 2018
Time: 10:30-12:30 hrs.

Max. Marks: 40

1. In dyeing of polyamide fibre with 1:1 metal complex dye, which of the following agents will provide safe dyeing condition and why? (a) Sulphuric acid (b) Sulphamic acid? 1.5

2. Mention 2 different types of possible interaction of 1:2 metal complex dye with nylon fibre. Among the following two processes, where do you find relatively easy 'shade matching during dyeing operation (i) on-chrome process (ii) after-chrome process – justify your answer 1+2

3. In the context of PAN fibre dyeing with basic dye, differentiate 'Constant Temp. Dyeing' and 'Rapid Dyeing'? Among the two following types of fibres, where would you expect more dye uptake and why? (a) Wet spun fibre (b) Dry-spun fibre? 1 + 0.5

4. Mention any two major advantages of using acid fixable reactive dye? Do you find any negative effect of that on cotton fibre, if yes, what? 1 + 1

5. Can you do salt free reactive dyeing in batch-wise process, if yes, how? Explain – 'Heterobifunctional' dye can be applied in a wide range of temp. but this is not true for 'homobifunctional' dye. 1+2

6. *Following dyes with corresponding dischargeability rating are available* 1.5+1.5
   - i. Dye X- 3
   - ii. Dye Y- 2
   - iii. Dye Z- 5

   a. Giving suitable reasons, select a dye for dyeing of ground colour in discharge printing.
   b. Which dye will show better fastness in ground colour? Why?

7. Which of the following padding arrangement is advantageous for dyeing in case of resist style of printing (a) nip padding (b) immersion padding, Justify your answer. 0.5 + 1.5

8. Chemistry of disperse dye plays an important role in their selection for transfer printing – Explain. 2

9. What is the role of Urea in printing paste when dye is fixed with (a) dry heat (b) saturated steam 1+1

10. Washing has critical role in direct style of printing with reactive dye which is not very vital for direct style of printing using pigment – Justify. 2

P.T.O

11. Can you use 'British Gum' as a 'Thickener' in case of printing of cotton using reactive dye? why? 2

12. DAP is used for pigment printing of cotton using 'emulsion thickener' but not required once we use 'synthetic thickener' like RAN –why? 2

13. For printing Cotton/PET blend fabric – choose the printing parameters like pH, temperature (for dry heat fixation) and after wash or soaping temperature with justification 2

14. **With suitable reason/s** state whether the following statements are **True / False** 1 x 12

a) Dye uptake of acrylic fibre is more pH dependent when the structure contains weekly acidic groups as compared to strong acidic group

b) In disperse dyeing, use of dispersing agent is compulsory

c) In synthetic fibre dyeing, Tg has immense role

d) In Batch process of reactive dyeing of cotton (using MCT), dyeing cycle is always advisable in a single step rather than double/multiple steps

e) In carrier dyeing of PET, $(NH_4)_2SO_4$ is also used along with Carrier

f) Binder plays decisive role in pigment printing

g) Pigment printing using kerosene/water emulsion as thickener is an eco-friendly printing operation

h) Volatile acids are preferred in resist style of printing using reactive dyes

i) Pigment printing of cotton with synthetic thickener requires a drop acid to develop the proper viscosity

j) 'Pad-Dry-Steam' route is a preferred route for pigment printing

k) 'Registration' fault is related to screen printing

l) Direct printing of cotton with reactive dyes does not require salt as an exhausting agent