

## MAJOR TEST

### TTL242: Technology of Textile Coloration

Date: 3<sup>rd</sup> May 2008  
Time: 0800-1000 hrs

Max. Marks: 35

**Note: Attempt all questions. Answer Part A and Part B on separate answer books**

#### PART – A

- 1 Explain the most acceptable theory of carrier action in polyester dyeing. Bring out the significance of WLF equation. [2]
- 2 Discuss the following attributes of reactive dyes, while selecting them for and exhaust continuous processes: Solubility, substantivity, reactivity [2]
- 3 With suitable diagram, describe the role of time and temperature on dye fixation in polyester dyeing by thermofixation method. What is the role of sublimation fastness? [3]
- 4 Describe the process of continuous dyeing of cellulosics with vat dyes. [2]
- 5 Solvent dyeing for polyester is commercially not successful. Comment. [1]

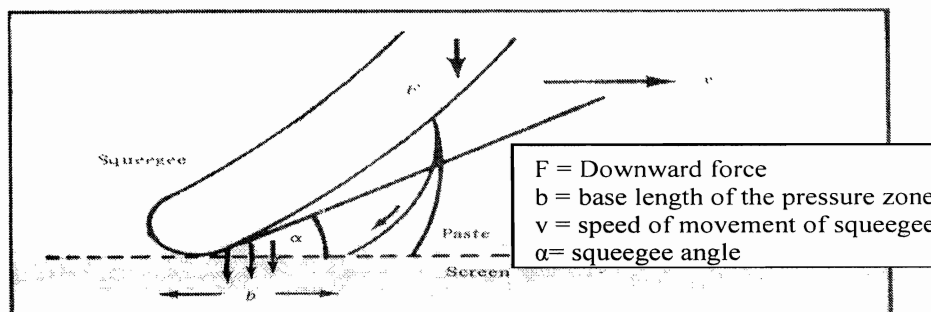
#### PART – B

- 6 In the context of transfer printing, assuming ideal behaviour of dye vapour,  $[C]_v = pM / RT$ , where  $p$  is the saturation vapour pressure of the dye in atmosphere,  $R$  the gas constant in litre.atm /(deg.mole),  $M$  is molecular weight in grams, and  $[C]_v$  the equilibrium vapour concentration in g/l.
  - a) Calculate dye vapour concentration, in **g/ml** at equilibrium, for the following dyes [4]

Dye	Molecular weight	Saturation Vapour Pressure of dye (mm Hg), at 200 °C
C I Disperse Yellow 8	261	0.447
C I Disperse Violet 1	238	0.0206

- b) Which dye is likely to perform better with respect to transfer printing and why? [2]

- 7 In the context of screen printing, consider the following diagram and state **giving reasons** as to what would happen to the hydrodynamic pressure on the paste between the squeegee and screen, if, keeping other parameters constant,



- squeegee angle  $\alpha$  is decreased [1.5]
  - speed of squeegee,  $v$  is increased [1.5]
- 8 Differentiate between,
- Rongalite C and resist salt [2]
  - Galvano and lacquer rotary screens [2]
  - Chemistry of starch and guar gum [2]
- 9 Answer in brief, giving reasons, why [10]
- Multicolour effects can be obtained in digital printing with only four colours.
  - Fabric pretreatment is necessary before digital printing.
  - In flat-bed screen printing machines one side of the screen is lifted just before the other side after the paste is applied by the squeegee.
  - Doctor lift gives double wavy streak in roller printing.
  - Solubilized vat dyes can be used for printing wool.
  - Indalca AGBV is not used for pigment printing.
  - Azo dyes are not used as illuminating colours in discharge printing.
  - British Gum needs more solid content to get printable viscosity.
  - Monochlorotriazinyl dyes are preferred over dichlorotriazinyl reactive dyes for printing.
  - Acid dyes are not used for vapour transfer printing.

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