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RM-7877

B. E. IV (Sem. VIII) (TP) Examination

May / June – 2010

Technology of Dyeing - III

Time : **3** Hours] [Total Marks : **100**

Instructions :

(1)

નીચે દર્શાવેલ ☛ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fillup strictly the details of ☛ signs on your answer book.

Name of the Examination :

☛ **B. E. 4 (Sem. 8) (TP)**

Name of the Subject :

☛ **Technology of Dyeing - 3**

☛ Subject Code No. : **7 8 7 7** ☛ Section No. (1, 2,.....) : **1&2**

Seat No. :

Student's Signature

(2) Answers to the **two** sections must be written in **separate** answer books.

(3) Figures to the **right** indicate full marks.

(4) Tie **two** sections separately.

SECTION I

Q.1 **a)** Answer the following **objective** questions. **(10)**

i) ----------is associated with carbamide linkages.

ii) Solubility of dyes is associated with ----------forces.

iii) Oxy cellulose is less dyeable than hydrocellulose- TRUE or FALSE

iv) What is the final over-reduction product of anthraquinone vat dye?

v) Direct dyeing of cellulose follows ---------- adsorption isotherm.

vi) Dyeing of cotton is an ---------- reaction.

vii) ----------theory of nylon dyeing presumes the depolymerisation of nylon.

viii) Amido group content in nylon 66 is ---------- gm.eq./kg of fibre.

ix) What is diazotization temperature of base?

x) Diffusion of basic dye in acrylic fibre follows ----------mechanism

b) Give a critical review on dyeing of acrylic fibres with basic dyes. **(10)**

Q.2 a) Give a brief account on the importance of cohesive energy density and solubility parameter of disperse dye- polyester system. **(10)**

b) Explain the measurement of affinity of acid dyes on wool by titration with free dye acids. **(05)**

OR

Q.2 Describe various thermodynamic aspects of reactive dyeing of cotton. **(15)**

Q.3 Write short notes on **any three** of the following **(15)**

a) Importance of temperature on dyeing of acrylic fibres.

b) Maximum dye combining power of wool.

c) Effect of temperature on adsorption of polyester dyeing

d) Remington and Glodil's Theory.

SECTION II

Q.4 a) Answer the following objective questions. **(10)**

i) Fick's Second law is applicable to practical dyeing systems, true or false?

ii) Define half dyeing time.

iii) Equilibrium adsorption of a rapid dyeing dye is higher at lower temperature than at higher temperature, true or false?

iv) What is on tone dyeing?

v) Which adsorption isotherm is more applicable to the ionic dyeing system?

vi) Name four scientists who made great contribution to the kinetics of dyeing.

vii) Thermodynamic properties of dyeing system can be studied at a state of _____.

viii) Two compatible dyes must have _____.

ix) Diffusion coefficient is a function of temperature, true or false?

x) State the difference in substaintivity and affinity.

b) What are adsorption isotherms used for study of dyeing system? Explain the application of Langmuir adsorption isotherm in dyeing. **(10)**

Q.5 Define diffusion coefficient. Derive an expression for the calculation of diffusion coefficient of a dye in a practical dyeing system. **(15)**

OR

Q.5 Discuss the approach **towards** quantitative determination of affinity of dye for a fibre while deriving an expression for determining the affinity. **(15)**

Q.6 Write short notes on **any three** of the following. **(15)**

a) Compatibility of dyes.

b) Entropy of dyeing.

c) Fraundlich isotherm.

d) Activation energy of dyeing.
