



(Following Paper ID and Roll No. to be filled in your Answer Book)

**PAPER ID : 160407**

Roll No.

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## B. Tech.

(SEM. IV) THEORY EXAMINATION, 2014-15  
**PHYSICAL CHEMISTRY OF DYEING**

Time : 3 Hours]

[Total Marks : 100

**Note :** Attempt all questions. All questions carry equal marks.

- 1 Attempt any two of the following :
  - (a) What is absorption? How it affects the dyeing?
  - (b) How fibre structure is responsible for accepting the dyes?
  - (c) State and explain Bears Law explain with suitable examples.
  
- 2 Attempt any two of the following :
  - (a) Discuss thermodynamic derivation of adsorption isotherm.
  - (b) Express in detail, the chemical potential of a substance.
  - (c) Explain Freundlich and Lengmuir adsorption isotherm.

- 3** Attempt any two of the following :
- (a) Discuss the diffusion in steady state.
  - (b) Discuss all the stages of dyeing.
  - (c) What is role of temperature on rate of dyeing ?
- 4** Attempt any two of the following :
- (a) Show the relation between rate of diffusion and rate of dyeing.
  - (b) Discuss the compatability of direct dyes.
  - (c) What are requirements of a dye in order to be substantive to cellulose ?
- 5** Attempt any two of the following :
- (a) Discuss various fastness properties of dyed materials.
  - (b) How colours can be measured by various methods.
  - (c) Discuss pore model theory of dyeing.
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