

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VIII EXAMINATION – SUMMER 2016****Subject Code:182801****Date:10/05/2016****Subject Name:Technology of Dyeing III****Time:10:30 AM to 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Give the expressions of Fick's first law and second law. **07**
Give the important point of differences between these two laws.
- (b) Describe with suitable examples, homo polar bonds and semi polar bonds. **07**
- Q.2** (a) Explain the mechanism of dyeing wool with acid dyes. **07**
- (b) Define steady state, non steady state and equilibrium dyeing. **07**
- OR**
- (b) Describe H-bonds and Vanderwaals forces with suitable examples. **07**
- Q.3** (a) Derive an expression for Fick's second law. **07**
- (b) Discuss the experiment carried out by Garvie and Neale with its outcomes and significance. **07**
- OR**
- Q.3** Explain the use of chemical potential measurements in quantitative determination of affinity of dyes for the fiber. **14**
- Q.4** (a) Discuss the thermodynamic aspects of vat dyeing. **07**
- (b) Elaborately discuss about the electrical phenomenon in dyeing process. **07**
- OR**
- Q.4** (a) Discuss adsorption isotherm applicable for ionic dyeing system. **07**
- Q.4** (b) Explain the concept of Donnan membrane equilibrium and its significance in study of dyeing systems. **07**
- Q.5** (a) Elaborately discuss the concept of activation energy of diffusion and its usefulness in measuring diffusion coefficient of a dye. **08**
- (b) Write a note on Remington and Goldil's theory. **06**
- OR**
- Q.5** Explain the effect of various parameters on equilibrium adsorption of direct dyes on cotton. **14**
