

GUJARAT TECHNOLOGICAL UNIVERSITY
BE – SEMESTER – VI (NEW).EXAMINATION – WINTER 2016

Subject Code: 2162806**Date: 26/10/2016****Subject Name: Physical Characteristics of textile fibre****Time: 02:30 PM to 05:00 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) Answer the following OBJECTIVE questions: **07**
- i. _____ property of individual fibre is responsible to hold the fibre together in yarn.
 - ii. The fastness properties of dyed fibre _____ with increase in fineness of the fibre.
 - iii. Luster of fibre arises due to _____ of light.
 - iv. How many cells are present in cotton fibre?
 - v. Chain length of cellulose molecule is _____ than micelles
 - vi. Stress = _____/Area of Cross-section
 - vii. CRE, CRT and CRL are the principles to measure _____ properties of fibres.
- (b) Describe the technical significance of swelling with detailed swelling effect measurements. **07**
- Q.2** (a) Explain the importance of orientation and thermal stability of fibre forming polymer. **07**
- (b) Describe the macro and micro structures of silk fibres. **07**
- OR**
- (b) Discuss the relation of absorption with dichroism in detail to describe optical behaviour of fibres. **07**
- Q.3** (a) Define the following terms: **04**
- | | |
|------------------------|---------------------|
| i. Fibre Density | ii. Degree of Order |
| iii. Flexural Rigidity | iv. Creep |
- (b) Write a short note on “Creasing”. **04**
- (c) Describe with neat sketch on “Transition electron microscope”. **06**
- OR**
- Q.3** (a) Explain different factors affecting RH and regain of fibres. **07**
- (b) Compare different structural models of viscose rayon. **07**
- Q.4** (a) Compare the SS curves of various fibres. **06**
- (b) Give a critical review on dielectric properties of fibres. **04**
- (c) State few words on ultimate failure. **04**
- OR**
- Q.4** (a) Explain the technological importance of IR spectroscopy with suitable illustrating spectra. **07**
- (b) Give the technical significance of swelling. Discuss the detailed measurement of swelling effect in different directions. **07**
- Q.5** (a) Explain the fringed fibrillar theory of fibre structure. **07**
- (b) Describe with neat sketch the fine structure cotton fibre. **07**

OR

- Q.5** (a) Write short notes on the following: **08**
- i. Van der Waal's forces
 - ii. H-bonds
- (b) Explain the importance of molecular weight and chemical resistance of fibres forming polymers. **06**
