

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER– IV (New) EXAMINATION – WINTER 2019****Subject Code: 2142904****Date: 07/12/2019****Subject Name: Fibre Physics****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.

MARKS

- Q.1** (a) Define the terms: Load, Stress, Tenacity. **03**
 (b) Explain about Constant rate of traverse testers. **04**
 (c) What is Creep & Relaxation? Discuss primary and secondary creep. Also explain experiments on creep. **07**
- Q.2** (a) Write short note on Irreversible shrinkage. **03**
 (b) Explain principle of Bowden and Leben's apparatus for study of friction. **04**
 (c) Explain clausius clapeyron equation for water vapour. **07**
- OR**
- (c) With a neat sketch, explain morphological structure of cotton. **07**
- Q.3** (a) Explain about Refractive index. **03**
 (b) Discuss in brief about Elastic recovery. **04**
 (c) Define the terms: absolute humidity, relative humidity, moisture regain, moisture content with suitable examples. Discuss on Hysteresis. **07**
- OR**
- Q.3** (a) Enlist the sources of evidence of fibre structure. **03**
 (b) Write short note on birefringence. **04**
 (c) Explain with neat sketch Fourier transform infrared spectrometers (FTIR). **07**
- Q.4** (a) Explain in brief about Electrical resistance. **03**
 (b) Write short note on reflexion and luster. **04**
 (c) Discuss about Dielectric properties. **07**
- OR**
- Q.4** (a) Discuss requirements for fibre formation from linear polymers. **03**
 (b) Depict various physical and chemical properties of nylon fibers in context to their structure. **04**
 (c) Explain Buckle and Pollitt's method for measurement of Fiber Friction. **07**
- Q.5** (a) Describe "Work factor". **03**
 (b) Enlist the applications of electron microscopy. **04**
 (c) Explain with neat sketch Density measurement technique. **07**
- OR**
- Q.5** (a) Discuss directional friction in Wool. **03**
 (b) Discuss the Thermal Expansion. **04**
 (c) Define swelling. Give methods of measurement of different types of swelling. **07**
