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GUJARAT TECHNOLOGICAL UNIVERSITY BE - SEMESTER-VIII EXAMINATION – WINTER 2015

| | | t Code:182906 Date:12/12/202 | 15 |
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| Ti | me: 2 tructio | Attempt all questions. Make suitable assumptions wherever necessary. | 70 |
| Q.1 | (a) | Discuss the stages involved in manufacturing and application area of manufactured | 07 |
| | (b) | fibers. Explain the two important thermal transitions in a Semicrystalline polymer. | 07 |
| Q.2 | (a) (b) | Write in short on characterization of polymers at the molecular level. How measurement of density can be used for estimating crystallinity of polymers? Explain in short preparation of density gradient column. OR | 07 07 |
| | (b) | Write a short note on Tencel fiber. | 07 |
| Q.3 | (a) (b) | Compare Dry spinning and Wet spinning. Discuss the role of variations of following along the spin line: Effect of variable throughput The consequence of crystallization | 07 07 |
| 0.2 | (\mathbf{a}) | OR Write in short on DSC or DTG. | 07 |
| Q.3 | (a) (b) | Write in short on DSC of DTG. Write in short on following two methods of measurement of degree of set: (i) Critical dissolution time (ii) Recovery from bending strains. | 07 07 |
| Q.4 | (a) | With a neat sketch explain a typical Dry-spinning cell and write on Spin stretch | 07 |
| | (b) | during Dry spinning. Explain the principle of melt spinning process and discuss the types of cooling systems in melt spinning process. | 07 |
| Q.4 | (2) | OR Write on three popular approaches for producing conjugated bicomponent micro | 07 |
| 7.7 | (b) | filaments. Schematically represent working system of Gel permeation chromatography. | 07 07 |
| Q.5 | (a) | State the functions of Spin finish and write on the Spin finish requirements for | 07 |
| | (b) | staple fibre production. Write on manufacture of PPTA (Kevlar) fiber through dry-jet-wet spinning process. | 07 |
| 05 | (a) | OR Write a short note on Electron microscope. | 07 |
| Q.5 | (a) (b) | Explain in detail the mechanism of temporary and permanent set. What kinds of changes occur in crystal size and dispersion with heat treatment temperature? | 07 07 |
