

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-V (NEW) EXAMINATION – WINTER 2018****Subject Code:2153602****Date:20/11/2018****Subject Name:Polymer & Rubber materials - I****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: (a) Stress crack resistance (b) MFI (c) glass transition temperature | 03 |
| | (b) Write difference between LLDPE and ULDPE. | 04 |
| | (c) Explain the production of Polystyrene plastic in detail with its structure and applications. | 07 |
| Q.2 | (a) Write the properties of ABS. | 03 |
| | (b) What do you mean by cross linking? Explain Silane method of PE crosslinking. | 04 |
| | (c) Explain in detail production of PVC plastic material with neat flow diagram. | 07 |
| OR | | |
| Q.3 | (c) Write a short note on Polyamides. | 07 |
| | (a) Write a short note on copolymers of Poly vinyl chloride. | 03 |
| | (b) What are the different methods of HDPE Production. Explain any one in brief. | 04 |
| | (c) Write down the detail production of SBR with the help of flow sheet. | 07 |
| OR | | |
| Q.3 | (a) How the PAN polymer is synthesized? | 03 |
| | (b) What do you understand by toughening of thermoplastic elastomer? Explain with its mechanism. | 04 |
| | (c) Explain Polyesters synthesis and its applications. | 07 |
| Q.4 | (a) Draw chemical structure of: Nylon 6, PMMA, PEEK | 03 |
| | (b) Draw structure and write applications of Nomex and Kevlar. | 04 |
| | (c) Write a short note on following polymeric materials along with its structure. (a) PET (b) PBT (c) PTT | 07 |
| OR | | |
| Q.4 | (a) How polypropylene is prepared? Explain with neat flow diagram. | 03 |
| | (b) Write in brief about the properties and applications of SMA copolymer. | 04 |
| | (c) Write in detail about the structure, properties and applications of EPDM. | 07 |
| Q.5 | (a) Mention Tg (a) PS (b) PE (c) PP | 03 |
| | (b) Write a short note different polymers fall under the category of Liquid Crystal Polymers. | 04 |
| | (c) Explain Polycarbonate synthesis via different route and also explain its applications. | 07 |

OR

- Q.5** (a) Write the structure and applications of Polyoxymethylene polymer. **03**
(b) What do you mean by modified polymer? Explain in detail. **04**
(c) Explain in detail the production for Polyisobutylene with its structure and its applications. **07**
