

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**ME - SEMESTER-II • EXAMINATION – SUMMER - 2018**

**Subject Code: 2722410**

**Date: 22/05/2018**

**Subject Name: ADDITIVES AND COMPOUNDING**

**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) What are Antioxidants? Give mechanics of Action. 07
- (b) What are the applications of lubricants write in details? 07

- Q.2 (a) Explain the steps involved in compounding process of plastic by Twin screw extruder. Explain the various steps involved in compounding process of plastics by banbury mixer. 07
- (b) What are Fire retardant give the mechanism of halogenated Fire retardant? 07

OR

- (b) Define compounding . write the various steps of PVC compounding. 07

- Q.3 (a) What are additives? Write the various types of additives with suitable examples. 07
- (b) Explain( a) Antistatic Agents (b) Toughening agents 07

OR

- Q.3 (a) Describe the application of various fillers/reinforcements in commodity plastics. 07
- (b) Write down the chemical structure of lubricant used in Thermo plastics? 07
- Q.4 (a) Write the various stabilizers for PVC materials and describe the mechanism for stabilization of PVC with stabilizers? 07
- (b) What are requirements of chemical blowing agent? Write in brief. 07

OR

- Q.4 (a) What are Antiblocking additives? Give example in details. 07
- (b) Describe the mechanism for the PVC stabilization with metal carboxylate describe how their effectiveness is measured. 07

Q.5 (a) What are coupling agents? Give two examples? Write chemical reaction with glass fiber and resin. 07

(b) Describe how the strength and modulus values of Thermoplastics are modified with fillers and reinforcements. 07

OR

Q.5 (a) What are processing modifiers? Explain the use of waxes and fatty acid esters in plastics. 07

(b) Describe the use of various plasticizers in thermoplastics with example of mechanism? 07

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