

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- VIth SEMESTER-EXAMINATION – MAY- 2012****Subject code: 162305****Date: 19/05/2012****Subject Name: Additives & Compounding****Time: 10:30 am – 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.

- Q.1** (a) Describe the methods of incorporation of additives in polymers materials. 07
(b) Describe the mechanism of UV stabilization with suitable examples in plastic materials. 07

- Q.2** (a) Write down the various functional elements of single screw extruder with a neat diagram. 07
(b) Write short notes on 07
1. Anti- Blocking Agents
2. Colorants

OR

- (b) Write down the compounding process of plastics by planetary mixer. 07

- Q.3** (a) Describe in details the various functions of ribbon blender used for the compounding of plastics. 07
(b) Draw a schematic diagram for Banbury mixer. Explain the various steps of compounding of plastics using this equipment. 07

OR

- Q.3** (a) What is the antioxidant? Explain the autoxidation cycle and mechanism of antioxidant in plastics. 07
(b) What are the impact modifiers? Write down in detail the role of impact modifiers on PVC. 07

- Q.4** (a) What is plasticizer? Explain the various theories of plasticization and give the relation of plasticizers with processing behavior of plastics. 07
(b) Write down the uses of plastics in packaging and agriculture; Explain the significance of their use in the said applications. 07

OR

- Q.4** (a) Describe in detail the various additives used for recycling of plastics. 07
(b) Write short notes on 07
1. Lubricants
2. Heat stabilizers

- Q.5** (a) Explain the differences between single and twin screw extruder with neat diagram. 07
(b) Write short notes on 07
1. Conductive additives
2. Filler and reinforcements

OR

- Q.5** (a) Write a short note on mixing and mixing equipments used for compounding of plastics. 07
(b) What is the coupling agent? Explain the role of coupling agent with suitable example. 07
