

GUJARAT TECHNOLOGICAL UNIVERSITY**B E Sem-VI Examination May 2011****Subject code: 162305****Subject Name: - Additives and Compounding****Date: 23/05/2011****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) Define Additives. List the common technological requirements that general additives should meet. **07**

(b) Along with reaction steps, explain the mechanism of processing Stabilizers. Describe the classification of Stabilizers in the groups according to mechanism of their effect of Polymer oxidation. **07**

Q.2 (a) What do you understand by Lubricants? What are the types of fiction on which the lubricants work? Give complete classification of Lubricants and describe each in short **07**

(b) Explain the modification principals for mechanical properties of additives, considering three cases of additives polymer mixtures. **07**

OR

(b) Define Plasticizer. Discuss the effect of thermal mechanical deformation of rigid polymeric chains **07**

Q.3 (a) Write short notes on (i) Classification of additives. (ii) Carbon black as Oxidation agent **07**

(b) Write short notes on (i) Thixotropic agent (ii) Effect of Plasticizer on Tg value. **07**

OR

Q.3 (a) Write short notes on (i) Additives used to reduce the formulation. (ii) Additives to modify the surface properties cost **07**

(b) Write short notes on (i) additives which modify the optical properties (ii) Requirement of anti oxidants **07**

Q.4 (a) Give complete classification of Plasticizer along with its examples. **07**

(b) Define anti-aging additives and explain the natural radiation on aging of plastics. Explain the U. V. Stabilizers and Fungicides in detail **07**

OR

- Q.4** (a) What is compounding and what are the various methods of compounding? With help of neat diagram explain the working of a high speed mixer used for compounding **07**
- (b) Give a neat sketch of Compounder- Extruder, show the various parts and explain its working in detail. **07**
- Q.5** (a) List the purpose of plastics compounding and the operations. **07**
- (b) Write short notes on (i) Basic properties necessary for Lubricants. (ii) Criteria for selection of Blowing agents. **07**

OR

- Q.5** (a) Discuss the Compounding of PVC in detail along with three basic steps of compounding **07**
- (b) Write short notes on (i) Flame Retardants. (ii) Criteria for selection of Pigments. **07**
