

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII (NEW) EXAMINATION – SUMMER 2022****Subject Code:2172312****Date:03/06/2022****Subject Name:Additives and Compounding of Plastics****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.
4. Simple and non-programmable scientific calculators are allowed.

	MARKS
Q.1 (a) Give role of plasticizers. Discuss its effect on plastic properties.	03
(b) Which precautions are to be taken while selecting any additive? Discuss.	04
(c) Explain principles of operation and design of Banbury mixer.	07
Q.2 (a) Difference between mixing and compounding.	03
(b) Give role of impact modifiers. Discuss with suitable example.	04
(c) Give function of UV stabilizer. Discuss its mechanism along with examples.	07
OR	
(c) Discuss twin screw extruder for compounding of plastic materials.	07
Q.3 (a) What is the function of fillers as additives? Give classifications along with examples.	03
(b) List various conductive additives. Discuss their function along with applications.	04
(c) What is the function of antioxidants in polymer? Explain the mechanism of antioxidant in polymers with example.	07
OR	
Q.3 (a) Define: Additives. Give classification of additives.	03
(b) Discuss its mechanism of action of flame retardants.	04
(c) Explain about Lubricants used as additives in plastics.	07
Q.4 (a) Discuss importance of plastic additives for packaging applications.	03
(b) What are colorants? Discuss.	04
(c) Discuss various issues in compounding plastics with additives.	07
OR	
Q.4 (a) Discuss importance of Anti-blocking agent with suitable examples.	03
(b) Discuss Planetary mixers with neat diagram.	04
(c) How an Anti-static additive works? Discuss various types and applications.	07
Q.5 (a) Discuss various types of mixing and give importance of Distributive mixing and Dispersive mixing.	03
(b) Explain Nucleating agent works as additive in Plastics.	04
(c) Explain working and construction of Two roll mill with a neat diagram.	07
OR	
Q.5 (a) Give functions of following additives.	03
(i) Mold release agent (ii) Processing aids	
(b) Discuss various technological requirements for additives.	04
(c) Discuss construction and working of Ribbon blenders with neat diagram.	07
