

Sl. No.	:	1470	F-7
Unique Paper Code	:	1141303	
Name of the Paper	:	Polymer Additives	
Name of the Course	:	B.Tech(Polymer Science)	
Semester	:	IIIrd	
Duration	:	3 Hours	
Maximum Marks	:	75 Marks.	

Instruction for candidates

(Write your Roll no. on the top immediately on receipt of the question paper.)

Attempt five questions in all.

Question No. 1 is compulsory. Draw neat and labeled diagram wherever necessary.

Q1

- a) Justify virgin rubber is useless as a pure gold.
- b) Write note on heat stabilisation in vinyl polymer by basic lead sulphates
- c) Explain role of in accelerator in rubber compounding with examples
- d) Write down the use of wax as lubricants.
- e) Explain the mechanism activated sulphur vulcanization?
- f) Explain the mechanism of dithiocarbamate as accelerators?
- g) Write down the use of mineral oil as plasticiser.
- h) What kind of additive will be mixed to make a polymer for foaming application? Details in brief.
- i) State the use of peroxide vulcanization in rubbers. . (9x3)

Q2 Give formulations and compounding process for the following products based on PVC

- a) Blow moulded container.
- b) Clear hand bags

(6+6)

- Q3 a) What is pigment ? Give different types of inorganic pigments used in plastics.
- c) Write the mechanism of halogen based flame retardants
- a) Explain the use of impact modifier in plastics. (4+4+4)

- Q4a) List the advantageous properties of calcium carbonate as filler and its effects on polymers.
- b) Explain the different types of organic pigments used in polymer processing.
- c) Discuss the use of sulphur as vulcanizing agent along with its effects. (4+4+4)

- Q5 a) What are Flame retardants? Discuss the use of phosphorous as flame retardants in plastics.
- b) What is plasticiser?. Describe the basic requirements of plasticizers. (6+6)

- Q6a) What is softener ? Describe the use of softeners with examples .
- b). Write a note on UL-94 and its significance (6+6)

- Q7 a) Illustrate the function of the following additives in plastics
- I. ZnO.
 - II. Talc
 - III. Carbon black
- b) Explain notched Izod impact test.
- c) Explain the use of free radical scavengers in antioxidants
- d) Explain the role of surface area on the efficiency of fillers. (4x3)