CENTRE FOR POLYMER SCIENCE AND ENGINEERING

MAJOR EXAM PTL716 RUBBER TECHNOLOGY

1. Super-Abrasion Furnace Carbon Black is designated as N110. What does this designation mean? (1 point)

2. Comment on the service temperature range for Thermoplastic Elastomers (1.5 points)

3. Write short notes on the following: (6 x 2 = 12 points)

a) Commonly used methods to estimate the purity of Carbon Black

b) Brown and Blanket Crepes c) Advantages of TSR over Conventional Grades

d) Epoxidized Natural Rubber e) Raw materials for SBR f) Polyacrylic rubbers

4. Give chemical structures of the following: (2 points)

a) isotactic-1,2-polyisoprene b) syndiotactic-3,4-polyisoprene

5. Match the following (2 points)

Column 1	Column 2
1. Amorphous sulfur	A. Processing Aid
2. DPNR	B. 0 °C
3. Cold vulcanization	C. S_8
4. low molecular weight polyethylene	D. viscosity stabilized
	E. sulfur monochloride
	E. Enzyme treated
	F. Polymeric
	G. Emulsion Polymerization

6. Account for the following:

a) Silicone rubber has longer service life than conventional rubbers (0.5 point)

b) Cl_2SiMe_2 must be thoroughly purified by distillation prior to use (1 point)

c) ENB is the most widely used termonomer for EPDM rubbers (1.5 points)

7. Write a note on solution SBR (3 points)

8. What are some of the typical components of Fresh NR latex? Give approximate amounts of the major components (3 points)

9. How are accelerators classified depending on their relative activity for Natural Rubber? Give one example for each (4 points)

10. What are the various catalyst systems capable of polymerizing isoprene? Explain the various factors that determine the structure and properties of the product. (4 points)

11. How are liquid Silicone Rubbers classified? (4.5 points)