



**Note:- chose four question only**

**Q1 :- A. What is the additives compounding of rubber explain it and give me one example for each one?**

**B. Define the following:**

Latex, ionic bond, Branched polymer, vulcanization process, quality control (25 marks)

**Q2:- A. What is the general rubber compounding formulation explain it?**

**B. What is the concentration of latex? Explain it briefly? (25 marks)**

**Q3 :-A. What is the general latex compounding formulation explain it?**

**B. Write the chemical structure of the following polymers and explain the type of polymer polar or nonpolar ?**

1. PE 2. Teflon 3. PVC 4. N<sub>6,6</sub> 5. SBR 6. Polyoxyethelene (25 marks)

7. poly acrylonitrile 8. trans 1,4 polyisoprene 9. Poly (P-Xylene) 10. PS

**Q4 :- A. What is the applications of the rubber explain it ? (25 marks)**

**B. What is the miscible elastomer blend? Explain one of them briefly?**

**Q5:- Two hundred grams of polymer consist of the samples shown in the following table , calculate  $\overline{M}_n$  ,  $\overline{M}_w$  , and polydispersity of the sample? (25 marks)**

sample	Mass/g	Molecular weight g/g mol
1	100	2000
2	50	20000
3	50	200000

.....GOOD LUCK.....