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**Sem. 1/ Plastic Technology**  
**Subject : Introduction to Polymer Science & Technology /**  
**Polymer Science & Technology / Poly Sc. & Tech. I**

Time : 3 Hrs.

M.M. : 60

**SECTION-A**

**Note:** Multiple choice questions. All questions are compulsory (6x1=6)

- Q.1 Example of natural polymers  
a) Polychloroprene      b) Leather  
c) Butyl rubber              d) None of these
- Q.2 Number of monomers present in polymer reaction  
a) Degree of polymerization  
b) Degree of polymer  
c) Both A & B  
d) None of these
- Q.3 Tg. of the material can not be below zero Degree.  
a) True                              b) False  
c) Can not say                      d) None of these
- Q.4 Unit of Viscosity  
a) NS/m<sup>2</sup>                              b) Nm  
c) Bar                                      d) N/m<sup>2</sup>

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- Q.5 Thermoset materials is  
a) PVC                                      b) ABS  
c) Bakelite                                d) None of these
- Q.6 Which of following are Condensation polymers?  
a) Polyester                                b) PE  
c) PVC                                        d) None of these

### SECTION-B

**Note:** Objective/ Completion type questions. All questions are compulsory. (6x1=6)

- Q.7 Define viscosity.  
Q.8 Define rheology  
Q.9 Define amorphous polymers.  
Q.10 Define melting point of polymer.  
Q.11 Define polymer.  
Q.12 Define degree of polymerization.

### SECTION-C

**Note:** Short answer type questions. Attempt any eight questions out of ten questions. (8x4=32)

- Q.13 Define viscosity and their types write dynamics and kinematics viscosity.  
Q.14 Discuss laminar and turbulent flow.  
Q.15 Discuss Newton's law of viscosity.

- Q.16 How to determine molecular weight of polymer by viscometry.  
Q.17 Define glass transition temperature and what are the factors that influencing the T<sub>g</sub>.  
Q.18 Write reaction mechanism of addition polymerization by free radical.  
Q.19 Write importance of copolymer in plastic industries.  
Q.20 Discuss solution polymerization & their advantages.  
Q.21 Discuss gel permeation chromatography for polymer molecular weight.  
Q.22 Discuss differential scanning calorimetry (DSC) techniques of polymers.

### SECTION-D

**Note:** Long answer type questions. Attempt any two questions out of three questions. (2x8=16)

- Q.23 Write advantages and disadvantages of solution polymerization.  
Q.24 Write short note on polymer blends and alloys.  
Q.25 Explain T<sub>g</sub> & its importance and write relation between T<sub>g</sub> & T<sub>m</sub>.