

TXL212

Minor-2

Time 45 minutes

Total 25

1. How the molecular weight distribution of a polymer can be measured. 2
2. Explain the effect of molecular weight on tensile strength and viscosity. 2
3. Define: Storage modulus and Loss modulus. 3
4. Define: shear viscosity and elongational viscosity of a polymer solution 3
5. Polycondensation reaction step for PET manufacturing is reversible. How the reaction is pushed forward for highest yield of polymer? 2
6. Calculate the molecular weight of nylon-6, whose degree of polymerization is 3000. 3
7. During spinning of Polyethylene filament, if the drawing length is 200 cm, and the take up velocity is 1,000 cm/second, calculate the maximum stretching rate imposed on the filament. 2
8. Explain with reactions, degradation of polypropylene in presence of heat and oxygen 4
9. Caprolactam does not polymerize in completely dry condition. Which catalyst can be used to initiate polymerization, explain with chemical reaction. 4

H^+ / H_2O
very small amount