



বিদ্যাসাগর বিশ্ববিদ্যালয়  
**VIDYASAGAR UNIVERSITY**  
**Question Paper**

**B.Sc. Honours Examinations 2022**

(Under CBCS Pattern)

**Semester - VI**

**Subject: CHEMISTRY**

**Paper : DSE 4-T**

**(Polymer Chemistry)**

**Full Marks : 40**

**Time : 2 Hours**

*Candidates are required to give their answer in their own words as far as practicable.*

*The figures in the margin indicate full marks.*

**Group - A**

Answer any **four** questions from this group : 5×4=20

1. (a) Write down the relationship between the WLF parameters and free volume. 5×4=20  
(b) Define stereo-regular polymers with examples. 3+2=5
2. (a) Why EVA and EEA copolymers are sometimes preferable to conventional LDPE for wire and cable insulation, particularly for outdoor applications ?  
(b) Write a short note on Neoprene. 2.5+2.5=5
3. (a) Write the differences between Stepwise and Chainwise Polymerization.  
(b) Define degree of crystallinity and discuss its determination. 2+3=5

4. (a) Define primary and secondary crystallization.  
(b) Describe the relation between entropy with chain flexibility.  
(c) Define Tacticity. 2+2+1=5
5. (a) Define polydispersity. How it is related with molecular weight distribution ?  
(b) Write down the differences between addition and condensation polymerization. (1+2)+2=5
6. (a) Critically comment on kinetics of copolymerization. What do you mean by Graft copolymers ?  
(b) Write a short note on suspension polymerisation. 3+2=5

**Group - B**

Answer any *two* questions from this group : 10×2=20

7. (a) Write a short note on cross linked polymer.  
(b) Discuss the factors affecting on glass transition temperature.  
(c) Explain the difference between Buna-N and Buna-S.  
(d) Write down the mechanism of polypyrrole synthesis. 2+4+2+2=10
8. (a) Critically comment on “Number average molecular weight” and “Weight average molecular weight”.  
(b) Write a short note on emulsion polymerization.  
(c) Write down the differences between amorphous and crystalline polymers.  
(d) Write down the relation between  $T_g$  and  $T_m$ . 3+3+2+2=10
9. (a) Discuss the stress-strain behaviour of a polymer.  
(b) Discuss the nature of dipole force in polymers.  
(c) Discuss the effect of crystallinity on properties of polymers.  
(d) Define crystalline melting temperature and also comment on their factors. 3+2+2+(1+2)=10
10. (a) State the sedimentation and viscosity average molecular weight of polymer.

- (b) State the relationship between molecular weight and degree of polymerization.
- (c) Write down the differences between the Thermoplastic and Thermosetting polymers.
- (d) Write a short note on conducting polymer. 3+2+3+2=10

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