



THE OPEN UNIVERSITY OF SRI LANKA

B.Sc Degree Programme/Stand Alone Course – 2006/2007

POLYMER CHEMISTRY – Level 5 -CHU 3238/CHE 5238

ASSIGNMENT TEST I

M.C.Q. ANSWER SHEET: Mark a cross (X) over the most suitable answer.

Name:


Reg. No.

FOR EXAMINERS USE	
Unanswered	
Correct Answers	
Wrong Answers	
Total	

1. 1 2 3 4 5
2. 1 2 3 4 5
3. 1 2 3 4 5
4. 1 2 3 4 5
5. 1 2 3 4 5
6. 1 2 3 4 5
7. 1 2 3 4 5
8. 1 2 3 4 5
9. 1 2 3 4 5
10. 1 2 3 4 5
11. 1 2 3 4 5
12. 1 2 3 4 5
13. 1 2 3 4 5
14. 1 2 3 4 5
15. 1 2 3 4 5
16. 1 2 3 4 5
17. 1 2 3 4 5
18. 1 2 3 4 5
19. 1 2 3 4 5
20. 1 2 3 4 5

Part B

Answer the questions only in the spaces provided. Attached sheets will not be graded.

- 1.(a) Write the structures and the names of the Co-polymers which can be formed from the two monomers styrene ($\text{CH}=\text{CH}_2$) and butadiene $\text{CH}_2=\text{CH}-\text{CH}=\text{CH}_2$.
 (18 marks)

- (b) How would you synthesise one of these Co-polymers (12 marks)

- © Name one application of the Co-polymer formed (06 marks)

- (d) Is it thermoplastic or thermoset (04 marks)

- (e) Give reasons for the answer in part (d) (10 marks)

2.(a) Compare the structural differences between a polymer produced by monomer containing 2 and 3 reactive sites. (10 marks)

(b) What are the major differences in physical properties between these two polymers. (32 marks)

© Out of the two polymers, which is suitable for a chemical resistant product. (08 marks)

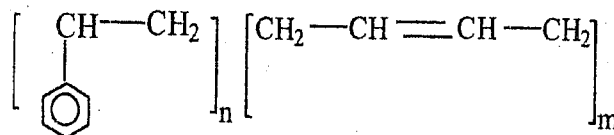
CHU 3238 - Polymer Chemistry
Answer guide for Assignment Test I
2006/2007

MCO Answer guide (part A)

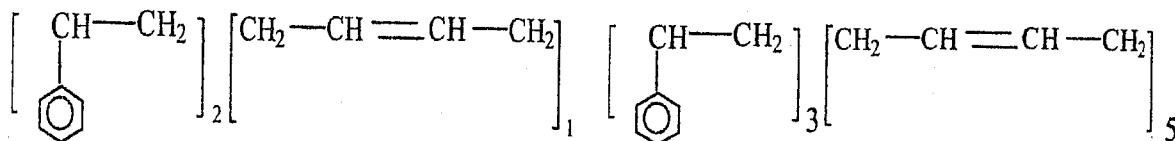
1. 4	11. 4
2. 2	12. 4
3. 4	13. 3
4. 1	14. 1
5. 5	15. 3
6. 4	16. 2
7. 2	17. 4
8. 3	18. 4
9. 2	19. 5
10.1	20. 5

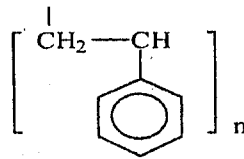
Answer Guide for (part B)

1.(a). A. Block Copolymers



B. Random Copolymers





(b) **Block Copolymer(A)**- Anionic Polymerization of Butadiene then add Styrene followed by Butadiene, Styrene one after the other.

Random Copolymer(B)-By mixing two and polymerize with an free-radical initiator.



Graft Copolymer (C) - Polymerize Butadiene separately and mix with Styrene with Free radical initiator.

(any one of this answer)

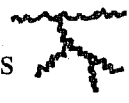

(C) For tyre, engine mounts

(D) Thermoplastics

(E) A Linear polymer without Cross links

(2). (a) .A. Linear , slightly branched (thermoplastics)  or 

.A. Highly branched or cross linked leading to a thermosets

(b) Difference between thermoplastic and thermosets  or 

Thermoplastics

1. Linear
2. Soluble
3. can be soften by Heating
4. can be recycled
5. not heat resistant

Thermosets

1. Cross linked
2. Insoluble
3. Decomposed
4. can not recycled
5. Heat resistant

(C) Thermosets