

國立臺北科技大學

九十二學年度有機高分子研究所入學考試

高分子概論試題

填准考證號碼

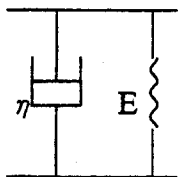
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注意事項：

1. 本試題共【7】題，配分共100分。
2. 請按順序標明題號作答，不必抄題。
3. 全部答案均須答在答案卷之答案欄內，否則不予計分。

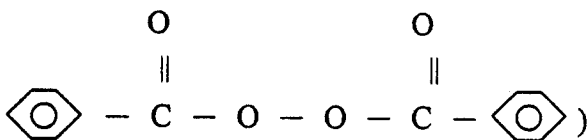
1. Polymer viscoelasticity can be modeled by a voight element, shown below;



In a creep experiment,, δ_0 (stress) is a constant, prove the following equation;

$$\varepsilon(t)/\delta_0 = (1/E)(1 - e^{-Et/\eta}) \quad (15\%)$$

2. Polystyrene ($-\overset{\text{H}}{\underset{\text{H}}{\text{C}}}-\overset{\text{H}}{\underset{\text{C}_6\text{H}_5}{\text{C}}}-$)_n is synthesized by free radical polymerization with

Benzoyl peroxide () as initiator. Show the initiation, propagation, and termination.

(15%)

3. Nylon 66 is a condensation polymer. If we mix 9grams of Nylon A with 1 grams of Nylon B. What is the number average degree of polymerization?

The number average degree of polymerization of Nylon A is 10000.

The number average degree of polymerization of Nylon B is 100. (15%)

4. 解釋：

a. Chain Transfer

b. 玻璃轉移溫度 (15%)

5. 何謂 G' (Storage Modulus)

G'' (Loss Modulus) (15%)

6. 團聯共聚物 (Block copolymer) $AnBm$, n 和 m 之值如何由實驗得到? 不用離子聚合方法, 如何聚合 $AnBm$? (15%)

7. 高分子奈米纖維在工業上有何功用? 如何製造或合成? (10%)