淡江大學 108 學年度日間部寒假轉學生招生考試試題 7

系別: 理學院尖端材料學程三年級

科目: 材料學(含材料的合成與設計)

考試日期 1月 13日(星期一) 第2節

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大題

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1. (a) Which monomers is most likely to undergo anionic polymerization? Justify your choice. (b) Which one is most likely to undergo cationic polymerization? Justify your choice. (25 pts)

Ethyl vinyl ether

But-1-ene

Nitroethylene

2. Propose a synthesis for each of the following polymers. (25 pts)

$$\cdots \longrightarrow \bigvee_{N} \bigvee_{H} \bigvee_{N} \bigvee_{H} \bigvee_{N} \bigvee_{N} \bigvee_{H} \bigvee_{N} \bigvee_{N} \bigvee_{H} \bigvee_{N} \cdots$$

Polyglycine

3. Consider the following series of poly(phenylene oxide) polymers A-D, and their glass transition temperatures. Explain how the differences in structure can account for the differences in T_g. (25 pts)

$$CH_3$$
 CH_3
 CH_5
 CH_5
 CH_5
 CH_5
 CH_5
 CH_5
 CH_5
 CH_5
 CH_5
 CH_7
 CH_7

4. Consider polycarbonate polymers E-G. Please explain (a) Which one has the highest T_g ? (b) Which one has the lowest T_g ? (25 pts)