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Unit 3 - Week 2

Week 2 Assignment 2

The due date for submitting this assignment has passed. **Due on 2018-02-21, 23:59 IST.**

Submitted assignment

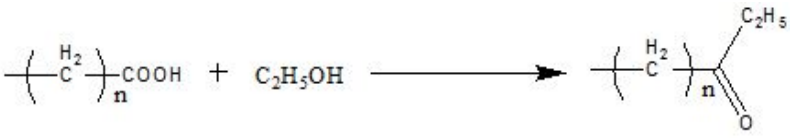
1) Assuming two bifunctional monomers are present in stoichiometric amounts, as the extent of reaction approaches 100% for a step polymerization between these monomers, the polydispersity index (PDI) approaches : ***1 point***

- (a) 2
- (b) 1
- (c) 1.5
- (d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) 2

2) in the following reaction- ***1 point***



- (a) with increase in 'n' rate constant increases
- (b) with increase in 'n' rate constant decreases
- (c) initially with increase in 'n' rate constant decreases but stabilizes after certain size
- (d) initially with increase in 'n' rate constant increases but stabilizes after certain size

No, the answer is incorrect.
Score: 0

Accepted Answers:
(d) initially with increase in 'n' rate constant increases but stabilizes after certain size

3) In the following number fraction distribution graph for linear step polymerization, which curve corresponds to the highest extent of conversion ? ***1 point***

Week 8

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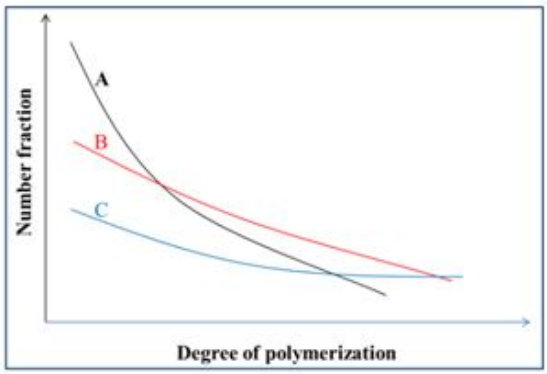

(a) B
(b) C
(c) A
(d) Same in all the reactions.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(b) C

4) In interfacial polymerization- ***1 point***

(a) High molecular weight polymer will form.
(b) High temperature is not required.
(c) Rate constant of polymerization should be high.
(d) All of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
(d) All of the above

5) Which of the following is true for polyesterification reaction ? ***1 point***

(a) External catalysis is better than self-catalysis
(b) Close system is better than open system.
(c) Degree of polymerization is higher in open system than closed system.
(d) Molecular weight develops in very early stage of the reaction.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) External catalysis is better than self-catalysis
(c) Degree of polymerization is higher in open system than closed system.

6) Rate of cyclization increases by - ***1 point***

(a) Increase in monomers concentrations.
(b) Decrease in monomers concentrations.
(c) Increase in polymer chain length.
(d) None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
(b) Decrease in monomers concentrations.

7) Which of the following assumption is/are taken for kinetics of step-growth analysis ? ***1 point***

(a) The reactivities of both functional groups of a bi-functional monomer are the same.
(b) Reactivity of the functional group of a bi-functional reactant is the same irrespective of whether the other functional group has reacted or not.

(c) The reactivity of a functional group is independent of the size of the molecule to which it is attached.

(d) Functional groups of the monomer have different reactivity.

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) The reactivities of both functional groups of a bi-functional monomer are the same.
(b) Reactivity of the functional group of a bi-functional reactant is the same irrespective of whether the oth functional group has reacted or not.
(c) The reactivity of a functional group is independent of the size of the molecule to which it is attached.

8) By which of the following technique we can control molecular weight of the polymer ? ***1 point***

(a) Addition of monofuctional monomer

(b) Stoichiometric imbalance

(c) Addition of tri-functional monomers.

(d) None of these

No, the answer is incorrect.
Score: 0

Accepted Answers:
(a) Addition of monofuctional monomer
(b) Stoichiometric imbalance

9) Calculate the number average degree of polymerization for a reaction of ethylene glycol and terephthalic acid (taken in stoichiometric equivalence) having extent of reaction 0.99.

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Numeric) 100

1 point

10) A polyester was synthesized from an ethylene glycol (62 kg) and adipic acid (145.9 kg), assuming the extent of reaction is 99.5 % (molecular weight of ethylene glycol and adipic acid are 62 and 146 g/mol). Calculate the theoretical molecular weight (in g/mol) of the polyester? [In this calculation, ignore the mass of end group (Meg) and in every step of calculation please consider the value at least up to 5 decimal, for eg x.xxxxx]

Hint

No, the answer is incorrect.
Score: 0

Accepted Answers:
(Type: Range) 16000-16200

1 point

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