



LOYOLA COLLEGE (AUTONOMOUS), CHENNAI – 600 034

M.Sc. DEGREE EXAMINATION – CHEMISTRY

THIRD SEMESTER – NOVEMBER 2017

16PCH3ES01 - APPLIED ORGANIC CHEMISTRY

Date: 10-11-2017
Time: 09:00-12:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 × 2= 20)

1. How does back mixing affect the product distribution in parallel reaction?
2. What is orifice plate? Mention its function.
3. Why is SO₃ a better sulphonating agent for aromatic compounds than sulphuric acid?
4. Give an example for pinacol coupling reaction.
5. Write any four applications of polymer support based on their catalytic nature.
6. How is polystyrene carbodiimide synthesized?
7. What are green house gases? Mention their effects.
8. “Grignard reaction is not a green reaction”. Why?
9. What are phase transfer catalysts? What is the need of it?
10. Give an example for a microwave assisted synthesis of C-alkylation reaction.

Part-B

Answer any EIGHT questions.

(8 × 5= 40)

11. Write the classification of various reactors.
12. Give a short note on pipes and fittings used in industry.
13. How is a dye prepared by conventional vat reactor? Explain the process with the block diagram.
14. Discuss any two methods of preparation of organocopper and organozinc compounds.
15. Compare Barbier and Grignard types of reactions with the carbonyl compounds.
16. What are the requirements of a polymer supported reagent? Mention any two of its advantages.
17. Explain the advantages and disadvantages of polystyrene as polymer support for an organic synthesis.
18. Write short note on “Designer solvents for green chemistry”.
19. How is adipic acid synthesized by petrochemical method and biochemical method?
20. Explain the concept of “atom economy” in a green synthesis of Claisen rearrangement and Diels-Alder reaction.
21. Explain the various types and their preparation of phase transfer catalysts.
22. List the advantages, disadvantages and precautions of microwave synthesis.

Part-C

Answer any **FOUR** questions.

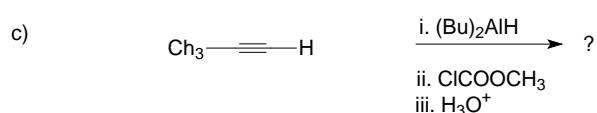
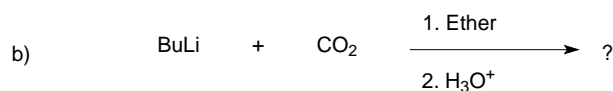
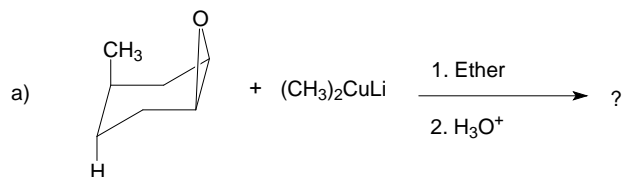
(4 × 10= 40)

23a. Compare the kinetics of batch, semibatch and longitudinal reactors.

b. How are cast iron and aluminium used as construction materials in industry? Mention their advantages and disadvantages. (5+5)

24a. What are the different types of driers used in industry? Explain them.

b. Complete the following reactions.



25a. Write any two synthetic uses of samarium iodide as a reagent in organometallic reactions.

b. Explain the use of polymer supported photosensitizers with an example. (5+5)

26. Explain the following polymer supported organic synthesis with a suitable example.

(i) Intramolecular cyclisation

(ii) Moffatt oxidation

(iii) Diazo transfer reaction

(iv) Oxidation by polymer supported peracid

(v) Oxidation by polymer supported chromic acid

27a. List the twelve principles of green chemistry.

b. Highlight any five chemical accidents and explain their effects. (6+4)

28a. Explain the function and mechanism of a phase transfer catalyst in a reaction.

b. Explain the effects of ultrasound in the following reactions:

(i) Esterification

(ii) Diels-Alder addition

(iii) 1,3-dipolar cycloaddition

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