15P311 (Pages:2) Name.....

Reg. No.....

THIRD SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2016

(CUCSS - PG)

(Chemistry)

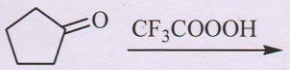
CC15P CH3 C11 - Reagents and Transformations in Organic Chemistry

(2015 Admission)

Time: Three Hours Maximum: 36 Weightage

Section A

(Answer ***all*** questions. Each question carries **1** Weightage)

1. What is living polymers? How it is formed?
2. Give any two synthetic application of $Pb(OAc)_4$
3. How DDQ is prepared? Give its synthetic applications.
4. Give two methods for generating singlet oxygen.
5. Write a method for converting 2-butyne into (a) cis-2-butene (b) trans-2-butene
6. Write the structure and synthetic use of Dess Martin periodinane (DMP) reagent.
7. Suggest a method to convert 1-propene to 1-propen-3-ol
8. What is the use of PCC in organic synthesis? Write its structure
9. 

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10. Beckman rearrangement of an oxime give actanilide as the product, predict the oxime and its configuration.
11. Pyrrole is a weak acid but not base explain why?
12. Explain why pyridine is less basic than aliphatic amines?

(12 x1 =12 Weightage)

Section B

(Answer ***any eight*** questions. Each question carries **2** Weightage)

13. Discuss the synthetic applications of the following reagents.

    (a) DCC (b) Gilman's reagent (c) $LiAlH_4$ (d) $NaBH_4$
14. Describe primary and secondary structure of proteins.
15. Discuss the synthesis of glutathione.
16. Discuss cationic and free radical polymerization reaction with suitable examples.

17. Write the mechanism and stereochemistry of epoxidation of akenes by peracids

18. Discuss the mechanism of decarboxylation of monocarboxylic acids with lead tetraacetate and based on mechanism explain the formation of alkane, acetate and alkene during the reaction.

19. Discuss the mechanisms of (a) Woodward dihydroxylation (b) Prévost dihydroxylation

20. Discuss with appropriate mechanism (a) the McMurry coupling (b) Wolff-Kishner reduction

21. C_6H_5-CH_2-CO-CH_2Cl and C_6H_5-CHCl-CO-CH_3 give the same product when subjected to Favorski rearrangement. Explain.

22. Explain the mechanism of the following reactions
(a) Negishi cross coupling reactions , (b) Sonogashira reaction

23. Pyridine undergo electrophilic substitution reaction at beta position. Explain.

24. Explain Pall Knorr synthesis of pyrrole and Feist Benary synthesis of furan.

(8 x 2 =16 Weightage)

Section C

(Answer ***any two*** questions. Each question carries **4** Weightage)

25. Discuss the principle of Merrifield solid phase peptide synthesis with suitable illustration.

26. Discuss with suitable mechanisms (a) Baeyer-Villiger oxidation (b) Dess- Martin oxidation (c) Swern oxidation

27. Discuss with the appropriate mechanisms
(i) Birch reduction of (a) Anisole (b) Benzoic acid (c) Naphthalene
(ii) Bouveault- Blanc reduction of ethyl acetate

28. (a)Explain Fischer's indole synthesis with mechanism.
(b) Explain the synthesis of uric acid and caffeine.

(2 x 4 = 8 Weightage)

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