



Reg. No. :

Name :



K19P 1479

I Semester M.Sc. Degree (CBSS-Reg./Supple./Imp.)

Examination, October - 2019

(2014 Admission Onwards)

CHEMISTRY

CHE 1C.03 : ORGANIC CHEMISTRY-I

Time : 3 Hours

Max. Marks : 60

SECTION-A

Answer **All** questions in one word or one sentence. Each question carries **One** mark. (8×1=8)

1. Which has higher pKa-*o*-hydroxy benzoic acid or *p*-hydroxy benzoic acid?
2. Bromobenzene when treated with _____ generates benzyne.
3. _____ is an example of an enantiotopic molecule.
4. Methylene cyclopropane is synthesized from cyclopropane by the _____ reaction.
5. Reaction of R-2- butanol with _____ yields R-2-chlorobutane.
6. An anti-periplanar geometry favours _____ elimination.
7. What product is formed when *cis*- diazobenzene is exposed to light?
8. Cis-trans isomerization of _____ is responsible for vision chemistry.

SECTION-B

Answer any **Eight** questions. Answer may be two or three sentences. Each question carries **Two** marks. (8×2=16)

9. Depict the structure of DABCO and quinuclidine. Why are they strong bases?
10. Compare the pKa of maleic acid to fumaric acid.
11. Explain homoaromaticity with an example.
12. Depict the structure of an axially chiral allene and a biphenyl derivative.
13. Illustrate the major product formed when 4-tBu cyclohexanone is reduced?

P.T.O.



14. What product is formed when benzyl phenyl ketone is treated with
- NH_2OH
 - PCl_5
 - Dilute acid.
15. $\text{CH}_3\text{CH}_2\text{SCH}_2\text{CH}_2\text{Cl}$ can be hydrolyzed much faster than pentyl chloride. Why?
16. Illustrate the Cope elimination reaction.
17. Give examples of two polar aprotic solvents depicting their structure.
18. Illustrate the Paterno Buchi reaction.
19. Mention any one photo reaction of Vitamin D.
20. Explain Di-pi-methane rearrangement.

SECTION-C

Short paragraph questions. Answer any **Four** questions. Each question carries **Three** marks. (4×3=12)

21. Exemplify the following by providing a structure
- metallocene
 - Mesoionic compound
 - Singlet carbene.
22. How is anisole converted to 1,3-dimethoxy benzene?
23. What is atropisomerism? Provide examples and designate.
24. Illustrate Curtius and Schmidt rearrangement reactions.
25. Cyclohexanol on treatment with mesyl chloride yields A. The latter on treatment with a base and diethyl malonate yields B. Identify A and B.
26. Depict the Hoffmann and Saytzeff elimination reactions.
27. Give an example of a remote functionalization reaction.
28. How is singlet oxygen generated? Give an application.

SECTION-D

Essay type questions. Answer **Four** questions. Each question carries **Six** marks. (4×6=24)

29. a) Compare and explain the aromaticity of thiophene, furan, pyrrole, pyridine, imidazole and pyrazole.



(OR)

- b) N, N-dimethyl aminopyridine is more basic than pyridine. Explain.
30. a) Designate the prochiral faces of benzaldehyde. What products are formed when benzaldehyde is treated with methyl magnesium bromide?

(OR)

- b) Illustrate the product formation when meso-2, 3-dibromobutane is treated with zinc.
31. a) What is the major product formed when 2-acetyloxy cyclohexane carboxylic acid ethyl ester is heated?

(OR)

- b) Illustrate
- Demyanov ring expansion and
 - Beckmann rearrangement.
32. a) Explain the chemistry behind the vision process.
- (OR)
- b) Illustrate photo Fries rearrangement and Norrish type II cleavage.

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