15

2B4A22474 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester B.Sc Degree Examination, April 2022

BCH4B04 – Organic Chemistry – I

(2019 Admission onwards)

Time: 2 hours Max. Marks: 60

Section A (Short answers)

(Answer questions up to 20 marks. Each question carries 2 marks)

1. Explain steric effect?
2. Which is more basic; aniline or p-nitroaniline. Why?
3. What is Lindlar's catalyst and write its application in organic synthesis?
4. Which conformation of cyclohexane is more stable? Why?
5. Explain the Kharasch effect?
6. Cyclopentadienyl anion is aromatic. Why?
7. Discuss the Haworth synthesis of Naphthalene.
8. Explain E2 reaction with example.
9. How is Grignard reagent prepared from methyl chloride?
10. Write the R and S configuration of Lactic acid.
11. What is meant by resolution?
12. Write a note on Kolb electrolysis?

[Ceiling of marks: 20]

Section B (Paragraph)

(Answer questions up to 30 marks. Each question carries 5 marks)

13. What is carbanion? Discuss the structure and stability of carbanion.
14. Discuss the stereochemical aspect of SN2 and SN1 reactions?
15. Write down the stereoisomers of tartaric acid. How many of them are optically active? Justify your answer.
16. How does Huckel's rule explain the aromaticity of cyclopentadienyl cation and annulene?

17. Discuss the elimination addition mechanism ofaromatic nucleophilic substitution reactions? Give the evidence in the support of this mechanism?

18. Write the name and structure of products formed by the addition of hydrogen chloride to 3,3-Dimethyl but-1-ene. Explain with mechanism?

[Ceiling of marks: 30]

Section C (Essay)

(Answer any one. Each question carries 10 marks)

19. (a) Discuss the structure and stability of benzene.

(b) Explain the mechanism of bromination and sulphonation reactions of Benzene.

20. (a) Discuss the conformational analysis of Butane with energy diagrams?

(b) Write a note on cis and trans hydroxylation to alkene?

[1x10=10 Marks]

16

2B4A22475 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

Fourth Semester B.Sc Degree Examination, April 2022

BCH4C04 – Physical and Applied Chemistry

(2019 Admission onwards)

Time: 2 hours Max. Marks: 60

Section A (Short answers)
(Answer questions up to 20 marks. Each question carries 2 marks)

1. What are associated colloids? Give one example.
2. What is meant by green synthesis?
3. Define gold number of a protective colloid.
4. Sketch the vibrational modes of CO_2. Which of them are IR active?
5. Sketch the NMR spectrum of dimethyl ether.
6. Give the structure and applications of Bakelite.
7. What is meant by eutrophication?
8. State and explain Beer-Lambert's law.
9. How is R_f value useful in the characterization of a compound.
10. What are 0D nanomaterials? Give examples.
11. Mention the merits of thin layer chromatography over other chromatographic techniques.
12. What are analgesics? Give example.

[Ceiling of marks: 20]

Section B (Paragraph)
(Answer questions up to 30 marks. Each question carries 5 marks)

13. Give a brief account on the origin of charge and electrical properties of colloids.
14. Give the applications of nano materials in medicine and electronics.
15. Explain the principle of adsorption column chromatography.
16. Explain the terms chemical shift and spin-spin coupling with reference to NMR spectroscopy.
17. What is thermal pollution? What are its undesirable effects? How can it be controlled?
18. Discuss the significance of the concept of group frequencies in IR spectroscopy and its application in organic structural elucidation.
19. Explain theories of colour and chemical constitution of dyes.

[Ceiling of marks: 30]

Section C (Essay)
(Answer any one. Each question carries 10 marks)

20 (i) What are synthetic fibres? Name any two, give their structure and mention uses.

(ii) Explain the causes and consequences of depletion of ozone layer.

21. What are food additives? Write a note on different categories of food additives with suitable examples.

[1 x 10 = 10 marks]