16U411 (Pages: 2) Name: ……

Reg. No……..

FOURTH SEMESTER B.Sc. DEGREE EXAMINATION, APRIL 2019

(Regular/Supplementary/Improvement)

(CUCBCSS-UG)

CC15U CHE4 C04 - PHYSICAL AND APPLIED CHEMISTRY

Chemistry - Complementary Course

(2015 Admission onwards)

Time : Three Hours Maximum : 64 Marks

Section A

Answer ***all*** questions. Each question carries 1 mark.

1. The chromatographic technique where mobile phase is a liquid is called ----------.
2. Fingerprint region in IR spectra is ---------- cm^{-1}
3. Give an example for a synthetic polymer.
4. What do you mean by Eutrophication.
5. Give one example for an analgesic.
6. The gas responsible for ripening of fruits is ----------.
7. Ajinomoto is chemically ----------.
8. What is meant by BOD?
9. Mention uses of Lexan?
10. What do you mean by order of a reaction?

(10 x 1 = 10 Marks)

Section B

Answer any ***seven*** questions. Each question carries 2 marks.

11. Define Gold number.
12. What are the harmful effects of oxides of sulphur?
13. Define the terms antihistamines and tranquilizers.
14. What is the composition of glass?
15. What are fungicides? Give examples.
16. What is meant by water parameter DO? What is the significance of decreasing value of D.O in water?
17. Explain bioaccumulation and biomagnification.
18. Draw the structure of BHA and BHT.
19. Outline the composition of hair dye.
20. Write a note on chromophores. **(7 x 2 = 14 Marks)**

Section C

Answer any ***four*** questions. Each question carries 5 marks.

21. Write a note on biodegradable polymers.
22. Outline the structure and synthesis of Buna-N and Buna-S.
23. Write a note on greenhouse effect and global warming.
24. Briefly explain solid waste management.
25. Discuss briefly the activated complex theory of reaction rates.
26. State and explain Beer-Lambert's law. What are the possible electronic transitions in molecules?

(4 x 5 = 20 Marks)

Section D

Answer any ***two*** questions. Each question carries 10 marks.

27. a) Derive an expression for the rate constant of a bimolecular gaseous reaction using collision theory.
    b) Explain the principle behind NMR spectroscopy, show how it is useful in distinguishing the structure of ethanol and dimethyl ether.
28. Write a note on theories of colour and constitution quoting suitable examples.
29. Discuss the principle and applications of column chromatography and gas chromatography.
30. (a) Discuss the chemistry behind setting of cement.
    (b) Discuss the manufacture of glass.

(2 x 10 = 20 Marks)

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