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Reg. No. : .....

Name : .....

Second Semester B.Sc. Degree Examination, May 2020

First Degree Programme under CBCSS

Complementary Course II for Botany/Zoology/Microbiology

CH 1231.3/CH 1231.4/CH 1231.7 — INORGANIC AND BIOINORGANIC CHEMISTRY

(2017 Admission Onwards)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Answer in one word or maximum two sentences. **Each** question carries **1** mark.

1. How is a mass defect related to binding energy?
2. What is radio therapy?
3. Name some trace elements in biological systems.
4. Mention two applications of organometallic compounds.
5. Give the structural formula of
   (a) Diammine tetrachloro Platinum (IV)
   (b) Dicyano Argentate (I) anion.
6. Write notes on artificial radioactivity.

P.T.O.

7. How many disintegrations per second is one curie?

8. What are chelating ligands? Give an example.

9. Draw the structural formula of ferrocene.

10. What is nuclear fission?

(10 × 1 = 10 Marks)

SECTION – B

Answer any **eight** questions from the following. **Each** question carries **2** marks.

11. Write notes on nitrogen fixation.

12. Discuss the structure of myoglobin.

13. What is linkage isomerism? Give two examples.

14. Define half-life period of a radio active element.

15. Compare photosynthesis and respiration.

16. Explain Geiger Nuttal Rule.

17. Write the applications of Co^{60} and I^{131}.

18. What are the functions of cytochrome?

19. What is Zeise's salt? Write its structure.

20. What are high spin and low spin complexes?

21. What is meant by effective atomic number in a coordination compound? Expla

22. Explain the colour of transition metal complexes.

(8 × 2 = 16 Mark

SECTION – C

Short Essay. Answer any **six** questions from the following. **Each** question carries **4** marks.

23. Discuss carbon cycle.

24. Explain the principle of nuclear reactors.

25. Write a note on organo mercuric compounds.

26. Explain Carbon dating.

27. Discuss the environmental aspects of organometallic compounds.

28. Write briefly on neutron activation analysis.

29. Discuss the drawbacks of V.B. theory of coordination compounds.

30. Write notes on organoboron compounds.

31. Write a note on n/p ratio.

(6 × 4 = 24 Marks)

SECTION – D

Essay. Answer any **two** questions from the following. **Each** question carries **15** marks.

32. (a) Write notes on essential and trace elements in biological system.

    (b) Explain the Oxygen binding mechanism in haemoglobin.

    (c) Explain Nitrogen fixation.

33. (a) Write notes on the use of organometallic compounds in medicine.

    (b) Discuss the classification of organometallic compounds.

    (c) Outline the methods of preparation of organosilicon compounds.

34. Write notes on

(a) Radiotherapy

(b) Radioactive isotope in industry

(c) Rock dating.

35. (a) Discuss briefly the geometrical isomerism in co-ordination compounds.

(b) Write note on crystal field theory

(2 × 15 = 30 Marks)