



(Pages : 3)

D – 5021

Reg. No. :

Name :

First Semester B.Sc. Degree Examination, February 2018
First Degree Programme Under CBCSS
Complementary Course I for Biochemistry/Home Science
CH 1131.5/CH 1131.6 : INORGANIC AND ANALYTICAL CHEMISTRY
(2013 – 2016 Admissions)

Time : 3 Hours

Max. Marks : 80

SECTION – A

Answer **all** questions. Answer in **one word** to maximum of **two** sentences. **Each** question carries **one** mark. Answer **all** questions.

1. Give the de Broglie relation.
 2. State Pauli's exclusion principle.
 3. Write the valence shell electronic configuration of Cr.
 4. What is the reciprocal of decay constant called ?
 5. What is the most common unit of radio activity ?
 6. Which indicator is used for the titration between strong base and weak acid ?
 7. Give one example of a redox indicator.
 8. What is meant by artificial radioactivity ?
 9. Give an example of an antitumour drug.
 10. Name the metal in myoglobin.
- (10×1=10 Marks)**

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SECTION – B

Short answer type (**not** to exceed **one** paragraph). Answer **any 8** questions from the following. **Each** question carries **two** marks.

11. Write Schrodinger wave equation and explain the terms involved.
12. Draw the shapes of d orbitals.
13. Copper (I) is diamagnetic whereas copper (II) is paramagnetic, why ?
14. How many α and β particles are emitted when ${}^{232}_{90}\text{Th}$ changes into ${}^{208}_{82}\text{Pb}$.
15. What is mass defect ? Explain.
16. Explain carbon dating.
17. What is cisplatin ?
18. Give the preparation and synthetic application of any one organomecury compound.
19. What are the environmental aspects of organometallic compounds ?
20. Why HCl is not used to acidify in permanganometric titrations ?
21. Calculate the normality of 10% NaOH solution.
22. What are primary standards ? Explain. (8×2=16 Marks)

SECTION – C

Short essay (**not** to exceed **120** words). Answer **any 6** questions from the following. **Each** question carries **four** marks.

23. Derive an expression for the Lyman series of lines of the hydrogen spectrum.
24. What are quantum numbers ? Explain its significance.
25. Explain Geiger Muller Counter.
26. Write a note on the use of radioisotopes in medicine.
27. Give an account of the theory of redox indicators.



28. Explain normality, molarity and molality.
29. Briefly outline the role of haemoglobin in the transport of oxygen and CO₂.
30. Write a brief note on organometallic compounds of Boron and Silicon.
31. Write a note on Neutron Activation Analysis. **(6×4=24 Marks)**

SECTION – D

Long essay. Answer **any two** questions from the following. **Each** question carries **fifteen** marks.

32. a) What are the postulates of the Bohr's atomic theory ?
b) What is Heisenberg's uncertainty principle ? Explain giving the significance of the uncertainty principle.
33. What are biological effects of radiation ? What is the use of radioactive isotopes in agriculture ?
34. Write a note on the theory of acid-base titrations and indicators.
35. a) Analyse the biochemical function of myoglobin.
b) Write a note on the application of organometallics in medicine. **(2×15=30 Marks)**
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