19

1B1N22234 (Pages : 2) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester B.Sc Chemistry Degree Examination, November 2022

BCH1B01 – Theoretical & Inorganic Chemistry – I

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A (Short answers)
(All questions can be attended
Each question carries 2 marks)

1. What is meant by scientific hypothesis? Write any two characteristics of hypothesis.
2. How many significant digits are there in following values ?
   a)0.0072g b) 5400mL
3. Explain the term electron affinity. Which element has highest value of electronegativity?
4. Stable oxidation state of thallium is +1. Justify the statement.
5. Explain the concept of conjugate acid and base with a suitable example.
6. What is nuclear fission reactions? Give one example.
7. Calculate effective nuclear charge for a 3p electron of Fe. (Atomic No. 26)
8. What is the first aid should be given to a person who has inhaled poisonous gas in the laboratory ?
9. Calculate the mass of 0.5 mol of $S0_3$ molecules at STP.
10. What is primary standard? Give one example.
11. Draw the structure of Diborane and Borazine.
12. What is Group displacement law ?

[Ceiling of marks: 20]

Section B (Paragraph)
(All questions can be attended.
Each question carries 5 marks)

13. Briefly explain various components of research project report
14. Write a note on C- 14 dating.
15. Explain Ostwald theory of indicators
16. What is ionization Energy? Explain the trend of variation is 1st Ionization Energy of second period elements.

17. Draw the structures of any four oxoacids of phosphorous. Mention basicity of each acid.

18. Discuss Usanovich concept of acids and bases. State the limitation of the concept.

19. Discuss briefly meson exchange theory and nuclear fluid theory.

[Ceiling of marks: 30]

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

20. a) Explain theory of Permanganometry and Dichrometry (6marks)

b) Define molarity.

Calculate Molarity of NaOH solution prepared by dissolving 4g NaOH in enough water to form 250mL of the solution. (4 marks)

21. a) Discuss preparation, properties and uses of Boron Nitride. (6 marks)

b) The amount C-14 isotopes in a piece of wood is found to be one -fifth of that present in a fresh piece of wood. Calculate Age of wood. ($t_{1/2}$ of C-14 is 5760 years) (4marks)

[1 x 10 = 10 marks]

1B1N22235 (Pages : 1) Reg. No:.....

Name: .....

FAROOK COLLEGE (AUTONOMOUS), KOZHIKODE

First Semester B.Sc Degree Examination, November 2022

BCH1C01 – General Chemistry

(2022 Admission onwards)

Time: 2 hours Max. Marks : 60

Section A (Short answers)
(All questions can be attended.
Each question carries 2 marks)

1. Give the names of two iron storing proteins.
2. What are the differences between valency and oxidation number?
3. What is meant by a radioactive tracer? Give one example.
4. What is the shape of PCl_5? Draw its structure. Mention the hybridization involved.
5. Explain the term cooperativity.
6. What are redox titrations? Give an example.
7. State group displacement law.
8. What is critical mass?
9. Define bond order. Mention its significance.
10. Mention the factors favouring the formation of ionic bonds.
11. Name two metalloporphyrins.
12. Define normality.

[Ceiling of marks: 20]

Section B (Paragraph)
(All questions can be attended
Each question carries 5 marks)

13. What is the metal ion present in vitamin B12? What is the oxidation state & coordination number of the metal?
14. Discuss the difference between electromagnetic wave & matter wave.
15. Explain mass defect & binding energy.
16. Explain sp^3 hybridization by taking NH_3 as an example.
17. Explain how solubility product & common ion effect are applied in inorganic qualitative analysis.
18. Discuss the mechanism of O_2 transport by Haemoglobin.
19. Explain C-14 dating.

[Ceiling of marks: 30]

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

20. Explain Born -Haber cycle with NaCl as example. Discuss the applications.
21. Discuss the theories of Acid-base indicators.

[1 x 10 = 10 Marks)