21U117 (Pages: 2) Name:.....

Reg.No:.....

FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2021

(CBCSS - UG)

(Regular/Supplementary/Improvement)

CC19U CHE1 B01 - THEORETICAL AND INORGANIC CHEMISTRY-I

(Chemistry - Core Course)

(2019 Admission onwards)

Time : 2.00 Hours Maximum : 60 Marks

Credit : 2

Part A (Short answer questions)

Answer ***all*** questions. Each question carries 2 marks.

1. Explain what is meant by the term pseudoscience with examples.
2. What are the main objectives of scientific research?
3. What is the correct procedure for diluting a concentrated acid?
4. Is it advisable to apply alkali to a portion of body that has suffered a burn from acid contact. Why?
5. Define normality. Calculate the normality of a solution containing 20 g of NaOH in 2 L.
6. Which titration method, conventional single burette or double burette method give more accurate results? Why?
7. Why is the second ionization enthalpy larger than the first?
8. What is the effective nuclear charge felt by a 1s electron of nitrogen atom?
9. Why does orthoboric acid behave as a weak monobasic acid?
10. Why does NO_2 dimerise?
11. Mention the general characteristics of a hard base.
12. Mention any three applications of radioisotopes in medicine.

(Ceiling: 20 Marks)

Part B (Short essay questions - Paragraph)

Answer ***all*** questions. Each question carries 5 marks.

13. Discuss the modes generally adopted for generating a scientific hypothesis.
14. Distinguish between primary and secondary standards as applied to volumetry.

15. Explain how a redox indicator works.

16. Discuss the basic features of Pauling's scale of electronegativity.

17. Which is more stable in aqueous solution TI+ or TI_3+? Justify your answer.

18. Explain why NO+ is linear while NO_2 is angular.

19. Explain the disintegration theory of radioactivity.

(Ceiling: 30 Marks)

Part C (Essay questions)

Answer any ***one*** question. The question carries 10 marks.

20. What are the different types of errors? How can errors be minimized?

21. What are the applications of lattice energy measurements?

(1 × 10 = 10 Marks)

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