

20U114

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Name: .....

Reg.No: .....

**FIRST SEMESTER B.Sc. DEGREE EXAMINATION, NOVEMBER 2020**

(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* question. Each question carries 2 marks.

1. Explain what is meant by scientific knowledge.
2. What is meant by experimental bias?
3. Define equivalent mass of a salt. What is the equivalent mass of sodium chloride ?
4. Distinguish between acidimetry and alkalimetry.
5. What is meant by permanganometry?
6. Give two advantages of double burette method of titration.
7. Calculate the effective nuclear charge felt by a 3P electron of chlorine (At no. 17)
8. What is the effective nuclear charge felt by a 1s electron of nitrogen atom?
9. Define lattice energy of an ionic compound.
10. Give a reaction which indicates dehydrating property of conc.  $H_2SO_4$
11. Give an example each for a hard base and a soft base.
12. Mention any 3 applications of radioisotopes in medicine.

**(Ceiling: 20 Marks)**

**Part B** (Short essay questions)

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

13. Explain and discuss the criteria for a scientific hypothesis.
14. State the important aspects to be considered with regard to safe storage of laboratory chemicals.
15. Explain the term standard deviation with respect to analytical determinations,
16. What are transitions elements ? Discuss their general characteristics.
17. Which is more stable in aqueous solution  $Ti^{+}$  or  $Ti^{3+}$ ? Justify your answer.
18. What is meant by dipole moment ? What is the unit in which it is expressed ?
19. State and illustrate the group displacement law.

**(Ceiling: 30 Marks)**

**Part C (Essay questions)**

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

20. Explain the simple first-aid procedures that have to be administered to victims if they suffer burns from heat, acids, alkalis, phenol and bromine.
21. Discuss the preparation properties and structure of borazine.

**(1 × 10 = 10 Marks)**

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