K20U 0457

Reg. No. : ....

Name : ....

II Semester B.Sc. Degree (CBCSS (OBE) – Regular) Examination, April 2020
(2019 Admission)
Core Course in Chemistry
2B03CHE : ANALYTICAL AND INORGANIC CHEMISTRY – I

Time : 3 Hours

Total Marks : 40

Instruction : *Answer the questions in* **English** *only.*

SECTION – A

Answer **all** questions. **Each** question carries 1 mark.

1. Concordance of the observed value and the true value in an analysis is called

2. Among $PbCl_2$ and $PbCl_4$, which is largely ionic in nature ?

3. The conjugate base of HCl is

4. According to Lux-Flood concept, the substance which accepts the oxide ion is

$(4\times1=4)$

SECTION – B

Answer **any seven** questions. **Each** question carries 2 marks.

5. Evaluate the given expression rounding off the answer to the appropriate number of significant figures : 64.36 g + 1.346 g + 4.0 g.

6. What is meant by confidence limit ?

7. Calculate the mass of NaOH in 500 ml of its 0.5 M solution.

8. What is meant by common ion effect ? Explain with an example.

9. Discuss the general periodic trends in the acid-base character of oxides of p-block elements.

P.T.O.

10. The boiling point of NH_3 is abnormally high. Why ?

11. Aluminium is more metallic than Silicon. Explain.

12. Arrange $HClO_2$, $HClO_3$, $HClO_4$ and $HOCl$ in the increasing order of acid strength. Justify your answer.

13. Ammonium chloride is an acid in liquid ammonia according to solvent system concept. Explain.

14. Define acids and bases, according to Lewis concept. $(7\times2=14)$

SECTION – C

Answer **any four** questions. **Each** question carries 3 marks.

15. Describe the Q-test for rejecting the result of an analysis.

16. What is meant by redox indicators ? What are the potential requirements for a redox indicator ?

17. Write a note on inert pair effect.

18. Distinguish between ortho and para hydrogen. How does their ratio vary with temperature ?

19. Compare the Lewis acidity of Boron trihalides and explain.

20. Describe levelling effect with a suitable example. $(4\times3=12)$

SECTION – D

Answer **any two** questions. **Each** question carries 5 marks.

21. Explain any three types of systematic errors. How can these errors be corrected ?

22. Discuss the theory of acid-base indicators using methyl orange and phenolphthalein as examples.

23. Write a note on different classes of hydrides of representative elements.

24. Explain HSAB principle. Discuss its applications. $(2\times5=10)$

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