Reg. No…....……….………………   Name……………....……………….   **U 122**

BA/BSc/BCOM DEGREE EXAMINATION OCTOBER 2015

SEMESTER: 1 - CHEMISTRY (CORE)

COURSE: U1CRCHE1: METHODOLOGY OF CHEMISTRY AS A DISCIPLINE OF SCIENCE

(Supplementary / Improvement)

Time : Three Hours   Max. Marks: 60

Section A

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

1. What is the action of a preservative?

2. What are nano materials? Give examples.

3. Give two examples for pH indicators.

4. What is the difference between molarity and molality?

5. Among the following, which metals can be analyzed using complex ometric titration method?   Ca, K, Zn & Pb

6. Name two chemicals causing food poison

7. Give two examples for addition reactions.

8. Give any two methods of purification techniques.

$(1 \times 8 = 8)$

Section B

(Answer **any six** questions. Each question carries 2 marks)

9. What are redox titrations? Give an example.

10. Distinguish between primary and secondary standards as applied to volumetry.

11. How do observation leads to hypotheses?

12. Explain the action of phenolphthalein as an acid-base indicator.

13. 63 Gm. of oxalic acid is used to make 1L of 1N solution, then calculate the weight to be taken for making 1molal oxalic acid solution.

14. Discuss the difference between accuracy and precision.

15. Define Boyle temperature. How is it calculated?

16. Explain Avagadro's and Gay Lussac's laws. $(2 \times 6 = 12)$

(PTO)

Section C

(Answer **any four** questions. Each question carries 5 marks)

17. Define common ion effect. Explain its importance in the qualitative analysis of second and fourth group.

18. State and explain Faraday's laws of electrolysis.

19. Distinguish the action of soaps and detergents.

20. With the help of an example, explain how you would design an experiment.

21. How would you carry out literature survey on a topic of your choice? Discuss.

22. Explain the steps involved in linear regression analysis. $(5 \times 4 = 20)$

Section D

(Answer **any two** questions. Each question carries 10 marks)

23. (a) Briefly explain the errors encountered in chemical analysis.

    (b) How they can be avoided or minimized?

24. (a) Give a detailed account of the statistical treatment of analytical data.

    (b) Calculate the standard deviation for the following set of data

    35.95, 36.06, 36.04, 36.08 & 36.23

25. (a) Give detailed illustration of the operation involved in the gravimetric estimation of iron.

    (b) Explain kinetic molecular theory.

26. (a) Briefly explain fractional distillation and solvent extraction.

    (b) Explain using examples correlation and casuality.

                                       $(10 \times 2 = 20)$

******