

**B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2015****First Semester**Core Course—**METHODOLOGY OF CHEMISTRY AS A DISCIPLINE OF SCIENCE**

(Common for B.Sc. Chemistry Model I, Model II and B.Sc. Petrochemical and B.Sc. Chemistry—Environment and Water Management)

[2013 Admission onwards]

Time : Three Hours

Maximum : 60 Marks

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

1. "Alligators are prettier than crocodiles" is a not a Scientific statement because \_\_\_\_\_.
2. Angular momentum of electron in atom is \_\_\_\_\_.
3. Correlation doesn't imply \_\_\_\_\_.
4. The goal of scientific research is \_\_\_\_\_.
5. Permanganometric titration is an example of \_\_\_\_\_.
6. \_\_\_\_\_ is used as complexant to mask other cations in aqueous solution before performing a complexometric titrations.
7. Nano particles are sized between \_\_\_\_\_ nanometers.
8.  $8.200 \times 10^3$  has \_\_\_\_\_ significant digits.

(8 × 1 = 8)

**Part B***Answer any six questions.**Each question carries 2 marks.*

9. Differentiate between inductive and deductive reasoning.
10. What are sweetners ? Give two examples.
11. What do you mean by hypothesis ?
12. Write note on correlation.
13. What is solubility product ?
14. What is the principle of solvent extraction ?
15. Define significant figures.
16. What is meant by standard deviation ?

**Turn over**

17. What is meant by falsification ?
18. What is DDT ?

(6 × 2 = 12)

### Part C

*Answer any four questions.  
Each question carries 4 marks.*

19. Explain the role of models in Science ? What are their strengths and limitations ?
20. Write the steps involved in the gravimetric estimation of barium as barium sulphate.
21. What is gravimetry ? Discuss briefly on gravimetric estimation of iron.
22. What is confidence limit ? How is it determined ?
23. Briefly explain the principles of acid base titration with the help of different titration curves.
24. Discuss the importance of chemical Science in service of man taking at least four different fields.

(4 × 4 = 16)

### Part D

*Answer any two questions.  
Each question carries 12 marks.*

25. Write a brief account of various steps involved in Science research.
26. What are the different types of errors in measurements ? Explain the methods to minimize these errors.
27. Explain the following :—
  - (a) Bohr atom model.
  - (b) The laws of chemical combination.
28. Briefly discuss about the complexometric titrations. What are its advantages ?

(2 × 12 = 24)