E 4216 (Pages : 2) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, NOVEMBER 2016

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 Marks : 60

Part A

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

1. The best known scientific method is ———.
2. Serendipity is ———.
3. Force equals mass times acceleration is a ——— statement.
4. The opposite of a hypothesis is called ———.
5. One mole of sodium means ——— atoms.
6. Henderson equation can be given as ———.
7. 8.2×10^3 has ——— significant digits.
8. Accuracy is closely related to ———.

$(8 \times 1 = 8)$

Part B

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

9. State Faraday's laws of electrolysis.
10. What are cosmetics ? Give two examples.
11. What do you mean by hypothesis ?
12. What do you mean by experimental bias ?
13. What are the features of a primary standard ?
14. What is condensation reaction ? Give one example.
15. What do you mean by confidence limit ?
16. Distinguish between Correlation and Regression.

Turn over

17. Discuss briefly on pH indicators.

18. What is homologous series ? Explain.

(6 × 2 = 12)

Part C

Answer any four questions.
Each question carries 4 marks.

19. Discuss any two atom models.

20. Explain the role of Chemistry as a centred science connecting other branches of science.

21. Explain the role of models in science. What are their strengths and limitations ?

22. Write the steps involved in the gravimetric estimation of barium as barium sulphate.

23. Briefly explain the principles of acid-base titration with the help of different titration curves.

24. What are indicators ? Outline the conditions under which they act.

(4 × 4 = 16)

Part D

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

25. Discuss about quantum mechanical model in Chemistry and also their important features.

26. (a) Briefly explain the procedure adopted in writing science.

    (b) Explain fabrication, theory and law.

27. Explain the method of detecting the followings :

    (a) Nitrogen ; (b) Sulfur ; (c) Halogen ; (d) Unsaturations and aromaticity in organic compounds.

28. Give an account of the statistical treatment of analytical data.

(2 × 12 = 24)