K16U 2093

Reg. No. : .....

Name : .....

III Semester B.Sc. Degree (CBCSS – Reg./Supple./Imp.) Examination, November 2016

(2014 Admission Onwards)

COMPLEMENTARY COURSE IN CHEMISTRY

(For Physical Sciences) 3C03CHE(PS) : Chemistry

Time : 3 Hours Max. Marks : 32

SECTION – A

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

1. What are isotones ? Give example.
2. Give one example of a poly dentate ligand.
3. Name any two ores of titanium.
4. What is meant by homologous series ?
5. What are closed and isolated systems ? (1×5=5 Marks)

SECTION – B

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

6. What are the applications of IR spectroscopy ?
7. Write a note on ionic organometallic compounds.
8. What is meant by N/P ratio ? How is it related to stability ?
9. State and explain second law of thermodynamics.
10. What is meant by EAN ? Explain giving examples.
11. Explain the aromaticity of benzene on the basis of Huckels rule. **(2×4=8 Marks)**

P.T.O.

SECTION – C

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

12. What are spontaneous and non spontaneous processes ? What are the criterion for spontaneity ?

13. Explain any two electron displacement effects.

14. Explain the following :
    a) spin spin splitting
    b) zero point energy

15. Explain how the complex formation is useful in qualitative analysis ?

16. A wooden sample shows a C-14 activity of 3.2 disintegration per minute per gram of carbon. A freshly cut wood shows an activity of 15.2 disintegration per minute per gram of carbon. Calculate the age the sample (Half life C-14 = 5770 years). **(3×3=9 Marks)**

SECTION – D

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

17. a) What are the methods for separation of isotopes ? 3
    b) Discuss the problems associated with nuclear waste disposal. 2

18. Give an outline of extractive metallurgy of Ni.

19. Explain the bonding, structure and reactions of ferrcene.

20. Explain the factors affecting the stability of complexes. **(5×2=10 Marks)**
