K16U 2092

Reg. No. : .....

Name : .....

III Semester B.Sc. Degree (CBCSS – Reg./Supple./Imp.) Examination, November 2016
(2014 Admn. Onwards)
COMPLEMENTARY COURSE IN CHEMISTRY
3C03 CHE (BS) : Chemistry
(For Biological Sciences)

Time : 3 Hours

Max. Marks : 32

SECTION – A

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

1. What is meant by homologous series ?
2. Give two examples for bidentate ligands.
3. What is thermoplastic ?
4. What is meant by chirality ?
5. What are isolated systems ? **(1×5=5)**

SECTION – B

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

6. What are the functional groups present in :
   a) Aldehyde
   b) Amide
   c) Alcohol
   d) Carboxylic acid
7. What happens to internal energy of a system if :
   a) work is done on the system
   b) by the system

P.T.O.

8. What are biodegradable plastics ? Give two examples.
9. What are free radicals ? Give any two reaction in which they are formed.
10. Explain the isomerism shown by maleic and fumaric acid.
11. The boiling point of diethyl ether is 35°C. Its heat of vaporization at its boiling point is 27.2 KJ/mole. Calculate entropy of vaporization. **(2×4=8)**

SECTION – C

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

12. What are the postulates Werner's theory ?
13. What is meant by aromaticity ? Explain the aromaticity of benzene.
14. Discuss the optical isomerism of tartaric acid.
15. What are the electron displacement effects ? Explain any one of them.
16. Give an account of formaldehyde based plastics. **(3×3=9)**

SECTION – D

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

17. a) Explain the hybridization and magnetic properties of $[Co(NH_3)_6]$ and $[CoF_6]$ on the basis of VB theory. **2**
    b) What are the factors affecting stability of complexes ? **3**
18. Explain with mechanism the various electrophilic substitution reactions of benzene.
19. a) Discuss the conformational isomerism of cyclohexane. **3**
    b) Give any two methods of resolution. **2**
20. Define free energy. What is its physical significance ? Write Gibbs Helmholtz equation. What are the criterion for spontaneity ? **(1+1+1+2)**

(5×2=10)