13BGS & 2053

MS – 306

VI Semester B.Sc. Examination, May 2016
(NS) (Fresh)
(2013-14 & Onwards)
CHEMISTRY – VII
Inorganic Chemistry

Time : 3 Hours Max. Marks : 70

Instructions : *i) The question paper has* ***two*** *Parts. Answer* ***both*** *the Parts.*
ii) Write diagram and equations ***wherever*** *necessary.*

PART – A

Answer **any eight** of the following questions. **Each** question carries **two** marks. **(8×2=16)**

1. Give the IUPAC names of the following.
   i) $[Cr(H_2O)_4]Cl_2$ and
   ii) $Na_3[Co(No_2)_6]$.
2. Calculate the EAN of platinum in $[PtCl_6]^{2-}$ (Atomic number of Pt = 78).
3. Explain the role of Cobalamine in living systems.
4. Write the geometrical isomers of $[Pt(NH_3)_2Cl_2]$.
5. Mention any two applications of abrasives.
6. Write a note on laminated safety glass.
7. Write the different varities of coal.
8. Give the constituents of varnishes.
9. Define Calorific value of a fuel. Give its SI units.
10. Briefly explain the role of iodine in biological system.
11. Write a note on carbon nanotubes.
12. Give any two applications of nanomaterials.

P.T.O.

PART – B

Answer **any nine** of the following. **Each** question carries **six** marks. **(9×6=54)**

13. a) Based on CFT, explain the geometry and magnetic property of $[Fe(CN_6)]^{3-}$. **(4+2)**
    b) $K_4[Fe(CN)_6]$ is a low spin complex. Explain.
14. a) Discuss the splitting of d-orbitals in octahedral complex. **(4+2)**
    b) Give a chemical test to distinguish between $[Co(NH_3)_5Br]SO_4$ and $[Co(NH_3)_5SO_4]Br$.
15. a) Explain the electronic spectrum of $[Ti(H_2O)_6]^{3+}$ and $[CoCl_4]^{2-}$. **(4+2)**
    b) What is meant by crystal field splitting energy ?
16. a) How is portland cement manufactured ? **(4+2)**
    b) Give any two advantages of glazing of ceramic wares.
17. a) Describe the manufacture of carborundum. **(4+2)**
    b) What are cullets ? Write its role in the manufacture of glass.
18. a) Explain the production of coal gas. **(4+2)**
    b) How is T.N.T. prepared ?
19. a) How are explosives classified ? Give an example for each type. **(4+2)**
    b) What are skinning agents ? Give an example.
20. a) Discuss the structure of haemoglobin and its biological function. **(4+2)**
    b) Mention the biological functions of phosphorus and magnesium.
21. a) How ligands are classified on the basis of hapticity ? **(4+2)**
    b) Why is $Na_2[Ca(EDTA)]$ used instead of Na_2H_2EDTA in the treatment of heavy metal poisoning ?
22. a) Mention the composition and applications of
        i) Borosilicate glass ii) Optical glass. **(4+2)**
    b) Write any two limitations of VBT.
23. a) What are refractories ? How are they classified ? Give one example for each. **(4+2)**
    b) Give any two examples of conducting polymers.
24. a) Explain the salient features of BCS theory of super conductors. **(4+2)**
    b) Give any two commercial uses of C_{60}.
25. a) Explain the solgel method of synthesis of nanomaterials. **(4+2)**
    b) Write any two applications of super conductors.

MS – 307

VI Semester B.Sc. Examination, May 2016
(NS) (2013-14 and Onwards) (Fresh)
CHEMISTRY – VIII
Biochemistry

Time : 3 Hours Max. Marks : 70

Instructions: *1) The question paper has **two** Parts. Answer **both** the Parts.*
*2) Write diagrams and equations **wherever** necessary.*

PART – A

Answer **any eight** of the following questions. **Each** question carries **two** marks. **(8×2=16)**

1. Mention the contribution of the following scientists to the development of Biochemistry i) Emil Fisher ii) Michalis.
2. Write the Haworth's partial structure of Chitin.
3. What are saturated fatty acids ? Give an example.
4. Name and write the structure of amino acid with a polar side chain.
5. Define the Chargaff's rule of base equivalence.
6. Give an example of enzyme belonging to each of the following classes.
   i) Isomerases ii) Transferases
7. What is substrate level phosphorylation ? Give an example.
8. What is metabolism ? Mention the phases.
9. How is phosphoenol pyruvate converted to pyruvate ?
10. What are okazaki fragments ?
11. Mention the biological importances of oxytocin.
12. Write the principle of paper chromatography.

P.T.O.

PART – B

Answer **any nine** of the following. **Each** question carries **six** marks. **(9×6=54)**

13. a) Explain any three physical properties of water which make it a suitable solvent for life.
    b) Explain the principle and application of column chromatography. **(3+3)**

14. a) What are sugar acids ? Give the structure and biological role of glucuronic acid.
    b) What are oligosaccharides ? Give an example of reducing disaccharide. **(4+2)**

15. a) What is rancidity ? Mention the types and how are they prevented.
    b) Give the differences between glycogen and cellulose. **(4+2)**

16. a) Explain briefly the metabolism of fatty acid in the mitochondrial matrix.
    b) Amino acids are amphiteric in nature. Why ? **(4+2)**

17. a) What is peptide bond ? Name any three naturally occurring peptides and give one biological importance of each.
    b) Write a note on chromatin. **(4+2)**

18. a) Explain Aufinsen's experiment with ribonuclease.
    b) What is competitive inhibition ? Give an example. **(4+2)**

19. a) Describe four characteristic features of Watson and Crick's model of DNA.
    b) Write the reaction catalysed by succinate dehydrogenase. **(4+2)**

20. a) Give the differences between enzymes and biological catalyst.
    b) Explain the effect of temperature on the enzyme catalysis. **(4+2)**

21. a) Write the structure of ATP. Explain why is it energy rich.
    b) What are endergonic reactions ? Give an example. **(4+2)**

22. a) Explain with an example each.
    i) Decarboxylation ii) Transamination of amino acids **(4+2)**
    b) What are lipoproteins ? Mention its application.

23. a) How is pyruvate converted into citrate in TCA cycle ? Give equations.
    b) Write a note on suponification number. **(4+2)**

24. a) Explain initiation and termination codon with examples.
    b) Mention the role of i) DNA Gyrase ii) DNA ligase in DNA replication. **(4+2)**

25. a) What are hormones ? How are they classified ?
    b) What is genetic code ? Give an example. **(4+2)**
