



Date: 03-11-2018
Time: 01:00-04:00

Dept. No.

Max. : 100 Marks

Part-A

Answer ALL questions.

(10 × 2 = 20)

1. Distinguish accuracy from precision.
2. Mention the adsorbents used in TLC.
3. What is meant by a coordinate bond?
4. Draw the structures of *cis*- and *trans* isomers of $[\text{Pt}(\text{NH}_3)_2\text{Cl}_2]$.
5. Define the ionic product of water.
6. What are absolute and relative errors?
7. Define rate of a chemical reaction.
8. What is the role of a catalyst in a chemical reaction?
9. What are vitamins?
10. Write any two names of sex hormones.

Part-B

Answer any EIGHT questions.

(8 × 5 = 40)

11. Explain the primary and secondary standards with examples.
12. Discuss the role of inventory control and labeling in safe handling and storage of chemicals.
13. Outline the characteristics of ionic compounds.
14. Explain the *cis-trans* and *fac-mer* isomers in octahedral geometry.
15. Calculate the pH when K_w is $6.5 \times 10^{-14} \text{ mol}^2\text{dm}^{-6}$.
16. How is a compound separated in paper chromatographic method?

17. What are the factors affecting the rate of a chemical reaction?
18. Derive an expression for the rate constant of a first-order reaction.
19. Draw the structure and mention the sources and deficiency of vitamin K.
20. Explain dipole-dipole and dipole-induced dipole interactions.
21. Write a note on the biological functions of adrenaline.
22. Discuss the hydrolysis of fats.

Part-C

Answer any FOUR questions.

(4 × 10 = 40)

23. Explain in detail how the component of a mixture can be separated using column chromatography.
- 24a. Draw the structure of haemoglobin and explain the structural features.
b. Sketch and explain the structure of NaCl crystal. **(6+4)**
25. How are toxic and poisonous chemicals stored in the laboratory?
- 26a. Explain the homo- and heterogeneous catalysis and its mechanisms.
b. What is meant by activation of a catalyst? **(8+2)**
- 27a. Draw the structure of thyroxin and mention its function.
b. What are fats? Write about their occurrence and composition. **(5+5)**
- 28a. Illustrate the consequences of hydrogen bonding on the properties of molecules.
b. Why is a slightly odd gap in lettering vitamins between E and K? **(6+4)**
