SN – 341

I Semester B.Sc. Examination, November/December 2017
(Freshers+Repeaters) (CBCS) (2014 – 15 and Onwards)
BIOCHEMISTRY – I

Time : 3 Hours Max. Marks : 70

Instructions : *i) The question paper has **two** Parts : Part **A** and Part **B**.*
*ii) Answer **any eight** questions from Part **A** and answer **any nine** questions from Part **B**.*

PART – A

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

1. What are significant figures ?
2. Write De Broglie's wave equation and mention the terms.
3. Define lattice energy.
4. State decay law.
5. What is depression in freezing point ?
6. How is cell constant determined ?
7. Differentiate between strong and weak electrolyte.
8. What is the importance of ^{14}C in radio active dating ?
9. What is Arrhenius concept of acids and bases ?
10. 'Ice floats on surface of water'. Justify.
11. Define specific conductance and molar conductance.
12. List out the factors affecting viscosity.

PART – B

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

13. a) State and explain Pauli's exclusion principle.
    b) What is meant by electromagnetic radiation ? **(4+2)**

P.T.O.

14. a) What are quantum numbers ? Explain the significance of quantum numbers.
    b) Express 8.65 g in kilograms and milligrams. **(4+2)**

15. a) Using Born-Haber cycle. How do you calculate lattice energy of NaCl ?
    b) Differentiate between σ and π bond. **(4+2)**

16. a) Explain intra and inter molecular hydrogen bonding with suitable example.
    b) Express a pressure of 1 mm of Hg in pascal. **(4+2)**

17. a) Write any two differences between valency and oxidation number.
    b) Define half life period of a radio active element.
    c) Write Henderson – Hasselbach equation and define the terms. **(2+2+2)**

18. a) Write a note on autoradiography.
    b) Differentiate between Osmosis and diffusion. **(4+2)**

19. a) How do you determine pH of solution using quinhydrone electrode ?
    b) What are electrochemical cells ? **(4+2)**

20. a) Explain the different methods of representing data graphically.
    b) Define Van't Hoff factor. **(4+2)**

21. a) Explain the factors influencing solubility.
    b) Define ebulioscopic constant. What is the ebulioscopic constant of water ? **(4+2)**

22. a) Explain the mechanism of action of basic buffer with an example.
    b) What is buffer capacity ? **(4+2)**

23. a) Describe the conditions required for precipitation of sparingly soluble salts in qualitative analysis.
    b) Name the biologically important Ligand-Chelate complexes. **(4+2)**

24. a) Compare the properties of α, β and γ radiations.
    b) How would you minimize errors in quantitative analysis ? **(4+2)**

25. a) How to determine surface tension using stalagmometer ?
    b) What is the importance of viscosity and surface tension in everyday life ? **(4+2)**
