61127

First Semester B.Sc. Degree Examination, August/September 2021

(CBCS – Semester Scheme – Freshers and Repeaters)

Biochemistry

Paper I – BIOCHEMISTRY

Time : 3 Hours]   *[Max. Marks : 70*

Instructions to Candidates :

    1)   *This paper is for the students of new syllabus : 2014-15.*

    2)   *The question paper has two Parts : Part A and Part B.*

    3)   *Answer any Eight questions from Part A.*

    4)   *Answer any Nine questions from Part B.*

PART – A

Answer any **EIGHT** of the following questions. Each question carries **2** marks :

                                                    (8 × 2 = 16)

1.   Define accuracy.

2.   Mention the factors for the following prefixes :

    (a)   Kilo   (b)   Nano

3.   Define electromagnetic spectrum.

4.   Draw the shape of '*p*' orbitals.

5.   Distinguish between sigma and pi bond.

6.   What are ligands? Give an example.

7.   State group displacement law.

8.   Give any two applications of Henry's law.

9.   Write any two differences between hypertonic and hypotonic solutions.

10.   What are Lewis acids and bases?

11.   What is meant by pH of a solution?

12.   Define viscosity. Give its SI unit.

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PART – B

Answer any **NINE** of the following questions. Each question carries **6** marks :

(9 × 6 = 54)

13. (a) How do you minimise the errors in quantitative analysis?

    (b) What are significant figures? Give an example. (4 + 2)

14. (a) What are quantum numbers? Discuss their types in detail.

    (b) State Hund's rule of maximum multiplicity. (4 + 2)

15. (a) Deduce de-Brogle's equation. Mention the terms involved in it.

    (b) Differentiate between orbit and orbital. (3 + 3)

16. (a) Explain the formation of sodium chloride using Born-Haber cycle.

    (b) What is meant by lattice energy? Give an example. (4 + 2)

17. (a) Explain the geometry of ammonia molecule on the basis of VSEPR theory.

    (b) Define ionic bond. (4 + 2)

18. (a) Explain about radioactivity detection using GM counter.

    (b) Give any two applications of P^{32} isotope. (4 + 2)

19. (a) What is semi-permeable membrane? Explain the preparation of artificial semi-permeable membrane.

    (b) State Van't Hoff Boyle's law. (4 + 2)

20. (a) Explain the construction and working principle of primary reference electrode(SHE).

    (b) What is meant by electrochemical series? (4 + 2)

21. (a) Explain the working principle and construction of glass electrode.

    (b) Mention any two limitations of quinhydrone electrode. (4 + 2)

22. (a) Define Co-ordinate. Explain the formation of co-ordinate bond in NH_4^+.

    (b) What are Intramolecular Hydrogen Bondings? Give an example. **(4 + 2)**

23. (a) Derive Henderson-Hasselbalch equation for an acidic buffer.

    (b) What are amphoteric substances? Give an example. **(4 + 2)**

24. (a) Explain sp hybridization with a suitable example.

    (b) Define : (i) molarity (ii) mole fraction **(4 + 2)**

25. (a) Discuss in detail about the determination of viscosity of a given liquid using viscometer.

    (b) Mention any two biological significance of surface tension. **(4 + 2)**

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