Q.P. Code : 11227

Second Semester B.Sc. Degree Examination, May/June 2019

(CBCS Scheme – 2018-19 and onwards)

Biochemistry

BIOCHEMISTRY – II

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

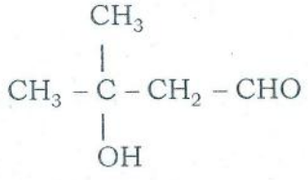
Instructions to Candidates :

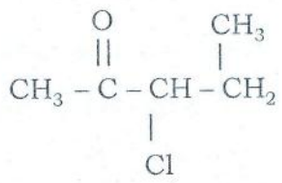
1. *This question paper has two Parts.*
2. *Answer any **EIGHT** questions from Part – A and any **NINE** questions from Part – B.*
3. *Write equations and diagrams wherever necessary.*

PART – A

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

1. State the law of rational indices.
2. Write phase rule and mention the terms.
3. Define Partition Co-efficient.
4. What is Frenkel defect?
5. State Le-Chatlier's principle.
6. Mention the factors affecting the rate of reaction.
7. Write Arrhenius equation. Indicate the terms involved in it.
8. Write the IUPAC names of the following :

(a)


(b)


9. Explain Resonance effect.

10. Write the structures of diphenyl and phenonthrene.

11. Explain Kolbe's reaction with an example.

12. Mention the uses of Glycerol.

PART – B

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

13. (a) Explain the following :

    (i) axis of symmetry

    (ii) plane of symmetry

    (b) What are Miller indices and how they are related to Weiss indices? **(4 + 2)**

14. (a) Draw the phase diagram of $KI - H_2O$ system and explain its salient features.

    (b) What are freezing mixtures? Give an example. **(4 + 2)**

15. (a) State Henry's law. Explain the principle of steam distillation.

    (b) How many components are present in the following systems? **(4 + 2)**

    (i) water $\rightleftharpoons$ water vapour

    (ii) KCl + water $\rightleftharpoons$ KCl. Hydrate

16. (a) Derive an expression for the rate constant of second order reaction where initial concentration of the reactants are same ($a = b$)

    (b) What is the role of ATP in bio-energitics? **(4 + 2)**

17. (a) Explain the intermediate compound formation theory of catalysis.

    (b) Mention any two characteristics of chemical equilibrium. **(4 + 2)**

18. (a) What are free-radicals? Explain the relative stability of free radicals.

    (b) Define half life period of a reaction. Give its expression for first order reaction. **(4 + 2)**

19. (a) Discuss the mechanism of addition of HBr to 1,3-butadiene.
    (b) State Markownikoff's rule. **(4 + 2)**

20. (a) Explain the mechanism of Riemer-Tiemann reaction.
    (b) Draw the chair and boat forms of cyclohexane. **(4 + 2)**

21. (a) Explain the synthesis of Glycerol from propene with reactions.
    (b) What are Elimination reactions? Give an example. **(4 + 2)**

22. (a) Explain S_N1 mechanism with suitable example.
    (b) Write a note on Keto-enol tautomerism. **(4 + 2)**

23. (a) Discuss the mechanism of Aldol condensation.
    (b) State Huckel's rule. **(4 + 2)**

24. (a) What is Friedel-Craft's alkylation? Give its mechanism.
    (b) Explain Claisen condensation with an example. **(4 + 2)**

25. (a) How does Naphthalene reacts with (i) Conc H_2SO_4 (ii) Acidified $KMnO_4$?
    (b) Give the limitations of Baeyer's strain theory. **(4 + 2)**
