61227

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

(CBCS Scheme)

BIOCHEMISTRY

Paper II

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

Instructions to Candidates :

1) *The Question Paper has two Parts. Part A and Part B.*

2) *Answer any eight questions from Part A and any nine questions from Part B.*

PART – A

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

(8 × 2 = 16)

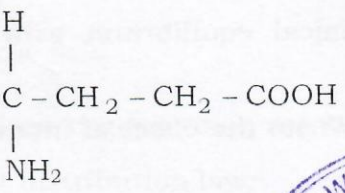
1. What is Miller indices?

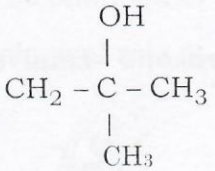
2. What are ideal solutions? Give an example.

3. What are reversible reactions? Give suitable example.

4. What is meant by energy of activation?

5. Give the IUPAC name for the following compounds :

(a) 

(b) 

6. What is peroxide effect?

7. Give any two limitations of Baeyer's strain theory.

8. Write the structure of :
   (a) Naphthalene
   (b) Diphenyl

9. What are organometallic compounds?

10. Give any two uses of Glycol.

11. Why are phenols more acidic than aliphatic alcohols?

12. What is aldol condensation?

PART – B

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

13. (a) Name any six types of crystal system in solids. Give example.
    (b) Write Braag's equation. Mention the terms involved in it. **(4 + 2)**

14. (a) Draw the phase diagram of KI- H_2O system and explain.
    (b) Explain the terms :
        (i) Degrees of freedom
        (ii) Phase **(4 + 2)**

15. (a) Explain different types of chemical equilibrium with suitable example.
    (b) What is Le Chatelier principle? Write the effect of increase in temperature for the following reaction :

$$N_2(g) + 3H_2(g) \rightleftharpoons 2\,NH_3\,(g)$$ **(4 + 2)**

16. (a) What are homogeneous and heterogeneous catalysis? Explain with example.
    (b) Define rate constant of a reaction. **(4 + 2)**

17. (a) Derive the expression for velocity constant of second order reaction.

(b) Define half life period. **(4 + 2)**

18. (a) What is meant by the term inductive effect? Mention the types with example.

(b) Arrange the following carbocations in the order of decreasing stability :

(i) CH_3^+

(ii) $(CH_3)_2{}^+CH$

(iii) $(CH_3)_3{}^+C$ **(4 + 2)**

19. (a) Explain the reactivity and relative stabilities of cycloalkanes.

(b) What are axial and equatorial bonds? **(4 + 2)**

20. (a) Explain the mechanism of nitration of Benzene.

(b) What is the role of $AlCl_3$ in Friedal Craft's reaction? **(4 + 2)**

21. (a) Give the differences between S_N1 and S_N2 reactions.

(b) Write the preparation of Grignard reagent. **(4 + 2)**

22. (a) How do you distinguish between 1°, 2° and 3° alcohols based on oxidation?

(b) What is Eutectic point? **(4 + 2)**

23. (a) Write the mechanism of Kolbe's reaction.

(b) Write the structure of :

(i) Quinol

(ii) Salicyclic acid **(4 + 2)**

24. (a) Explain Claisen condensation reaction with mechanism.

(b) State Nernst distribution law. **(4 + 2)**

25. (a) Explain the mechanism of addition of HBr to 1, 3 - butadiene.

(b) Write the biological role of ATP. **(4 + 2)**