SUB.CODE: 18UBC2A3

REG.NO:

# DHANALAKSHMI SRINIVASAN COLLEGE OF ARTS & SCIENCE FOR WOMEN (AUTONOMOUS)

(For Candidates admitted from 2020-2021 onwards)

## UG DEGREE EXAMINATIONS APRIL - 2021

## B.Sc., - BIOCHEMISTRY

## INORGANIC, ORGANIC AND PHYSICAL CHEMISTRY-II

**Time: 3 Hrs** **Max.Marks: 75**

### PART - A

**CHOOSE THE CORRECT ANSWER** **(10X1=10)**

1. The nature of bond in hydrogen molecule is

   a) Ionic bond b) covalent bond c) co-ordinate bond d) hydrogen bond

2. Silicon is an example of

   a) Non-conductor b) good conductor c) semi- conductor d) metallic conductor

3. How will you identify carbohydrates by the following methods?

   a) Molisch's test b) Furfural test c) Fehling's test d) All of these

4. Which one of the following amino acids can be synthesized in the body?

   a) Alanine b) Valine c) Lysine d) Hisditine

5. Cis- trans isomerism is possible in the molecules containing carbon- carbon

   a) Single bond b) double bond c) triple bond d) all of these

6. Which one of the following heterocyclic compound is not aromatic?

   a) Pyridine b) pyrrole c) furan d) piperidine

7. Milk is an example of

   a) Sol b) gel c) emulsion d) true solution

8. In a suspension, the diameter of the dispersed particles is of the order

   a) 10 A° b) 100 A° c) 1000 A° d) 2000 A°

9. A first order reaction is 75 % completed after 32 minutes when was 50 % of the reaction completed?

   a) 16 min b) 8 min c) 4 min d) 32 min

10. The system involving dissociation of calcium carbonate is an example of _____ equilibrium.

    a) Homogeneous b) heterogeneous c) chemical d) dynamic

## PART - B

**ANSWER ALL THE QUESTIONS** **(5X7=35)**

11. a) Explain the orbital overlap concept of oxygen molecule.

**(OR)**

b) Discuss the band theory of metallic bond.

12. a) Write a note on Haworth structure of glucose.

**(OR)**

b) How will you prepare amino acids by (i) Strecker's method (ii) Gabriel phthalimide method?

13. a) Explain the optical activity of tartaric acid.

**(OR)**

b) Discuss the preparation and properties of furan.

14. a) (i) Discuss the medicinal application of colloids.

(ii) Define the following terms 1. Electrophoresis 2. Electro-osmosis

**(OR)**

b) What are gels? What distinguishes between elastic and non-elastic gels?

15. (a) (i) Distinguish between order and molecularity of a reaction

(ii) Define half –life period

**(OR)**

(b) Derive the relation between Kp and Kc

## PART - C

**ANSWER ANY THREE QUESTIONS** **(3X10=30)**

16. What are semi-conductors? How are they classified? Explain it with example.

17. a) Explain the primary structure of proteins.

b) Discuss the classification of carbohydrates with suitable examples.

18. a) What is structural isomerism? Explain the different types of structural isomers with an example.

b) How does pyridine react with (i) fuming $H_2SO_4$ (ii) sodamide (iii) $H_2$/Ni(iv) $Br_2$

19. a) Discuss the preparation and properties of emulsions.

b) What are colloids? Discuss the essential difference between lyophilic and lyophobic colloids.

20. a) Derive the expression for first order reaction.

b) Derive Kp for $N_2O_4 \leftrightarrow 2NO_2$ and discuss the effect of pressure on the equilibrium.