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(FOR THE CANDIDATES ADMITTED **19 UCY 613**

DURING THE ACADEMIC YEAR 2019 ONLY) **REG.NO. :**

N.G.M.COLLEGE (AUTONOMOUS) : POLLACHI

END-OF-SEMESTER EXAMINATIONS : JULY-2022

B.Sc.-CHEMISTRY **MAXIMUM MARKS: 75**

VI - SEMESTER **TIME : 3 HOURS**

PART - III

CHEMICAL KINETICS AND PHOTOCHEMISTRY

SECTION – A **(10 X 1 = 10 MARKS)**

ANSWER THE FOLLOWING QUESTIONS.

MULTIPLE CHOICE QUESTIONS. **(K1)**

1. If rate of a reaction is equal to the rate constant, then order of the reaction is _____.

a) 1 b) 2 c) 3 d) 0

2. The rate constant of a first order reaction is 1.54×10^{-3} s^{-1}. Calculate its half-life period _____.

a) 450 s b) 308 s c) 235 s d) 154 s

3. The catalytic poison in Contact process is _____.

a) O_2 b) Pt c) As d) S

4. Beer-Lambert's law is applicable only for _____.

a) Concentrated solutions b) Dilute Solutions

c) Gases d) solids

5. Sol of Arsenious sulphide can be prepared by _____ method.

a) Oxidation b) Reduction

c) Double decomposition d) Hydrolysis

ANSWER THE FOLLOWING IN ONE (OR) TWO SENTENCES **(K2)**

6. Define rate of a chemical reaction**.**

7. What is the effect of temperature on rate of a reaction?

8. Differentiate between homogeneous and heterogeneous catalysis.

9. Expand Laser.

10. Define colloid.

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SECTION – B (5 X 5 = 25 MARKS)

ANSWER EITHER (a) OR (b) IN EACH OF THE FOLLOWING QUESTIONS. (K3)

11. a) Show diagrammatically how the rate of a first-order reaction varies with concentration of reactant.

(OR)

b) Describe the differences between order and molecularity of a reaction.

12. a) Calculate the activation energy of a reaction whose rate constant is tripled by a 10 rise in temperature in the vicinity of 27.

(OR)

b) Derive Eyring equation.

13. a) List out the general characteristics of a catalytic reactions.

(OR)

b) Distinguish between physisorption and chemisorption.

14. a) Compare thermal and photochemical reactions.

(OR)

b) Construct and explain the Jablonski diagram depicting various photophysical processes.

15. a) Discuss the optical and kinetic properties of colloids.

(OR)

b) What are gels? Give its properties.

SECTION - C (4 X 10 = 40 MARKS)

ANSWER ANY FOUR OUT OF SIX QUESTIONS

(16^{th} QUESTION IS COMPULSORY AND ANSWER ANY THREE QUESTIONS

(FROM Qn. No : 17 to 21) (K4 (Or) K5)

16. Explain the kinetics and mechanism of enzyme catalyzed reactions.

17. Discuss the applications of polarimetry in determining reaction kinetics.

18. Describe the Lindemaan's theory of unimolecular reactions.

19. What is adsorption isotherm? Explain the Langmuir adsorption isotherm.

20. Arrive the rate constant for H_2-Br_2 photochemical reaction.

21. Explain the two types of electrokinetic properties of colloids.

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