K21U 3598

Reg. No. : .....

Name : .....

II Semester B.Sc. Degree (CBCSS – Supple.) Examination, April 2021
(2014 – 2018 Admission)
COMPLEMENTARY COURSE IN CHEMISTRY
2C02 CHE : Chemistry (For Physical and Biological Sciences)

Time : 3 Hours Max. Marks : 32

SECTION – A

Answer **all** questions. **Each** question carries **1** mark.

1. Define activation energy of a reaction.
2. What are emulsions ?
3. State the Law of mass action.
4. Give one example of Photosensitised reaction.
5. What is meant by solubility product ? **(1×5=5)**

SECTION – B

Answer **any four** questions. **Each** question carries **2** marks.

6. Explain the reason for the stability of a lyophobic sol.
7. For the reaction $N_2O_4 \rightarrow 2NO_2$. $K_p = 0.157$ atm at 300 k. Calculate K_c.
8. For a first order reaction A → B half life is 5 minutes. What is the time taken for [A] to reach 20% of the initial concentration ?
9. Explain the high quantum yield for $H_2 - Cl_2$ reaction.
10. Distinguish between accuracy and precision.
11. Calculate the pH of 0.001 M NaOH and 0.03M H_2SO_4. **(2×4=8)**

P.T.O.

SECTION – C

Answer **any three** questions. **Each** question carries **3** marks.

12. Explain the factors affecting chemical equilibrium.

13. The rate constant for the first order gas phase decomposition of ethyl iodide is $1.6 \times 10^{-5}\ s^{-1}$ at 600 k and $6.36 \times 10^{-3}\ s^{-1}$ at 700k. Calculate the energy of activation of the reaction.

14. Discuss the principle of iodometric and dichrometric titration.

15. Explain the laws of photochemistry.

16. Explain any two methods for the purification of sols. **(3×3=9)**

SECTION – D

Answer **any two** questions. **Each** question carries **5** marks.

17. Write notes on : a) Phosphorescence b) Zeta potential c) Bioluminescence.

18. a) How does temperature affect reaction rate ?
    b) Explain one method for order determination. **(2+3)**

19. a) State and explain Beer-Lamberts law. What are its limitations ?
    b) Explain the principle of iodometric titration. **(3+2)**

20. Explain the properties of colloids.