K20U 0458

Reg. No. : ....

Name : ....

II Semester B.Sc. Degree CBCSS (OBE) – Regular Examination, April 2020
(2019 Admission)
COMPLEMENTARY ELECTIVE COURSE IN CHEMISTRY/POLYMER CHEMISTRY
2C02CHE/PCH : Chemistry (For Physical and Biological Sciences)

Time : 3 Hours

Total Marks : 32

*Instruction : Answer the questions in **English only**.*

SECTION – A

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

1. If half of HI in a vessel decomposes, at a certain temperature, K_c = _____.

2. The emission of radiation due to the transition from singlet excited state to ground state is called _____.

3. A colloidal system in which both dispersed phase and the dispersion medium are liquids is known as _____.

4. The erratic zig-zag movement of colloidal particles is known as _____.

5. An indicator that can be used for a weak acid-strong base titration is _____.

(5×1=5)

SECTION – B

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

6. Give the IUPAC names of :

   i) $ClCH_2 – CH_2 – CH(CH_3) – COOH$

   ii) $CH_3 – CH(OH) – CH = CH_2$.

7. What is meant by carbocations ?

8. Give any four reasons for low quantum yield.

9. Lyophilic sols show weak Tyndall effect. Why ?

10. Calculate the mass of sodium carbonate, to be dissolved, to prepare 500 ml of 0.1 M solution.

11. Write a note on common ion effect.

$(4 \times 2 = 8)$

SECTION – C

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

12. Illustrate Huckel's rule using cyclopropenyl cation and cyclopentadienyl anion as examples.

13. Calculate K_p for a reaction $A_{(g)} + B_{(g)} \rightleftharpoons C_{(g)} + D_{(g)}$; $\Delta G^\circ = -3435$ kJ mol^{-1}.

14. State and explain Beer-Lambert's law.

15. Distinguish between lyophilic colloids and lyophobic colloids.

16. Write a note on permanganometry.

$(3 \times 3 = 9)$

SECTION – D

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

17. With the help of hybridization concept, predict the shapes of methane and ethylene.

18. State Le Chatelier principle. On the basis of this principle, discuss the effect of pressure and temperature on the equilibrium in the Haber Process.

19. Write a note on electrical double layer and zeta potential.

20. Briefly outline the application of the principles of solubility product and common ion effect in the separation of cations in qualitative analysis. $(2 \times 5 = 10)$

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