C⁴60132

(Pages : 2)

Name

Reg. No................

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION MARCH 2014

(UG–CCSS)

Chemistry

CH 6B 17 – PHYSICAL CHEMISTRY – III

Time : Three Hours

Maximum : 30 Weightage

Section A

Answer all *questions.*
Each question carries $\frac{1}{4}$ weightage.

Fill in the blanks :

1. The rate law of a reaction is : rate = k $[A]^{r}[B]^{}$. The order of the reaction is _____

2. The salt used in salt bridge is ————————

3. The acidic nature of an aqueous solution of $CuSO_4$ is because of ————————

4. The quantum yield of a photochemical reaction is 1 when ————————

Answer in a word *or* sentence :

5. What is the slope of the plot of $log_{10}k$ versus $1/T$?

6. What is the effect of a catalyst on the equilibrium constant of a reaction?

7. Give an example of basic buffer.

8. State the Lewis concept of bases.

9. What is overvoltage?

10. Define pKb.

11. State Beer-Lambert's law.

12. Define solubility product.

(12 x   = 3 weightage)

Section B

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

13. What are the characteristics of a first order reaction?

14. Write the Arrhenius equation and explain the terms.

Turn over

15. Distinguish between phosphorescence and fluorescence.

16. Write the reaction in the cell $Zn \mid Zn^{-+} \parallel Ag^{+} \mid Ag$.

17. State Kohlrausch's law.

18. What is Ostwald's dilution law?

19. What is liquid junction potential?

20. What is the significance of half wave potential?

21. What are the rules for naming a variable in C language?

(9 x 1 = 9 weightage)

Section C

Answer any **five** *questions.*
Each question carries 2 *weightage.*

22. Derive the first order rate law.

23. What is Debye-Hückel theory?

24. State the Faraday's laws of electrolysis.

25. Describe the theory of acid-base indicators.

26. What are the different types of electrodes?

27. Write a note on potentiometric titration.

28. Illustrate scanf and printf statements in C language.

(5 x 2 = 10 weightage)

Section D

Answer any **two** *questions.*
Each question carries 4 *weightage.*

29. Distinguish between homogeneous and heterogeneous catalysis. Briefly describe the intermediate compound theory and adsorption theory of catalysis.

30. Describe the moving boundary method for the determination of transport number.

31. Derive the Nernst equation for the e.m.f. of a cell. What are the applications of e.m measurements?

(2 x 4 = 8 weightage)