

C 40424

(Pages 2)

Name.....

Reg. No.....

SIXTH SEMESTER B.Sc. DEGREE EXAMINATION, MARCH 2013

(CCSS)

Chemistry

CH6B 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. Half life of a _____ order reaction is independent of initial concentration.
2. The catalyst used in Haber Process is _____.
3. A salt bridge is used to eliminate _____.
4. The unit of specific conductance is _____.

Answer in a word or sentence :—

5. Define cell constant.
6. Define pKa.
7. What is quantum yield of a photochemical reaction ?
8. What is the single electrode potential of standard hydrogen electrode.
9. Define solubility product.
10. Give an example of acid buffer.
11. State Kohlarusch's law.
12. Define ionic strength.

(12 × $\frac{1}{4}$ = 3 weightage)

Section B

Answer all questions.

Each question carries 1 weightage.

13. The half life period of a first order reaction is 25 minutes. What is its rate constant ?
14. What is standard hydrogen electrode ?
15. What is polarography ?

16. Calculate the pH of a 0.01 M solution of NaOH.
17. What is leveling effect ?
18. Explain the abnormal ionic mobility of hydrogen ions.
19. What is Debye-Falkenhagen effect ?
20. What is Ostwald's dilution law ?
21. Mention any four data types in C.

(9 × 1 = 9)

Section C

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

22. Describe any two methods for the determination of the order of a reaction.
23. Explain the Lowry-Bronsted theory of acids and bases using an example.
24. Write a note on H_2-O_2 fuel cell.
25. State and explain (a) Grotthus-Draper law ; (b) Stark- Einstein's law ; (c) Beer-Lambert law ; (d) Photosensitisation.
26. Write a note on enzyme catalysis.
27. Explain the variation of molar conductance with dilution.
28. Write a C program for calculation of molarity of a solution.

(5 × 2 = 10)

Section D

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

29. Explain the collision theory of reaction rates.
30. Describe the Hittorfs method of determination of transport number.
31. Explain any four applications of e.m.f. measurements.

(2 × 4 = 8)