SARDAR PATEL UNIVERSITY
B.Sc. (I SEM.) (CBCS) EXAMINATION
2013
Wednesday, 2nd January
10.30 am to 12.30 pm
US01CCHE01 : GENERAL CHEMISTRY

Total Marks: 70

Note: Figures to the right indicate full marks to the questions.

Q.1 MCQs. [10]
1. How many significant figures are present in the data: 0.1025?
   (a) 1           (b) 2           (c) 3           (d) 4
2. The difference between the observed value and true value is called...
   (a) Error       (b) Precision
   (c) Accuracy    (d) none of these
3. The analysis in which we find out selected constituents of the sample is known as.....
   (a) Proximate analysis       (b) Partial analysis
   (c) both of these            (d) none of these
4. Lewis base is.....
   (a) electron pair donor      (b) electron pair acceptor
   (c) both of these            (d) none of these
5. Which one of the following is a strong electrolyte?
   (a) NaCl                      (b) AgCl
   (c) both of these            (d) AgBr
   (d) All of these
6. Which of the following is true?
   (a) pH + pOH = 10           (b) pH + pOH = pk_w = 14
   (c) pH - pOH = 10           (d) pH - pOH = 14
7. Which of the following is used for estimation of nitrogen in organic sample?
   (a) Duma’s method           (b) Kjeldalh’s method
   (c) both of these           (d) none of these
8. Alkanes are soluble in ............... solvents.
   (a) polar                   (b) non-polar
   (c) acidic                  (d) basic
9. How many ions are produced from K_4[Fe(CN)_6] in solution?
   (a) 5           (b) 4           (c) 0           (d) all of these
10. EDTA is...........
    (a) monodentate ligand      (b) chelating ligand
    (c) complex                (d) none of these

Q.2 Short Questions. (ANY TEN) [20]
1. Write factors affecting selection of analytical method for the analysis.
2. Write the number of significant figures for the data:
   2.500, 2.0005
3. Define: Accuracy and Precision.
4. Explain the term: Solubility Product.
5. Complete following reaction and label conjugate acids and conjugate bases.

\[ \text{HSO}_4^- + \text{H}_2\text{O} = \text{NH}_3 + \text{NH}_3^- \]

6. What is self ionization of water?

7. Explain homologous series with example.


9. Explain: As carbon number increases in alkanes, the melting point and boiling point increase.

10. Give IUPAC nomenclature of: \( \text{H}_3\text{CoCl}_6 \), \( \text{K}_4[\text{Ni(CN)}_4] \)

11. Explain the term: Chelation.

12. Show that \( \text{SO}_4^{2-} \) is a flexidentate ligand.

Q.3
(a) Write applications of Analytical chemistry in detail. [06]
(b) Discuss stages of Analysis. [04]

OR

Q.3
(a) Give complete classification of error. [06]
(b) "Precision always accompanies accuracy but high degree of precision does not mean accuracy", explain. [04]

Q.4
Discuss selective precipitation with suitable example. [10]

OR

Q.4
Discuss various concepts of Acids and Bases. [10]

Q.5
(a) Explain quantitative analysis of carbon and hydrogen, in organic compound. [06]
(b) Explain: "1-butene does not show geometric isomerism while 2-butene shows it." [04]

OR

Q.5
(a) Discuss physical properties of alkanes. [06]
(b) Write a note on: Lassign Test. [04]

Q.6
(a) Explain the term chelate and discuss its uses. [06]
(b) Discuss Werner's Theory for co-ordination compounds. [04]

OR

Q.6
(a) Define: Ligand. Discuss classification of ligands based on dentate character. [06]
(b) Discuss geometry and draw shapes for complexes having co-ordination number 6, with suitable examples. [04]

😊😊😊😊