

B. N. Bandodkar college of science, Thane-400 601.
F.Y. B.Sc, Second Term end Examination
Chemistry- II

Duration 2 hrs

Max Marks-60

N.B. : 1) All questions are compulsory

2) Figures to the right indicate full marks.

3) Use of log tables/non-programmable calculator is allowed.

4) Answers to two sections should be written in same answer book.

- Q. 1 A) (a) What are physical and chemical units of expressing concentration? 2
OR
(a) Define (i) Solute (ii) Solvent. 2
(b) What is electromagnetic radiation? 2
(c) Define Molarity. 1
- B) (a) Explain Huckels rule of aromaticity with example. 2
OR
(a) Explain antiaromaticity with examples. 2
(b) Define aromaticity. 1
OR
(b) Define resonance energy. 1
(c) Cyclopropene is not aromatic but corresponding cation is aromatic why? 1
(d) Write Saytsev rule? 1
- C) (a) Explain “ Graphite is conductor of electricity.” 2
OR
(a) Explain extraction process of amorphous silicon from silica. 2
(b) Discuss sources of emission of oxides of nitrogen. 2
(c) Define, air pollution. 1
- Q. 2 (a) What are Primary standards? What are the requirements that a substance must fulfill to be used as a primary standard? 4
OR
(a) Discuss the inter conversion of units based on volume and weight basis. 4
(b) Calculate molarity and molality of a solution containing 10.1 g of KCl dissolved in 0.5 dm³ of solution 1.0 g/ml. 4
(given K= 39, Cl= 35.5)
OR
(b) 1.5 dm³ of 0.12 N HCl is mixed with 0.2 dm³ of 0.12 M HCl solution. Assuming that there is no volume change, calculate g/dm³ of the HCl acid after dilution? (given H= 1, Cl= 35.5). 4

- (c) What are the general applications of spectroscopic techniques. 4
 (d) Explain the term (i) Type of energy (ii) Energy levels. 3
- Q. 3 (a) Convert the followings. 4
 (i) Cyclohexanone into Cyclohexylamine.
 (ii) Ethanamide into Methylamine.
 (iii) Ethyl bromide into Ethyl methyl ether.
 (iv) Methane into Ethane.
- OR
- (a) Explain aldol condensation and cross aldol condensation with 4
 example.
 (b) Explain haloform reaction with uses. 4
- OR
- (b) What is the action of ethyl magnesium bromide on ethyl formate and 4
 ethyl acetate?
 (c) Write Wolf-Kishner reduction and Clemmenson's reduction. 4
 (d) Which are the following compounds are aromatic, anti aromatic or 3
 non aromatic?
 (i) tropylium cation (ii) Cyclopentadiene (iii) Cyclopropenyl anion
 (iv) Cyclopropenyl cation (v) cyclohexane (vi) Cyclohexatriene
- Q. 4 (a) Discuss the effects of oxides of nitrogen as an air pollutant on human 4
 health.
- OR
- (a) Write a short note on green house effect. 4
 (b) Write a short note on inert pair effect in group 14 elements. 4
- OR
- (b) Discuss the electronic configuration in group 14 elements and discuss 4
 oxidation state on the basis of electronic configuration.
 (c) Discuss the role of Na^+ and K^+ in the biological system. 4
 (d) Explain the methods of preparation of linear silicones. 3