



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester 1) Internal Examination Oct-2024
US01MAICV01 : Applied Chemistry

Date: 3rd October 2024, Thursday

Time: 11:00 AM to 12:30 PM

Total marks :30

Q-1 Multiple Choice Questions. (All are compulsory)

(6)

1. What happens to the ionization energy as one goes left to right across a period?
(a) increases (c) remain constant
(b) decreases (d) first increases and then zero
2. 'Electrons fill lower-energy atomic orbitals before filling higher-energy ones'. It is the statement of...
(a) Hund's principle (c) Aufbau principle
(b) Pauli's Exclusion principle (d) Uncertainty principle
3. Homolytic fission leads to the formation of...
(a) nucleophiles (c) free radicals
(b) carbanions (d) carbocations
4. A solution in which amount of dissolved solute is less than that required for saturation is called...
(a) Saturated solution (c) Supersaturated solution
(b) Unsaturated solution (d) Aqua solution
5. Which one is known as Universal indicators?
(a) Replacement indicator (c) True indicator
(b) Mixed indicator (d) Multiple range indicator
6. What is the pH range of Phenolphthalein indicator?
(a) 3-5 (c) 4-7
(b) 9.5-11 (d) 8.2-10

Q-2 Write a note on Ionization energy.

(6)

OR

Q-2 Explain Aufbau principle and Hund's Principle.

(6)

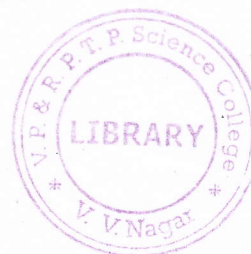
Q-3 Discuss Hydrogen bonds in detail.

(6)

OR

Q-3 Write a note on Carbocations.

(6)



Q-4 List and explain any two different methods used to express the composition of mixtures and solutions. (6)

OR

Q-4 An aqueous solution of K_2CO_3 is prepared by dissolving 43 kg of K_2CO_3 in 100 kg of water at 293 K (20 °C). Calculate normality, molarity and molality of the solution. Density of the solution is 1.3 kg/L (Atomic weight data: K-39, C-12, O-16, H-1) (6)

Q-5 What are indicators? Discuss mixed indicators with examples. (6)

OR

Q-5 Discuss Ostwald's theory of acid-base indicators. (6)