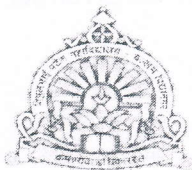


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A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
(AUTONOMOUS) (Grant-in-Aid)
Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester 1) External Examination November- 2024(NEP)

Subject code : US01IDCHE01

Subject name : Fundamentals of Chemistry-I

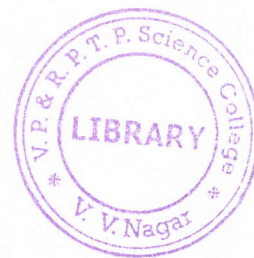
Date : 21-11-24, (Thursday)

Time : 11:00 A.M. to 12:30 P.M.

Total marks : 25

Q. 1 Write the most appropriate answer from the following multiple-choice question. [5]

- (1) When a common ion is added to a saturated solution of a sparingly soluble salt then solubility of the salt is :
(a) Decrease (b) Increase (c) Remain constant (d) Increase or decrease.
- (2) Which of the following is the conjugated base of NH_3 ?
(a) NH_4^+ (b) NH_2^- (c) NH_2^+ (d) NH_3^+ .
- (3) The solubility of $\text{Mn}_3(\text{PO}_4)_2$ (manganese phosphate) is S mole/lit. then its solubility product is :
(a) $108 S^5$ (b) $81 S^2$ (c) $81 S^5$ (d) $64 S^4$.
- (4) Number of significant figure for the data 52.00 is
(a) 7 (b) 6 (c) 8 (d) 4.
- (5) The precision of the result is also known as.....
(a) Accuracy (b) Error (c) Reproducibility of result (d) All of these.



Q. 2 ANSWER THE FOLLOWING

- (a) What is buffer solution ? Derive the equation for H_3O^+ ion concentration in a buffer solution. [5]
Using this equation explain that the pH of buffer solution remains constant even on dilution with water.
- (b) Define: Common ion effect. The solubility product of $\text{Al}(\text{OH})_3$ is 2.7×10^{-11} . Calculate its solubility and also find out the pH of this solution. ($K_w = 1 \times 10^{-14}$) [5]

OR

Q. 2 ANSWER THE FOLLOWING

- (a) State the conjugated bases of : (i) CH_3COOH (ii) NH_4^+ (iii) NH_3 (iv) H_2S (v) H_2PO_4^- [5]
- (b) Give brief account of (i) Selective precipitation (ii) Indicator. [5]

Q. 3 ANSWER THE FOLLOWING

- (a) What is chemical analysis? Write applications of chemical analysis in various fields. [5]

[P.T.O.]

- (b) Calculate mean, median, range, standard deviation and coefficient of variation for the given set of data : 56.12 , 56.45, 56.20, 57.60. [5]

OR

Q. 3 ANSWER THE FOLLOWING

- (a) What is error ? Enlist different methods for the minimization of systemic error and discuss any two in detail. [5]
- (b) Discuss advantages and limitations of chemical as well as instrument methods. [5]

THE END

