

Seat No. _____

No. of printed pages: 2

[9]
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SARDAR PATEL UNIVERSITY
B.Sc. (SEMESTER – V) EXAMINATION
Physical Chemistry (US05MICHE03)



Date: 08-10-2025, Wednesday

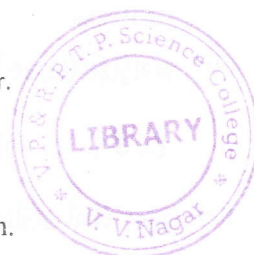
Time: 10:00 a.m. to 11:30 a.m.

Total Marks: 25

Q – 1: Choose the correct option from the following. [MCQ]

[5]

- (i) Mathematical form of absorbance is _____.
(a) $\log(I_t/I_o)$ (b) $\log(I_o/I_t)$ (c) $\ln(I_o/I_t)$ (d) $\ln(I_t/I_o)$
- (ii) Write the equation showing the relation between photon of light and its frequency.
(a) $E = h\nu$ (b) $E = N\nu$ (c) $E = h/\nu$ (d) $E = \nu/h$
- (iii) _____ the gold number of a hydrophilic colloid, the greater is its protective power.
(a) Higher (b) constant (c) Lower (d) none of these
- (iv) A sol is a colloidal system in which a _____ is dispersed in a _____ medium.
(a) Solid, liquid (b) liquid, solid (c) liquid, liquid (d) liquid, gas
- (v) Which of the following can act as protective colloid?
(a) gelatin (b) silica gel (c) oil in water emulsion (d) all of these



- Q-2(a) Derive the mathematical expression of Beer-Lambert's law and discuss in details. [05]
- (b) Explain the primary process and secondary process of photochemical reaction and give the reasons of high and low quantum yield. [05]

OR

- Q-2(a) Define fluorescence and phosphorescence. Draw energy level diagrams to explain these processes and discuss them briefly. [05]
- (b) State the law of photochemical equivalence and calculate the value of 1 Einstein for light having wave length 2000 Å. ($h = 6.625 \times 10^{-27}$ erg.sec., $c = 3 \times 10^{10}$ cm.sec⁻¹) [05]

- Q-3(a) Distinguish between Lyophilic Sols and Lyophobic Sols. [05]
- (b) Discuss the general properties of colloidal System. [05]

OR

- Q-3(a) Distinguish between a true solution and a colloidal solution. [05]
- (b) Discuss the methods of purification of colloidal solutions. [05]

(1)

[P.T.O.]