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SUBJECT CODE NO: -BNP-2682

FACULTY OF SCIENCE AND TECHNOLOGY

B.Sc. (NEP) (P-2024) S.Y Sem III

Examination November / December 2025

Chemistry (Physical Chemistry)



[Time: 1 Hours]

[Max. Marks:30]

N. B

Please check whether you have got the right question paper.

- 1) Question No.1 is multiple choice objective type and it is compulsory. It carries 10 marks
- 2) Attempt any four questions from Q.2 to Q.7. Each of these questions carries 5 marks
- 3) (iii) Figures to the right indicate full marks.

PART A

Q1 Attempt all questions

10

- 1) A mixture of two miscible liquids ethanol and water has the number of Phases...
(a) one (b) two (c) three (d) Zero
- 2) The equivalent conductivity at infinite dilution of an electrolyte is equal to the Sum of equivalent conductivities of its Constituent ions at infinite dilution is a statement of.....
(a) Arrhenius Law (b) Kohlrausch's law (c) Bohr's Law (d) Charle's law
- 3) When a beam of light of sufficiently high frequency is allowed to strike a metal Surface in vaccum -----are ejected from the metal surface.
(a) protons (b) neutrons. (c) electrons (d) atoms
- 4) A reaction which take place by absorption of the visible and UV light radiation is called a -----reaction.
(a) Electrochemical (b) Thermochemical
(c) Photochemical (d) Nanochemical
- (5) The emission of radiation from excited state (S_1) to ground state (S_0) is called
(a) photosensitization (b) chemiluminescence
(c) phosphorescence (d) fluorescence

PART-B

Attempt any four questions from Q.2 to Q.7

Q2 Discuss phenol-water system with phase diagram

5

Q3 Explain conductometric titration between strong acid and strong base.

5

Q4 State and explain Grothus-Draper law.

5

Q5 Calculate the energy associated with one photon of radiation of wavelength $2000 \text{ \AA}$
($h = 6.626 \times 10^{-27} \text{ erg.sec}$ $c = 3 \times 10^{10} \text{ cm/sec}$)

5

Q6 Explain Black body radiation.

5

Q7 Mass of electron is $9.10 \times 10^{-28} \text{ gm}$ and moves with a velocity $3.25 \times 10^8 \text{ cm/sec}$.
Calculate de-Broglie wavelength of an electron
($h = 6.626 \times 10^{-27} \text{ erg.sec}$)

5

