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SUBJECT CODE NO:- B-2014
FACULTY OF SCIENCE
B.Sc. S.Y (Sem-IV) Examination March/April 2018
Chemistry Paper-XI
Physical Chemistry-II

[Time: 1:30 Hours]

[Max. Marks: 50]

- N.B Please check whether you have got the right question paper.
- i) Attempt all questions.
ii) Figure to the right indicates the full marks.
iii) Use of non – programmable Calculator is allowed.
- Q.1 (a) Discuss phase – diagram of Lead – Silver system. 10
(b) State and explain Kohlrausch’s Law; Give its applications. 10
- OR
- (a) Define pH and pKa. Derive the Henderson – Hasselbalch equation. 10
(b) Discuss the determination of Transport number by moving boundary method. 10
The resistance of 0.02N salt solution is found to be 200 ohms when placed between two electrodes which 1.0 cm are apart having area of cross – section 1cm^2 . Calculate equivalent Conductance.
- Q.2 (a) What are Azeotropic mixtures? Discuss $\text{H}_2\text{O} - \text{HCl}$ and $\text{H}_2\text{O} - \text{C}_2\text{H}_5\text{OH}$ system. 10
(b) Derive Nernst’s equation for single electrode potential and Cell emf. 10
- OR
- Write short notes on:- (any four) 20
- (a) Triple point
(b) Water – phenol system.
(c) Effect of dilution on equivalent Conductance.
(d) Specific and equivalent conductance
(e) Calomel electrode
(f) Acidic butter and its mechanism.

Q.3 Choose and write the correct answer of the following.

10

- (1) The eutectic temperature of silver lead system is _____
 - (a) 303°C
 - (b) 304°C
 - (c) 305°C
 - (d) 306°C
- (2) The no. of phases present at triple point are _____
 - (a) Zero
 - (b) 1
 - (c) 2
 - (d) 3
- (3) The no. of phases in mixture of Sand and clay are _____
 - (a) Zero
 - (b) 1
 - (c) 2
 - (d) 3
- (4) The unit of Conductance is _____
 - (a) Joules
 - (b) Volt
 - (c) Mhos
 - (d) Ohms
- (5) The transport number of nitrate ion in silver – nitrate Solution is 0.6, the transport number of silver ion will be
 - (a) Zero
 - (b) 0.4
 - (c) 1
 - (d) 0.6
- (6) What is the effect of dilution on specific conductance?
 - (a) Increases
 - (b) Decreases
 - (c) Constant
 - (d) All of the above.
- (7) The aqueous solution of Sodium Chloride is _____
 - (a) Acidic
 - (b) Basic
 - (c) Neutral
 - (d) None

(8) Cell in which chemical energy is converted into electrical energy is _____

- (a) Electrolytic Cell
- (b) Electrochemical Cell
- (c) Both a and b
- (d) None of the above.

(9) Daniell Cell is an example of _____ Cell.

- (a) Reversible
- (b) Irreversible
- (c) Both a and b
- (d) None of the above

(10) Critical Solution temperature of Phenol – Water system is _____

- (a) 100°C
- (b) 66°C
- (c) 10°C
- (d) 75°C