પુ•ના International School
Shree Swaminarayan Gurukul, Zundal

Student Name					
Date	15/07/2020	Grade	XII SCIENCE	Roll no-	
Subject	Chemistry	Marks	50	Teacher's Sign	

PERIODIC ASSESSMENT – I [2020-21]

Section – A

(Each question in this section carry 1 marks) **[05]**

1. Define morality. How it is related with normality?
2. Express the relation between the conductivity and the molar conductivity of a solution.
3. Define the term 'order of reaction' for chemical reactions.
4. What causes Brownian movement in a colloidal solution?
5. What is the 'coagulation' process?

Section – B

(Each question in this section carry 2 marks) **[10]**

1. What is meant by coagulation of colloidal solution? Describe briefly and three methods by which coagulation of lyophobic sols can be carried out.
2. Which of the following pairs, will have greater conduction?
   (i) 0.1 Acetic acid solutions or IM acetic acid solution.
   (ii) 0.1 M NaCl Solution at 25^0C and 0.1 M NaCl solution at 50^oC
3. A reaction of second order with respect to a reactant. How will the rate of reaction be affected if the concentration of this reactant is:
   (i) Doubled, (ii) Reduced to half?
4. Write the dispersed phase and dispersion medium of the following colloidal system:
   (i) Smoke (ii) Milk
5. What type of cell is a lead storage battery? Write the anode and the cathode reactions and the overall cell reaction occurring in the use of a lead storage?

Section – B

(Each question in this section carry 3 marks) **[15]**

1. The electrical resistance of a column of 0.05 M, NaOH solution of diameter 1 cm and length 50cm is 5. 55x103ohm.Calculate its resistivity, conductivity and molar conductivity.
2. A first order reaction has a rate constant of 0. 0051 min−1. If we begin with 0.10 M concentration of the reactant, what concentration of reactant will remain in solution after 3 hours?
3. What is the difference between multimolecular and macromolecular colloids? Give one example of each type. How are associated colloids different from these two types of colloids?
4. A first order reaction takes 20 minutes for 25% decomposition. Calculate the time when 75% of the reaction will be completed. (Given: log 2 = 0.3010, log 3 = 0.4771, log 4 = 0.6021)
5. Depict the galvanic cell in which the

reaction $2Zn(s) + 2Ag +(aq) \rightarrow$
$Zn^{2+}(aq) + 2Ag(s)$ Take place. Further,
show.

(i) Which of the electrodes is negatively charged?

(ii) the carries of the current in the cell.

(iii) individual reaction at each electrode.

Section – D

(Each question in this section carry 4 marks) **[20]**

1. Conductivity of 0.00241 M acetic acid solution is 7. 896×10^{-5} S cm^{-1} Calculate its molar Conductivity in this solution. If ΛMo for acetic acid be 390. 5 S $cm^2 mol^{-1}$, what would be its dissociation constant?

2. (a) Explain the following terms:
   (i) Order of a reaction (ii) Molecularity of a reaction
   (b) The rate of a reaction increases four times when the temperature changes from 300 K to 320 K. Calculate the energy of activation of the reaction, assuming that it does not change with temperature.
   ($R = 8.314$ J K^{-1} mol^{-1})

3. (a) For a reaction $A + B \longrightarrow P$, the rate is given by Rate= $k[A][B]^2$
   (i) How is the rate of reaction affected if the concentration of B is doubled? (ii)What is the overall order of reaction if A is present in large excess?
   (b) A first order reaction takes 30 minutes for 50% completion. Calculate the time required for 90% completion of this reaction. ($\log 2 = 0.3010$)

4. (a) List the factors on which the rate of a chemical reaction depends.
   (b) The half-life for decay of radioactive C^{14} is 5730 years. An archaeological artefact containing wood has only 80% of the C^{14} activity as found in living trees. Calculate the age of the artefact.

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