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FIRST PERIODIC TEST-2019-20
SUBJECT-CHEMISTRY
CLASS-XII

TIME : 90 min   Max.Marks : 50

All questions are compulsory.

Q1.Choose the option which is correct :-   [1 x5]

(A).What will be the van't hoff factor for a solution of $K_4[FeCN_6]$ if its dissociation is 50% :-
(a) 5   (b)3   (c)   4   (d) none of the above

(B). Sea water can be converted into fresh water by :-
(a) Osmosis   (b) Sedimentation   (c) Diffusion   (d) Reverse Osmosis

(C). Which of the following catalyst is used in Haber's process –:
(a) Fe   (b) Na   (c) Mo   (d) K_2SO_4

(D). Graph of [R] vs time is a straight line . The order of the reaction is -:
(a) 3   (b) 2   (c) 0   (d) 1

(E). The quantity of charge required to obtain one mole of aluminium from Al_2O_3 is-:
(a) 1F   (b) 3F   (c) 6 F   (d) 2 F

Q 2 . Answer the following :-   [1 x5]

(A) Name two compounds used as adsorbent for controlling humidity.

(B) Mention one shape selective catalyst used to convert alcohol directly into gasoline.

(C) Name the battery which is generally used in inverters .

(D) Is it safe to stir 1M $AgNO_3$ solution with a copper spoon? Given E^0 Ag^+/Ag=0.80V .

(E) What are the electrolysis products of solution of dilute sulphuric acid using Pt electrodes?

Q 3. For a reaction , the energy of activation is zero. What is the value of rate constant at 300K,
if k = 1.6 x 10^6 s^{-1} at 280 K ? [R = 8.314 J K^{-1}]   [2]

Q 4.. What is pseudo first order reaction . Give example**.**   **[2]**

Q 5. Write any two differences between ideal & non-ideal solution   [2]

Q 6. Consider the reaction 2A + B _____> Products   [2]
When concentration of B alone was doubled, half life time does not change. When conc. of A
alone is doubled, the rate increases by two times. What is the order of the reaction?

Q 7. Explain promoter and poison with example .   [2]

Q 8. What is fuel cell, write reaction involved in H_2-O_2 fuel cell.   [3]

Q 9. State Henery's law and mention its two important applications.   [3]

Q 10. Write the difference between order and molecularity of reaction.   [3]

Q 11. Explain the following :-   [3]

(a) Aquatic species are more comfortable in cold waters than in warm waters.

(b) To avoid bends scuba divers use air diluted with helium.

(c) Cold drinks bottles are sealed under high pressure of CO2.

Q 12. Give reasons :- [3]

(i) Generally high temperature is favourable for chemisorption.

(ii)Physisorption decrease with increase of temperature .

(iii) A finely devided substance is more effective as an adsorbent .

Q 13.(a) Identify the reaction order from each of following units of rate constants. [5]

(i) $L\ mol^{-1}sec^{-1}$ **(ii)** $mol\ L^{-1}sec^{-1}$

(b) The following data were obtained during the first order thermal decomposition of SO_2Cl_2 at

a constant volume :- $SO_2\ Cl_2 \longrightarrow SO_2\ +\ Cl_2$

Experiment	Time (second)	Total pressure (atm)
1.	0	0.4
2.	100	0.7

Calculate the rate constant.   (Given: log 4=0.6021, log 2= 0.3010)

Q14(a).Calculate e.m.f of the cell at 298K :- $Cr\ /Cr3+\ (0.1M)$ II $Fe2+\ (0.01M)\ /\ Fe$ [5]

[Given: $E^0\ Cr3+/Cr$ = -0.75V, : $E^0\ Fe2+\ /\ Fe$ = -0.45V]

(b) A current of 0.5 ampere is flowing through a wire for 2 hours .Then how many electrons would flow through the wire .

Q 15.a) Define the following terms [5]

i) Mole fraction

ii) Molal depression constant (Kf)

b) 15 g of an unknown molecular material is dissolved in 450 g of water. The resulting solution freezes at -0.34∘C. What is the molar mass of the material. (Kf for water = 1.86 K kg mol-1)

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