Blank Quiz

Total points 34/50

The respondent's email (**20z209@psgtech.ac.in**) was recorded on submission of this form.

Write your Name and Roll No *

TG Ashwin Kumar 20z209

✓ 1. If the conductance of an electrolyte is C Siemens when measured using a conductivity cell with Pt electrodes having an area of cross section L2 cm2 and separated by a distance of L cm, the specific conductance of the electrolyte is----------. * 1/1

- ○ CL S cm-1
- ○ CL2 S cm-1
- ○ CL3 S cm-1
- ◉ C/L S cm-1 ✓

✓ 2. An increase in equivalent conductance of a strong electrolyte with a dilution is mainly due to * 1/1

- ○ increase in number of ions
- ◉ increase in ionic mobility of ions ✓
- ○ increase in both, i.e., number of ions and ionic mobility of ions
- ○ complete ionization of electrolyte at normal dilution

✗ 3. A) The equivalent conductance of an electrolyte decreases on dilution B) In case of weak electrolyte on dilution, specific conductance decreases but its equivalent conductance increases * 0/1

- ○ Both are correct
- ○ A is correct Bis not correct
- ○ Both are not correct
- ◉ A is not correct B is correct ✗

Correct answer

- ◉ Both are correct

✓ 4. Assertion (A): A solution of 0.1 M KCl in ammonia shows lower conductance than 0.1 M KCl in water .Reason (R): Water has a high dielectric constant. * 1/1

- ○ A is wrong and R is correct.
- ○ A is correct and R is wrong.
- ◉ A and R are correct and R is the correct explanation for A. ✓
- ○ A and R are correct but R is not the correct explanation for A.

✓ 5. Assertion(A): Equivalent conductance of HCOOH solution decreases on dilution. Reason (R) : HCOOH is weakly ionised in water. * 1/1

- ○ A is correct and R is wrong
- ○ A and R are correct but R is not the correct explanation for A
- ◉ A is wrong and R is correct. ✓
- ○ A and R are correct and R is the correct explanation for A

✗ 6. Statement I: An electrochemical cell can be set up only if the redox reaction is spontaneous. Statement II: A reaction is spontaneous if E°cell value is negative. * 0/2

- ○ I is true and II is false
- ◉ I and II are false ✗
- ○ I is false and II is true
- ○ I and II are true

Correct answer

- ◉ I is true and II is false

✓ 7. Which one of the following metals, cannot displace Hydrogen from HCl solution? * 1/1

- (●) Ag ✓
- ( ) Fe
- ( ) Li
- ( ) Al

✓ 8. A solution containing Pd2+ reacts with Ga but not with Pt. The metals, in order of increasing strength as reducing agents, are ---------- * 2/2

- (●) Ga < Pd < Pt ✓
- ( ) Ga < Pt < Pd
- ( ) Pt < Pd < Ga
- ( ) Pt < Ga < Pd

✗ 9. Select the electrode combination which is used in the potentiometric titration of Fe2+ ion against potassium dichromate. * 0/1

- ○ Glass- Ag/AgCl/Cl-
- ○ Pt- SCE
- ◉ Glass-SCE ✗
- ○ Fe – Ag/AgCl/Cl-

Correct answer

- ◉ Pt- SCE

✓ 10. Which of the following processes involve non-spontaneous redox reactions (i) electrolysis of water (ii) electroplating of copper (iii) rusting of iron. * 1/1

- ○ i and iii only
- ○ i, ii and iii
- ○ ii and iii only
- ◉ i and ii only ✓

✓ 11. In general, the presence of an oxide film on the surface of a metal will _____. * 1/1

- increases the rate of corrosion.
- increases its potential to act as an anode.
- increases its conductivity.
- reduces its reactivity. ✓

✓ 12. Which reaction occurs at cathodic regions of rusting iron in non-acidic conditions? * 1/1

- 4OH−(aq) ---> O2(g) + 2H2O(l) + 4e−
- 2H+(aq) + 2e− ---> H2(g)
- Fe(s) ---> Fe2+(aq) + 2e−
- O2(g) + 2H2O(l) + 4e− ---> 4OH−(aq) ✓

✓ 13. Rate of corrosion of a metal is enhanced (I) In the presence of moisture (II) In acidic media than in alkaline media * 1/1

- I is true and II is false
- I and II are false
- I is false and II is true
- I and II are true ✓

✓ 14. Rate of corrosion at a bimetallic junction is lower when (I) the difference in potential between the two metals is high (II) the metal having a greater oxidation potential has a larger area in the bimetallic structure. * 2/2

- ○ I and II are true
- ○ I is true and II is false
- ◉ I is false and II is true ✓
- ○ I and II are false

✗ 15. Statement I: Corrosion tendencies of metals and alloys can be predicted using EMF series. Statement II: Position of metal is not the same in all galvanic series. * 0/2

- ◉ I and II are true ✗
- ○ I is true and II is false
- ○ I is false and II is true
- ○ I and II are false

Correct answer

- ◉ I is false and II is true

✗ 16. Assertion (A): Alloying steel with chromium improves its corrosion resistance.Reason (R): Chromium has higher oxidation potential compared to Fe * 0/2

- ○ A is correct and R is wrong
- ○ A and R are correct but R is not the correct explanation for A.
- ○ A is wrong and R is correct.
- ◉ A and R are correct and R is the correct explanation for A. ✗

Correct answer

- ◉ A and R are correct but R is not the correct explanation for A.

✓ 17. Assertion (A): Aluminium shows poor corrosion resistance in sea water.Reason (R): Chloride ion in sea water is a good depassivating agent. * 2/2

- ○ A and R are correct but R is not the correct explanation for A
- ○ A is wrong and R is correct.
- ◉ A and R are correct and R is the correct explanation for A ✓
- ○ A is correct and R is wrong

✓ 18. The cathodic inhibitors among the following are (i) N_2H_4 (ii) Na_2SO_4 (iii) Na_2SO_3 (iv) Na_2CO_3 * 2/2

- ii, iii and iv only
- i and iii only ✓
- i and ii only
- i, ii and iii only

✓ 19. Statement I : Vapour phase inhibitors should have very high vapour pressures to provide effective corrosion protection for long duration. Statement II: Among amines used as cathodic inhibitors in acid media, tertiary amines are more efficient. * 2/2

- I is true and II is false
- I and II are true
- I and II are false.
- I is false and II is true ✓

✓ 20. Which of the following metals can be used to provide cathodic protection to a ship hull? * 1/1

- Cu
- Fe
- Mg ✓
- Sn

✗ 21. What is the molar conductance of an aqueous solution containing 1 equivalent of an electrolyte dissolved in 2L, if its specific conductance is 0.01 S cm-1 * 0/2

- (●) 0.02 cm2/equiv ✗
- ( ) 10 S cm2/equiv
- ( ) 20 S cm2/equiv
- ( ) 100 S cm2/equiv

Correct answer

- (●) 20 S cm2/equiv

✓ 22. What is the reduction potential of the half cell consisting of Zn electrode in 0.01 M ZnSO4 solution at 25℃. (Given that EoZn / Zn 2+ = -0.76 V) * 2/2

- (●) -0.82 ✓
- ( ) -0.78
- ( ) -8.22
- ( ) -0.082

✓ 23. The standard EMF of a cell involving flow of 2F coulombs of charge is found to be 0.591 V at 25℃. The equilibrium constant of the cell reaction will be.... (Given that F=96500 C mol-1, R= 8.314 JK-1mol-1) * 2/2

- ○ 1 x 10 to the power of 1
- ○ 1 x 10 to the power of 30
- ○ 1 x 10 to the power of 5
- ◉ 1 x 10 to the power of 20 ✓

✓ 24. In an electrolyte concentration cell consisting of Zn rods immersed in $ZnSO_4$ solutions of two different concentrations, what will be the concentration of $ZnSO_4$ in the cathode compartment if the concentration of $ZnSO_4$ in the anode compartment is 0.01 M and the emf generated in the cell is 0.0591 V at 25℃? * 1/1

- ◉ 1 M ✓
- ○ 0.0001 M
- ○ 0.1 M
- ○ 0.01M

✓ 25. Assertion (A): Underground pipelines corrode faster in clayey soils than in sandy soils. Reason (R) : Clayey soils have higher conductivities. * 1/1

- ○ A and R are correct but R is not the correct explanation for A.
- ○ A is correct and R is wrong.
- ◉ A and R are correct and R is the correct explanation for A ✓
- ○ A is wrong and R is correct.

✓ 26. Hexamethylene diamine (a hetrocyclic amine) inhibits corrosion in an acidic corroding medium by---------- * 1/1

- ○ removing O2
- ◉ slowing down diffusion of H+ ions to the cathodic regions. ✓
- ○ combining with OH – ions

✓ 27. Answer the following questions with respect to conductometric titration of a mixture of two electrolytes H2SO4 and HCOOH against NaOH. (a) Initial conductance of the solution is * 1/1

1. High ✓
2. Low

✓ 27 (b) On addition of NaOH to the solution * 2/2

- ( ) (ii) Decreases the conductance due to suppression of ionisation of the electrolyte in the solution.
- ( ) (i) Increases the conductance due to increase in the number of ions in the solution.
- ( ) (iii) Increases the conductance due to introduction of ions with high ionic mobility from the titrant.
- (•) (iv) Decreases the conductance due to introduction of ions with lower mobility in the place of ions already present in the electrolyte in the solution. ✓

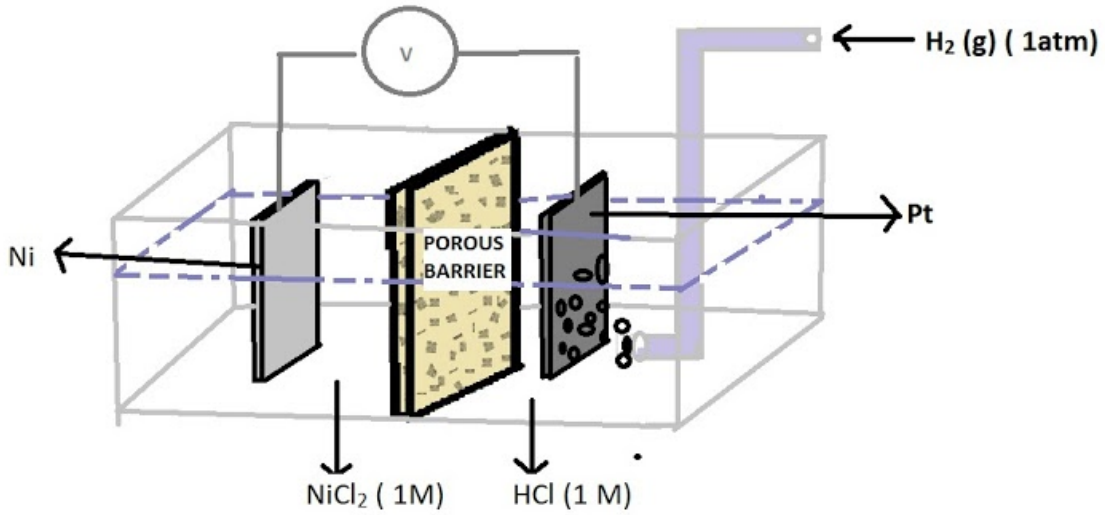
✓ 27 (c) The electrolyte that gets neutralised first in the titration is--------- 1/1

1. (i) H2SO4 ✓
2. (ii) HCOOH

✓ 27(d) When the titration is continued after the neutralisation of the first electrolyte, the conductance of the solution ---------- till the neutralisation of the second electrolyte and then---------- with further addition of the titrant. * 2/2

- ( ) Increases sharply and remains constant
- ( ) Decreases sharply and remains constant
- ( ) Increases gradually and remains constant.
- (•) Increases gradually and increases sharply ✓

28. Select the correct descriptions given about the following electrochemical cell in operation. When the cell operates: *



	Left to right compartment	Right to Left compartment	Positive electrode	Negative electrode	increases	decreases
Current flows from----------.	☐	☑	☐	☐	☐	☐
Chloride ions migrate from----------.	☑	☐	☐	☐	☐	☐
Nickel electrode behaves as the ----------.	☐	☐	☑	☐	☐	☐
pH in the right compartment of the cell----------.	☐	☐	☐	☐	☐	☑
If the concentration of HCl solution is decreased, the emf of the cell	☐	☐	☐	☐	☑	☐

When an opposing emf greater than emf of the cell is applied mass of Ni electrode	☐	☐	☐	☐	☑	☐	
If the pressure of H2 gas is increased the oxidation potential of the hydrogen electrode	☐	☐	☐	☐	☐	☑	

Correct answers

	Left to right compartment	Right to Left compartment	Positive electrode	Negative electrode	increases	decreases	rer t sa
Current flows from----------.	☑	☐	☐	☐	☐	☐	
Chloride ions migrate from----------.	☐	☑	☐	☐	☐	☐	
Nickel electrode behaves as the ----------.	☐	☐	☐	☑	☐	☐	
pH in the right compartment of the cell----------.	☐	☐	☐	☐	☑	☐	
If the concentration of HCl solution is decreased,	☐	☐	☐	☐	☐	☑	

the emf of the cell							
If the pressure of H2 gas is increased the oxidation potential of the hydrogen electrode	☐	☐	☐	☐	☑	☐	

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