



قائمة الاسئلة

كيمياء هندسية- كلية الهندسة - قسم الميكاترونكس - المستوى الاول- 3 ساعات - درجة هذا الاختبار (60)

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- 1) The temperature one of affecting factors electrolytic conductance so, if the temperature of electrolytic solution is,the conductance increases.
 - 1) + Increased
 - 2) - decreased
 - 3) - will be higher
 - 4) - will change
- 2) The first type of doping an organic materials involves reduction in,
 - 1) - Molecular charge donors
 - 2) - p-type doping
 - 3) + n- type doping
 - 4) - Atomic charge an acceptors
- 3) Galvanic cells which generates electricity as a result of a,
 - 1) - Non-spontaneous cell reaction
 - 2) + spontaneous cell reaction
 - 3) - cathode and anodic reactions
 - 4) - potential differences
- 4) Reduction potential , when electrode isin solution and it acts as cathode
 - 1) + Positively charged
 - 2) - Negatively charged
 - 3) - Oxidation reaction
 - 4) - An electrolyte
- 5) The core an optical fiber is made of,
 - 1) + Silica or doped silica
 - 2) - Silica or doped of materials
 - 3) - Silicon
 - 4) - Silicon and polymer
- 6) Physical changes are changes in matter that composition of a substance.
 - 1) - Change
 - 2) + Do not change
 - 3) - Needed to measure
 - 4) - Dependent upon
- 7) The mass number of an element is given by the,
 - 1) + Total number of protons and neutrons
 - 2) - Total number of electron and neutrons
 - 3) - Total number of protons and electrons
 - 4) - Total number of three particles
- 8) When an atom gains an electron, it becomes,
 - 1) + Anion
 - 2) - Cation
 - 3) - Electron
 - 4) - Neutral
- 9) Isotopes are the atoms of the same elements having the,
 - 1) - Same mass number but different elements
 - 2) - Same mass atomic number but different mass number
 - 3) - Same mass number but different atomic number





- 4) Same atomic number but different mass number
- 10) Carbon dioxide is converted to the liquid state at pressure of
- 1) - 200 atm
 - 2) - 31 atm
 - 3) 73 atm
 - 4) - 174 atm
- 11) Sunlight is converted to In green plants
- 1) - Electrolyte energy
 - 2) Chemical energy
 - 3) - Heat energy
 - 4) - Weak electricity
- 12) Electroless copper and nickel coated plastic cabinets are used in
- 1) - The manufacture of double sided
 - 2) - The electrons transfer
 - 3) - The electrochemical cells cathode
 - 4) Digital as well as electronic instruments
- 13) Standard electrode potential of any cell that
- 1) - Can be calculated relative ease of oxidation and reduction
 - 2) Can be calculated using EMF of a cell
 - 3) - Can be electrons flow from the anode to cathode producing current
 - 4) - Can be predicted the electrolytic concentration cell
- 14) n- type and p- type semiconductors an overall electrical charge
- 1) do not have
 - 2) - do have
 - 3) - the impurity atoms
 - 4) - have been discovered
- 15) In the doped semiconductor the in the impurity atoms balance any increase or decrease in the number of electrons
- 1) - electrons
 - 2) - neutrons
 - 3) protons
 - 4) - electrons, protons, neutrons
- 16) Superconductor is an element or metallic alloy which when cooled below a certain threshold temperature the
- 1) - Element dramatically loses electrical charge
 - 2) Material dramatically loses electrical resistance
 - 3) - Material and element are destroyed
 - 4) - Superconductors vary from material to material
- 17) The first type of doping an organic material involves oxidation in
- 1) - Molecular charge donors
 - 2) p-type doping
 - 3) - n- type doping
 - 4) - Atomic charge acceptors
- 18) Fiber optical cables are easier to install, require less duct space, weigh Than copper
- 1) 10 to 15 times less and cost
 - 2) - 10 to 15 microns less and cost
 - 3) - 5 to 10 times more and cost
 - 4) - As well as
- 19) Joule Thomson effect in an ideal gas, when a highly compressed gas is allowed to expand through a porous





- plug, so
- 1) - That the temperature of gas increase
 - 2) - The gas gets mechanical work of expansion
 - 3) - The method used to reach the very low temperature
 - 4) + That no work is done against the external pressure
- 20) Acid rain pollution results from the pH value its number is.....
- 1) - 5.6
 - 2) - 8
 - 3) - 7
 - 4) + 2.5
- 21) The rate of ignition of petrol producing an explosive sound known as
- 1) - Low octane number
 - 2) + Knocking
 - 3) - Antiknock fuel
 - 4) - Heavy oil
- 22) An increase in the level of SO_x in the atmosphere leads to:
- 1) - due to industrialization and automobile pollution
 - 2) - Increase the proportion of non-reflected heat rays from the earth to the atmosphere
 - 3) - Clothes, leather, and paper are also affected
 - 4) + Damage to agriculture
- 23) The influence of the entropy effect on ΔG, when increase temperature
- 1) + Increase
 - 2) - decrease
 - 3) - equals zero,
 - 4) - constant
- 24) How does a closed system differ from an open system?
- 1) - A closed system does not do any work on the surrounding
 - 2) - A closed system cannot exchange heat with the surrounding
 - 3) - Energy is conserved in a closed system, but not in an open system
 - 4) + A closed system cannot exchange matter with the surroundings
- 25) Which is true if $\Delta H = -95 \text{ J}$?
- 1) - Both the system and the surroundings are losing 95 J
 - 2) - The system is gaining 95 J , while the surroundings are losing 95 J
 - 3) + The system is gaining 95 J , while the surroundings are gaining 95 J
 - 4) - The system is gaining - 95 J , while the surroundings are losing 95 J
- 26) The effect of intermolecular attraction is the effective pressure on the gas above the value indicated as the measured external pressure.
- 1) - discharge
 - 2) - to decrease
 - 3) + to increase
 - 4) - to low
- 27) A super conductor is an element or metallic alloy which when cooled below a certain threshold temperature the material dramaticallyelectrical resistance.
- 1) - increase all
 - 2) - exit all
 - 3) + loses all
 - 4) - security
- 28) Attractive conductors properties of organic electronic materials include their electrical conductivity that can be varied by





- 1) - strong ionic bonds
 - 2) - metallic atoms
 - 3) the concentrations of dopants
 - 4) - carbon atoms
- 29) The charge of proton is equal
- 1) 1.6×10^{-19} coulomb
 - 2) - 1.6×10^{-31} kg
 - 3) - 1.6×10^{-24} gm
 - 4) - 1.6×10^{-31} coulomb
- 30) Harmful effects of nitrogen oxides (NO_x) are.....
- 1) - Clothes, leather, and paper are also affected
 - 2) - NO reduces oxygen-carrying forming carboxy hemoglobin (COHb)
 - 3) - NO is moderately toxic in the air
 - 4) Acid rain damages material (metals and stone)
- 31) With decreasing temperature for the system the value of TΔS.....
- 1) - increase
 - 2) - constant
 - 3) decrease
 - 4) - equal zero,
- 32) Concentration cells , in which the EMF is due to
- 1) - doped by transference
 - 2) - electron transfer to electrode ,
 - 3) - a chemical reaction occurring within the cell
 - 4) transfer of material from one electrode to the other
- 33) An optical fiber is a very thin strand ofthat is used to carry voice and telecommunications.
- 1) - metal and plastic
 - 2) - glasses
 - 3) - copper and glass
 - 4) plastic and glass
- 34) On optical fiber materials are
- 1) - lighter more flexible and more expensive than inorganic conductors,
 - 2) - less flexible lighter emitting diodes (OLED) and less silicon ,
 - 3) more flexible lighter and less expensive than silicon ,
 - 4) - new applications include smart windows and decreased electrical isolations
- 35) Neutron is present of an atom.
- 1) Inside the nucleus
 - 2) - Outside the nucleus
 - 3) - In all
 - 4) - In neutral
- 36) Isobars are the atoms of different elements having the
- 1) - Same mass number but different elements
 - 2) - Same mass atomic number but different mass number
 - 3) Same mass number but different atomic number
 - 4) - Same the atomic and mass number
- 37) The pH of human blood isand if not , it causes coagulation of blood.
- 1) - 8 and 9
 - 2) - 6 to 7
 - 3) 7.2
 - 4) - 8.2





- 38) The crude oil is treated with copper oxide to remove
- 1) - Carbon impurities
 - 2) - Nitrogen
 - 3) Sulfur impurities
 - 4) - Basic impurities
- 39) The crude oil is then heated to
- 1) About 400 c
 - 2) - About 300 c
 - 3) - About 150 to 350 c
 - 4) - 350 c and 200 atm
- 40) The decomposition of bigger hydrocarbon molecules into simpler, low boiling hydrocarbons of lower molecular is called
- 1) Cracking
 - 2) - Knocking
 - 3) - Distillation
 - 4) - Fractional distillation

41) Ca=40, Al=27, 207 =Pb, Fe=56, Si=28, Ar= 40, Cl=35, He=2, S=32, H=1 الأوزان الذرية لبعض العناصر:
Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14

Calculate the number of kj of heat necessary to raise the temperature of 110 gm of Fe from 55°C to 105 °C (molar heat capacity of Fe is 37 Jmol⁻¹.K)

- 1) - q=1506,7 J
 - 2) - q=4066,67J
 - 3) - q=106,7 kJ
 - 4) q=3634,1J
- 42) Ca=40, Al=27, 207 =Pb, Fe=56, Si=28, Ar= 40, Cl=35, He=2, S=32, H=1 الأوزان الذرية لبعض العناصر:
Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14

Calculate the maximum work that can be obtained from the cell :
at 25 °C, for the cell reaction: Zn / Zn²⁺ (1 M) // Ag⁺ (1 M)/Ag.
Given E^o_{Zn²⁺/Zn} = - 0,76 V ; E^o_{Ag⁺/Ag} = + 0,80 V

- 1) - 1,56 V
 - 2) - 611.81 KJ
 - 3) 301.08 KJ
 - 4) - 705.801 KJ
- 43) Ca=40, Al=27, 207 =Pb, Fe=56, Si=28, Ar= 40, Cl=35, He=2, S=32, H=1 الأوزان الذرية لبعض العناصر:
Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14

An ideal gas has a molar mass of 135 g and a density of 1.2 kg m⁻³ at 80 c . What is its pressure at that temperature?

- 1) - 6.78*10⁴ Pa
 - 2) 26043.55 Pa
 - 3) - 8.79 kPa
 - 4) - 36.04 kpa
- 44) Ca=40, Al=27, 207 =Pb, Fe=56, Si=28, Ar= 40, Cl=35, He=2, S=32, H=1 الأوزان الذرية لبعض العناصر:
Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14

A sample containing 0.35 mol of argon (Ar) gas at a temperature of 13 °C and a pressure of 568 mmHg is heated to 56 °C and a pressure of 89.7 cmHg . Calculate the change in volume that occurs. (Ar= 40)

- 1) - V= 12 L
- 2) - V= - 6 L





- 3) + V = - 3L
4) - V = 3 L

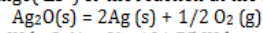
45) الأوزان الذرية لبعض العناصر: H=1, S=32, He=2, Cl=35, Ar=40, Si=28, Fe=56, Pb=207, Al=27, Ca=40, Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14.

What's the potential of a half-cell consisting of zinc electrode in 0.01M ZnSO₄ solution at 25 °C. E° = 0.763 V.

- 1) - 0.7391 V
2) - 1.4485 V
3) - -0.7833 V
4) + 0.8222 V

46) الأوزان الذرية لبعض العناصر: H=1, S=32, He=2, Cl=35, Ar=40, Si=28, Fe=56, Pb=207, Al=27, Ca=40, Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14.

Calculate the standard entropy change (ΔS°) of the reaction at the STP:



S°(Ag)=42.67 JK⁻¹, S°(O₂)=205.01 JK⁻¹, S°(Ag₂O)= 121.75 JK⁻¹

- a) 24.27 JK⁻¹ mole⁻¹
b) -62.81 JK⁻¹ mole⁻¹
c) 66.09 JK⁻¹ mole⁻¹
d) 3802.32 JK⁻¹ mole⁻¹

- 1) - a
2) - b
3) + c
4) - d

47) الأوزان الذرية لبعض العناصر: H=1, S=32, He=2, Cl=35, Ar=40, Si=28, Fe=56, Pb=207, Al=27, Ca=40, Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14.

For the reaction 2A(g)+B(g) = 2D(g), ΔU₀=-10,5 kj and ΔS=-44,1Jk⁻¹, Calculate ΔG for reaction, and predict whether the reaction may occur spontaneously at 298 K

- 1) - -16.08 KJ
2) - -16 KJ
3) + +0,16 KJ
4) - -21 KJ

48) الأوزان الذرية لبعض العناصر: H=1, S=32, He=2, Cl=35, Ar=40, Si=28, Fe=56, Pb=207, Al=27, Ca=40, Ag=47, Zn=65, Mg=24, Ni=59, Na=23, C=12, O=16, N=14.

A 200. g of a solid is allowed to melt in 400. g of water. The water temperature decreases from 85.1°C to 30.0°C. What is the heat of fusion for the solid in J/g?

- 1) - 115 J/g
2) - -115 J/g
3) + 460 J/g
4) - -460 J/g

