



# **CHEMISTRY**

## **BOOKS - EVERGREEN CHEMISTRY (ENGLISH)**

### **SAMPLE PAPER 2020**

**Section I 40 Marks Attempt All Questions From  
This Section**

1. Identify: The element which has the highest ionization potential.

A. Hydrogen

B. Caesium

C. Radon

D. Helium

**Answer:**



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2. Choose the correct answer from the options given below :

The inert electrode used in the electrolysis of acidified water, is; nickel, Platinum, Copper, Silver

A. Nickel

B. Platinum

C. Copper

D. Silver

**Answer:**





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3. Choose the correct answer from the options given below :

A compound with low boiling point, is :

- A. Sodium chloride
- B. Calcium chloride
- C. Potassium chloride
- D. Carbon tetrachloride

**Answer:**



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4. Choose the correct answer from the options given below :

The acid which can produce carbon from cane sugar, is :

- A. Concentrated Hydrochloric acid
- B. Concentrated Nitric acid
- C. Concentrated Sulphuric acid
- D. Concentrated Acetic acid

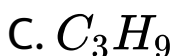
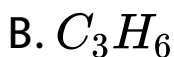
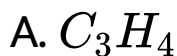
**Answer:**



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5. Choose the correct answer from the options given below :

The organic compound having a triple carbon carbon covalent bond, is :



D.  $C_4H_{10}$

**Answer:**



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6. State one relevant observation for the reaction

Action of concentrated nitric acid on copper.



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7. State one relevant observation for the reaction

Addition of excess ammonium hydroxide into copper sulphate solution.



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8. State one relevant observation for the reaction

A piece of sodium metal is put into ethanol at room temperature.







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**9.** State one relevant observation for the reaction

Zinc carbonate is heated strongly.



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**10.** State one relevant observation for the reaction

Sulphide ore is added to a tank containing oil

and water, and then stirred or agitated with air.



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**11.** Write a balanced chemical equation for the reaction

Reaction of carbon powder and concentrated nitric acid.



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**12.** Give the chemical equations for the following:

Reaction of ammonia with excess of chlorine.



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**13.** Write a balanced chemical equation for the reaction

Reaction of lead nitrate solution with ammonium hydroxide.



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**14.** Write a balanced chemical equation for the reaction

Producing ethane from bromo ethane using Zn/ Cu couple in alcohol



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**15.** Write the equation for the combustion of ethane



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**16.** Draw the structural formula for

2, 2 dimethyl pentane



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**17.** Draw the structural formula for

Methanol



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**18.** Draw the structural formula for

Iso propane



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**19.** Write the IUPAC name for the compound :

Acetaldehyde



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**20.** Write the IUPAC name for the compound :

Acetylene



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**21.** A graphite anode is preferred to other inert electrodes during electrolysis of fused lead bromide.



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**22.** State one relevant reason for

Soda lime is preferred to sodium hydroxide in the laboratory preparation of methane.



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**23.** State one relevant reason for

Hydrated copper sulphate crystal turn white on heating



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24. Concentrated nitric acid appears yellow when it is left standing in a glass bottle.

Explain ?



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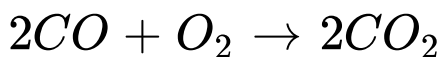
25. When the stopper of a bottle full of hydrogen chloride gas is opened there are fumes in air? Explain why?



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**26.** Calculate :

(i) The amount of each reactant required to produce 750 ml of carbon dioxide, when two volumes of carbon monoxide combine with one volume of oxygen to produce two volumes of carbon dioxide :



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**27.** Calculate :

The volume occupied by 80 g of ammonia at

STP.



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**28.** Calculate :

Calculate the number of molecules in 4.4 gm of  $CO_2$ . [Atomic mass of C = 12, O = 16]



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**29.** State the Avogadro law of ideal gas



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**30.** What is the term defined below?

A bond formed by a shared pair of electrons each bonding atom contributing one electron to the pair.



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**31.** Give one word or a phrase for the statement

Electrode used as cathode in electrorefining of impure copper.



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**32.** Give one word or a phrase for the statement

The substance prepared by adding other metals to a base metal in appropriate proportions to obtain certain desirable properties.



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**33.** The tendency of an atom to attract electrons to itself when combined in a compound..... .



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**34.** Give one word or a phrase for the statement

The reaction in which carboxylic acid reacts with alcohol in the presence of conc.  $H_2SO_4$  to form a substance having a fruity smell.



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**35.** Fill in the blanks from the choices given in brackets:

The polar covalent compound in gaseous state that does not conduct electricity is .....  
(carbon tetra chloride, ammonia, methane)



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**36.** Fill in the blanks from the choices given in brackets:

A salt prepared by displacement reaction with copper is ..... (ferrous chloride, silver chloride)



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**37.** Fill in the blanks from the choices given in brackets:



The number of moles in 11 gm of nitrogen gas is (0.39, 0.49, 0.29) [atomic mass of N = 14]



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**38.** Fill in the blanks from the choices given in brackets:

An alkali which completely dissociates into ions is ..... (ammonium hydroxide, calcium hydroxide, lithium hydroxide)



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**39.** Fill in the blanks from the choices given in brackets:

An alloy used to make statues is .....  
(bronze, brass, fuse metal)



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**Section II 40 Marks Attempt Any Four Questions  
From This Section**

**1.** The following table represent the elements and the atomic number:

With reference to this, answer the following using only the alphabets given in the table.

<i>Element</i>	<i>Atomic number</i>
<i>P</i>	13
<i>Q</i>	7
<i>R</i>	10

Which element combines with hydrogen to form a basic gas ?



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2. The following table represent the elements and the atomic number:

With reference to this, answer the following

using only the alphabets given in the table.

<i>Element</i>	<i>Atomic number</i>
<i>P</i>	13
<i>Q</i>	7
<i>R</i>	10

Which element has an electron affinity zero ?



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3. The following table represent the elements and the atomic number:

With reference to this, answer the following using only the alphabets given in the table.

<i>Element</i>	<i>Atomic number</i>
P	13
Q	7
R	10

Name the element, which forms an ionic compound with chlorine.



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4. Draw the electron dot diagram for the compounds given below. Represent the electrons by (.) and (x) in the diagram : [Atomic No. Ca = 20, O = 8, Cl = 17, H = 1]

Calcium oxide

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5. Draw the electron dot diagram for the compounds given below. Represent the electrons by (.) and (x) in the diagram : [Atomic No. Ca = 20, O = 8, Cl = 17, H = 1]

Chlorine molecule

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6. Draw the electron dot diagram for the compounds given below. Represent the electrons by (.) and (x) in the diagram : [Atomic No. Ca = 20, O = 8, Cl = 17, H = 1]

Water molecule



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7. Choose the correct word which refers to the process of electrolysis from A to E, to match the description (i) to (iv):

A: Oxidation B: Cathode C : Anode D: An  
electrolyte E: Reduction

Conducts electricity in aqueous or in molten  
state.



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**8.** Choose the correct word which refers to the  
process of electrolysis from A to E, to match  
the description (i) to (iv):

A: Oxidation B: Cathode C : Anode D: An



electrolyte E: Reduction

Loss of electron takes place at anode.



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9. Choose the correct word which refers to the process of electrolysis from A to E, to match the description (i) to (iv):

A: Oxidation B: Cathode C : Anode D: An electrolyte E: Reduction

A reducing electrode



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**10.** Choose the correct word which refers to the process of electrolysis from A to E, to match the description (i) to (iv):

A: Oxidation B: Cathode C : Anode D: An electrolyte E: Reduction

Electrode connected to the positive end or terminal or the battery.



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11. Write chemical reactions taking place in the extraction of Aluminium from Bauxite ore .



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12. Complete the by selecting the correct option from the choices given :

pH of acetic acid is greater than dilute sulphuric acid. So acetic acid contains ..... concentration of  $H^+$  ions. (greater, same, low)





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**13.** Complete the statements given below using the correct word /s

The indicator which does not change colour on passage of hydrogen chloride gas is \_\_\_\_\_ [moist blue litmus/phenolphthalein / methyl orange]



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**14.** Select the correct word or formula from the same give in bracket :

The acid which is not an oxidising agent [Conc  $HNO_3$  / Conc  $HCl$  / Conc.  $H_2SO_4$ ]



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**15.** Match the gases given in column I to the identification of the gases mentioned in

column II :

<i>Column I</i>	<i>Column II</i>
(i) Hydrogen sulphide	A. Turns acidified potassium dichromate solution green.
(ii) Nitric oxide	B. Turns lime water milky.
(iii) Carbon dioxide	C. Turns reddish brown when it reacts with oxygen.
(iv) Sulphur dioxide	D. Turns moist lead acetate paper silvery black.



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16. Differentiate between the pairs based on the information given in the brackets :

Conductor and electrolyte (conducting particles)



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**17.** Differentiate between the pairs based on the information given in the brackets :

Cations and anions (formation from an atom)



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**18.** Differentiate between the pairs based on the information given in the brackets :

Acid and Alkali (formation of type of ions)



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**19.** Draw the structures of isomers of pentane.



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20. Hydrogen chloride gas is prepared in the laboratory using concentrated sulphuric acid and sodium chloride. Answer the question that follow based on this reaction :

Give the balanced chemical equation for the reaction with suitable conditions(s) if any.



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21. Hydrogen chloride gas is prepared in the laboratory using concentrated sulphuric acid

and sodium chloride. Answer the question that follow based on this reaction :

Why is concentrated sulphuric acid used instead of concentrated nitric acid ?



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**22.** Hydrogen chloride gas is prepared in the laboratory using concentrated sulphuric acid and sodium chloride. Answer the question that follow based on this reaction :

How is the gas collected ?



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**23.** Hydrogen chloride gas is prepared in the laboratory using concentrated sulphuric acid and sodium chloride. Answer the question that follow based on this reaction :

Name the drying agent not used for drying the gas.



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**24.** Give a chemical test to distinguish between the following pairs of compounds :

Calcium nitrate solution and zinc nitrate solution.



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**25.** Distinguish between the pairs of compounds:

Ammonium sulphate crystals and Sodium sulphate crystals.





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**26.** Distinguish between the pairs of compounds using a reagent as a chemical test:

Magnesium chloride and Magnesium nitrate solution.



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**27.** Calculate the percentage of :

Fluorine

in sodium aluminium fluoride  $[Na_3AlF_6]$  , to the nearest whole number. [Atomic Mass : Na = 23, Al = 27, F = 19]



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**28.** Calculate the percentage of :

Sodium

in sodium aluminium fluoride  $[Na_3AlF_6]$  , to the nearest whole number. (Atomic Mass : Na = 23, Al = 27, F = 19]



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**29.** Calculate the percentage of :

Aluminium

in sodium aluminium fluoride [ $Na_3AlF_6$ ] , to the nearest whole number. (Atomic Mass : Na = 23, Al = 27, F = 19]



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**30.** State the volume occupied by 40 gm of methane at STP, if its vapour density (V.D.) is 8



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**31.** Calculate the number of moles present in 160 gm of NaOH. [Atomic Mass : Na = 23, H = 1, O = 16]



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**32.** Identify the salts P, Q, R from the observation

Salt P has light bluish green colour. On heating, it produces a black coloured residue.



Salt P produces brisk effervescence with dil. HCl and the gas evolved turns lime water milky, but no action with acidified potassium dichromate solution.



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**33.** Identify the salt Q from the observation

Salt Q is white in colour. On strong heating, it produces buff yellow residue and liberates reddish brown gas. Solution of salt Q

produces chalky white insoluble precipitate with excess of ammonium hydroxide.



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**34.** Identify the salt R from the observation

Salt R is black in colour. On reacting with concentrated HCl, it liberates a pungent greenish yellow gas which turns moist starch iodide paper blue black.



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**35.** Identify the substance underlined

The electrode that increases in mass during the electro-refining of silver.



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**36.** Identify the substance underlined

The acid that is a dehydrating as well as a drying agent.



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37. Identify the substance italicised : The catalyst used to oxidise ammonia.



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38. Copy and complete the following paragraph using the options given in brackets :

Alkenes are a homologous series of (i) .....  
(saturated/unsaturated) hydrocarbons  
characterised by the general formula (ii) .....  
( $C_nH_{2n+2}$  /  $C_nH_{2n}$ ). Alkenes undergo (iii)

..... (addition/substitution) reactions and also undergo (iv) ... (hydrogenation / dehydrogenation) to form alkanes.



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**39.** Write balanced chemical equations, for the preparation of the given salts:

Copper sulphate



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**40.** Write balanced chemical equations, for the preparation of the given salts: by using the methods A to C respectively:

A: Neutralization B: Precipitation C: Titration

Zinc carbonate



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**41.** Write balanced chemical equations, for the preparation of the given salts: by using the methods A to C respectively:

A: Neutralization B: Precipitation C: Titration

Ammonium sulphate



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**42.** Name the element

An alkaline earth metal present in group 2 and period 3.



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**43.** Name the element

A trivalent metal used to make light tools.



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**44.** Name the element

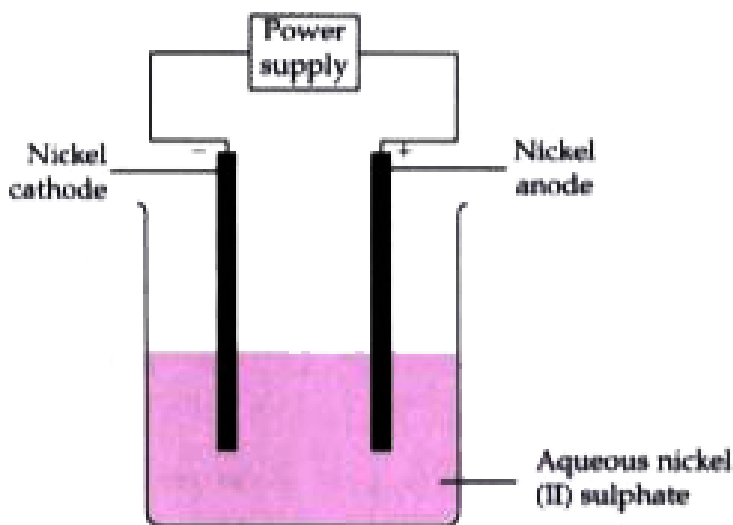
A monovalent non-metal present in fluorspar.



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45. An aqueous solution of nickel (II) sulphate was electrolyzed using nickel electrodes. Observe the diagram and answer the questions that follow

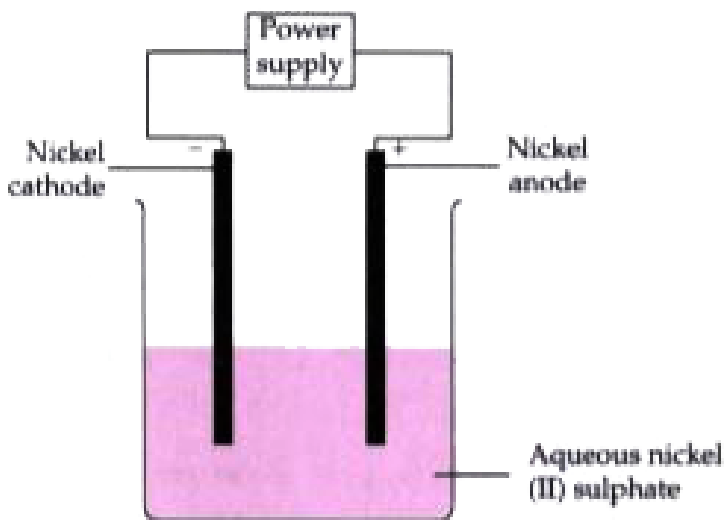


What do you observe at the cathode and anode respectively?



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**46.** An aqueous solution of nickel (II) sulphate was electrolyzed using nickel electrodes. Observe the diagram and answer the questions that follow

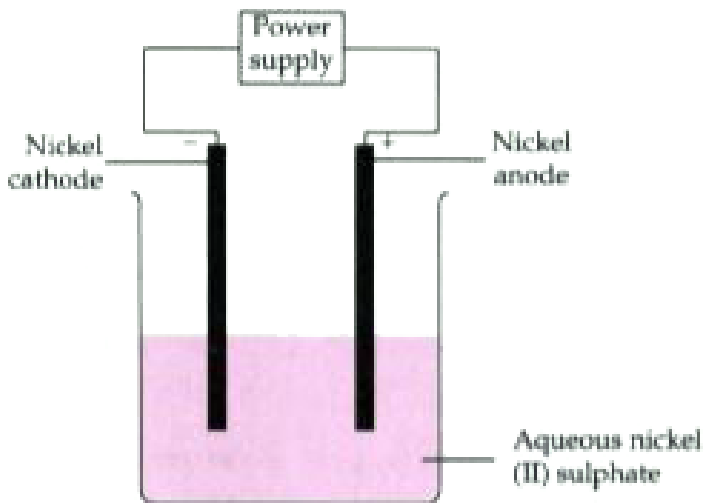


Name the cation that remains as a spectator ion in the solution.

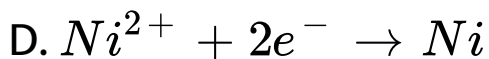
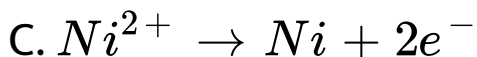
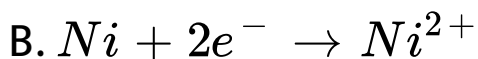


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**47.** An aqueous solution of nickel (II) sulphate was electrolyzed using nickel electrodes. Observe the diagram and answer the questions that follow



Which equation for the reaction at the anode is correct ?



**Answer: A**



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