

6. CHEMICAL DISPLACEMENT & DOUBLE DISPLACEMENT REACTIONS

SOLUTIONS

TEACHING TASK JEE MAIN LEVEL

1. A displacement reaction will occur when...

- A) a more reactive metal displaces a less reactive metal from its compound.
- B) A less reactive metal displaces a more reactive metal from its compound
- C) Displacement only occurs when two of the same metals are reacted
- D) Displacement reactions will only occur in metals above iron in the reactivity series

Answer : A

Solution: Displacement reactions occur when a more reactive metal replaces a less reactive one in a compound

2. Calcium + zinc nitrate goes to

- A) Calcium + zinc nitrate
- B) Zinc + calcium nitrate
- C) there will be no reaction
- D) Zinc + calcium chloride

Answer: B

Solution: Calcium is more reactive than zinc, so it displaces zinc from zinc nitrate, forming calcium nitrate and zinc.

3. In the following chemical reaction, what product is represented by X?



- A) Al_3OH
- B) It cannot be determined.
- C) $\text{Al}(\text{OH})_3$
- D) AlOH

Answer: C

Solution: (The reaction is a double displacement, forming aluminum hydroxide and sodium chloride: $\text{AlCl}_3 + 3\text{NaOH} \rightarrow \text{Al}(\text{OH})_3 + 3\text{NaCl}$)

4. Decreasing order of reactivity of metals:

- A) $\text{Na} > \text{Cu} > \text{Ag}$
- B) $\text{Cu} > \text{Na} > \text{Zn}$
- C) $\text{Na} > \text{K} > \text{Al}$
- D) $\text{K} > \text{Au} > \text{Al}$

Answer: A

Solution: Sodium (Na) is highly reactive, while copper (Cu) and silver (Ag) are less reactive.

5. Which of the following is an example of chemical displacement?

- (A) $\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$
- (B) $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$
- (C) $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$
- (D) All

Answer: D

Solution: All reactions involve displacement: (A) Zn displaces H from HCl, (B) Zn displaces Cu from CuSO_4 , (C) Zn displaces H from H_2SO_4 .

6. When dilute sulphuric acid (H_2SO_4) reacts with ferrous sulphide (FeS), hydrogen sulphide (H_2S) gas is produced; this is an example of
(A) Chemical decomposition (B) chemical double decomposition
(C) Chemical displacement (D) chemical combination

Answer:B

Solution:The reaction $\text{H}_2\text{SO}_4 + \text{FeS} \rightarrow \text{FeSO}_4 + \text{H}_2\text{S}$ involves exchange of ions, characteristic of double decomposition.

7. $\text{Mg} + 2\text{AgNO}_3 \rightarrow \text{Mg}(\text{NO}_3)_2 + 2\text{Ag}$
(A) Decomposition reaction (B) Double Decomposition Reaction
(C) Displacement reaction (D) None of these

Answer:C

Solution:Mg displaces Ag from AgNO_3 , forming $\text{Mg}(\text{NO}_3)_2$ and Ag

8. $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 + 2\text{NaCl}$ is
(A) Precipitation reaction (B) Decomposition Reaction
(C) Displacement Reaction (D) Combination Reaction

Answer:A

Solution: BaSO_4 forms as an insoluble precipitate, making this a precipitation reaction

9. $\text{Zn} + \text{CuSO}_4 \rightarrow \text{_____} + \text{Cu}$ is example of
(A) 2ZnSO_4 , displacement (B) $\text{Zn}(\text{SO}_4)_2$, decomposition
(C) ZnSO_4 , double decomposition (D) ZnSO_4 , displacement

Answer:D

Solution:Zn displaces Cu from CuSO_4 , forming ZnSO_4 —a classic displacement reaction.

10. Reaction of sodium hydroxide with hydrochloric acid results in the formation of sodium chloride and water follows :
(A) Displacement reaction (B) Neutralisation reaction
(C) Both a & b (D) Decomposition reaction

Answer:B

Solution: $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$ is an acid-base neutralization reaction.

11. $2\text{KI} + \text{Br}_2 \rightarrow 2\text{KBr} + \text{I}_2$ is an example of
(A) Displacement (B) Combination (C) Both A & B (D) None of these

Answer:A

Solution: Br_2 displaces I_2 from KI, forming KBr and I_2 —a halogen displacement reaction.

12. $\text{Zn} + \text{H}_2\text{SO}_4 \rightarrow \text{ZnSO}_4 + \text{H}_2$ is a
(A) chemical combination (B) Chemical decomposition
(C) chemical displacement (D) none

Answer:C

Solution:Zn displaces hydrogen from H_2SO_4 , forming ZnSO_4 and H_2 gas

JEE ADVANCED LEVEL

MULTI CORRECT ANSWER TYPE:

13. $\text{NaOH} + \text{HCl} \rightarrow \text{NaCl} + \text{H}_2\text{O}$ is an example for

A) Displacement

B) Decomposition

C) Neutralisation

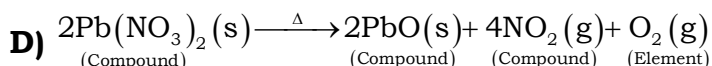
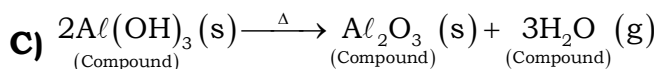
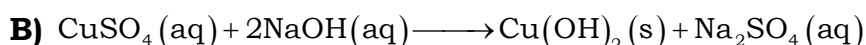
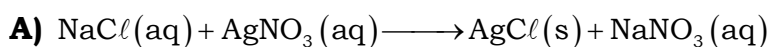
D) Double displacement reaction.

Answer: C, D

Solution: Neutralisation (C): The reaction involves an acid (HCl) and a base (NaOH) forming salt (NaCl) and water (H_2O).

Double displacement (D): The ions (Na^+ and H^+) exchange places between the reactants (NaOH and HCl).

14. Which of the following is/are precipitation reactions?



Answer: A, B

Solution: Precipitation reactions involve the formation of an insoluble solid (precipitate) when two aqueous solutions are mixed.

Option A: AgCl (silver chloride) is a white precipitate.

Option B: $\text{Cu}(\text{OH})_2$ (copper hydroxide) is a blue precipitate.

Option C: Decomposition (solid $\text{Al}(\text{OH})_3$ breaks down into Al_2O_3 and H_2O).

Option D: Decomposition (solid $\text{Pb}(\text{NO}_3)_2$ breaks down into PbO, NO_2 , and O_2).

STATEMENT TYPE:

A) Statement-I, is True, Statement - II is True; Statement - II is a correct explanation for Statement-I

B) Statement - I is True, Statement is True; Statement -II is NOT a correct explanation for Statement - I

C) Statement - I is True, Statement - II, is False

D) Statement - I is False, Statement - II is True

15. **Statement-I:** $\text{Fe} + \text{CuSO}_4(\text{aq}) \rightarrow \text{FeSO}_4(\text{aq}) + \text{Cu}$ is displacement reaction.

Statement-II: More reactive element displaces less reactive element from its aqueous salt solution is called Displacement reaction.

Answer: A

Solution: Statement-I is true because iron (Fe) displaces copper (Cu) from CuSO_4 , forming FeSO_4 and Cu. This is a classic displacement reaction.

Statement-II is true and correctly explains Statement-I. Iron is more reactive than copper (as per the reactivity series), so it displaces Cu from its salt solution.

16. Statement-I: Acid base reactions are double displacement reaction which are also called as neutralization reactions.

Statement-II: Hydrogen ion (H^+) from acid and hydroxyl ions (OH^-) from base combine to form salt and water.

Answer:B

Solution:Statement-I is true because acid-base reactions (e.g., $HCl + NaOH \rightarrow NaCl + H_2O$) involve double displacement (ion exchange) and are termed neutralization reactions.

Statement-II is true ($H^+ + OH^- \rightarrow H_2O$), but it does not explain why acid-base reactions are double displacement. The double displacement aspect arises from the exchange of ions (e.g., Na^+ and H^+ swapping places), not just H^+ and OH^- combination.

COMPREHENSION TYPE :

Paragraph-I:

A more reactive element displaces less reactive element from its aqueous salt solution is called displacement reaction.

17. $AgNO_3 + NaCl \rightarrow X + NaNO_3$. Identify X

A) NaN

B) $AgCl$

C) AgN

D) NaO

Answer:B

Solution: $AgNO_3 + NaCl \rightarrow AgCl \downarrow + NaNO_3$

18. A teacher performed the following experiment. He took a strip of lead metal and placed in a solution of copper chloride. Which of the following is the correct equation for the above reaction?

A) $Cu_2Cl + Pb \longrightarrow PbCl_2 + 2Cu$

B) $CuSO_4 + Pb \longrightarrow PbSO_4 + Cu$

C) $CuCl_2 + Pb \longrightarrow PbCl_2 + Cu$

D) $Cu_2Cl_2 + 2Pb \longrightarrow PbCl_2 + Cu$

Answer:C

Solution:Lead (Pb) is more reactive than copper (Cu) in the reactivity series. Thus, Pb displaces Cu from $CuCl_2$.

Balanced Equation: $CuCl_2 + Pb \longrightarrow PbCl_2 + Cu$

Paragraph -II:

The reactions where chemical change takes place is called chemical reaction. There are 4 types of chemical reactions. A chemical reaction, in which two compounds in their aqueous solution react by exchanging their radicals, is called chemical double-decomposition or chemical double-displacement.

19. $\text{CuSO}_4 + \text{Zn} \rightarrow \text{X} + \text{Cu}$. What is x?

A) CuS

B) ZnS

C) ZnSO_4

D) ZnSO_3 .

Answer: C

Solution: This is a displacement reaction where zinc (Zn), being more reactive than copper (Cu), displaces Cu from CuSO_4 .

The balanced equation is: $\text{CuSO}_4 + \text{Zn} \rightarrow \text{ZnSO}_4 + \text{Cu}$

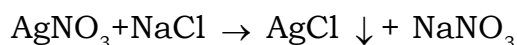
20. i) $\text{AgNO}_3(\text{aq}) + \text{NaCl}(\text{aq}) \rightarrow \text{P} + \text{Q}$ ii) $\text{PCl}_5(\text{s}) \xrightleftharpoons[\text{Cool}]{\text{Heat}} \text{R} + \text{S}$

P	Q	R	S
A) AgCl	NaNO_3	PCl_3	Cl_2
B) NaNO_3	PCl_3	Cl_2	AgCl
C) AgCl	PCl_3	NaNO_3	Cl_2
D) AgCl	PCl_3	Cl_2	NaNO_3

Answer: A

Solution: Part (i) Reaction:

This is a double displacement (precipitation) reaction:



P = AgCl (white precipitate), Q = NaNO_3 (sodium nitrate, soluble).

Part (ii) Matching:

The options are unrelated to the reaction but test knowledge of common compounds:

R: PCl_3 (phosphorus trichloride) and S: Cl_2 (chlorine gas) are standalone chemicals.

Only Option A correctly identifies P (AgCl) and Q (NaNO_3) from the reaction.

INTEGER TYPE:

21. Among Na, Ag, Zn, Pt how many are more reactive than iron?

Answer: 2

Solution: Reactivity Series: $\text{K} > \text{Na} > \text{Ca} > \text{Mg} > \text{Al} > \text{Zn} > \text{Fe} > \text{Sn} > \text{Pb} > \text{Cu} > \text{Ag} > \text{Pt}$

Comparison with Iron (Fe):

Na (Sodium): More reactive than Fe.

Zn (Zinc): More reactive than Fe.

Ag (Silver) and Pt (Platinum): Less reactive than Fe.

Conclusion: Only 2 metals (Na and Zn) are more reactive than iron.

22. Among K, Zn, Al, Cu, Sn how many metals cannot displace magnesium from magnesium sulphate?

Answer: 4

Solution: To displace magnesium (Mg) from MgSO_4 , a metal must be more reactive than Mg.

From the reactivity series $\text{K} > \text{Na} > \text{Ca} > \text{Mg} > \text{Al} > \text{Zn} > \text{Fe} > \text{Sn} > \text{Pb} > \text{Cu} > \text{Ag} > \text{Pt}$

K → More reactive → Can displace

Zn → Less reactive → Cannot displace

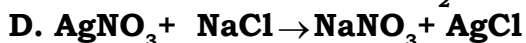
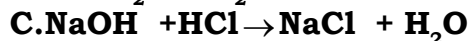
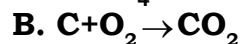
Al → Less reactive → Cannot displace

Cu → Less reactive → Cannot displace

Sn → Less reactive → Cannot displace

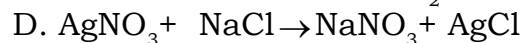
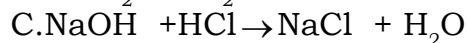
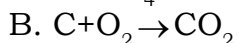
MATRIX MATCH TYPE:

23. COLUMN -I



Answer: A-4, B-1, C-2, D-3

Solution:



COLUMN-II

1. combination

2. Neutralisation

3. Precipitation reaction



1. combination

2. Neutralisation

3. Precipitation reaction

LEARNER'S TASK

CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)

1. When a more reactive element displaces less reactive element from its aqueous salt solution is called...

A) Combination reaction

B) Decomposition reaction

C) Displacement reaction

D) Double displacement reaction

Answer: C

Solution: A more reactive element displaces a less reactive one from its compound (e.g., $\text{Zn} + \text{CuSO}_4 \rightarrow \text{ZnSO}_4 + \text{Cu}$)

2. When two chemical compounds in their aqueous state exchange ions such that one of the product is precipitate is called...

A) Precipitation reaction

B) Decomposition reaction

C) Displacement reaction

D) Neutralisation reaction

Answer: A

Solution: Double displacement where ions exchange to form an insoluble solid (precipitate), e.g., $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} \downarrow + \text{NaNO}_3$.

3. Among the following types of chemical reactions, application of metal reactivity series is involved with which reaction?

A) Combination reaction

B) Decomposition reaction

C) Displacement reaction

D) Double displacement reaction.

Answer: C

Solution: The reactivity series predicts if a metal can displace another in a compound (e.g., $\text{Mg} + \text{ZnSO}_4 \rightarrow \text{MgSO}_4 + \text{Zn}$).

4. $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$ in the following equation the precipitate formed is

A) AgNO_3

B) NaCl

C) AgCl

D) NaNO_3

Answer: C

Solution: AgCl (silver chloride) is the white precipitate formed in this double displacement reaction.

5. Which is the least reactive element among the following?

- A)Zn B)Pb C)Fe D)Cu**

Answer: D

Solution: Reactivity order: $\text{Zn} > \text{Fe} > \text{Pb} > \text{Cu}$. Copper (Cu) is the least reactive among the options.

6. $\text{Zn} + 2\text{HCl} \rightarrow \text{H}_2 + \text{ZnCl}_2$ is reaction.

- A)Combination B)Decomposition C)Displacement D)Double displacement.**

Answer: C

Solution: Zn displaces H from HCl, forming H_2 gas and ZnCl_2 .

7. Which is the least reactive element among the following in comparison with Hydrogen?

- A)Cu B)Ag C)Pt D)All the above**

Answer: D

Solution: Cu, Ag, and Pt are below hydrogen (H) in the reactivity series, making them less reactive than H.

8. After the completion of a double displacement reaction, one of the products is usually

- A) a solid precipitate, B) a gas**
C) a molecular compound such as water D) All the above

Answer: D

Solution: Double displacement can produce:

Precipitate (e.g., AgCl),

Gas (e.g., CO_2 from $\text{Na}_2\text{CO}_3 + \text{HCl}$),

Water (e.g., in neutralization: $\text{HCl} + \text{NaOH} \rightarrow \text{NaCl} + \text{H}_2\text{O}$).

9. when the cations from one of the reactants combine with the anions from the other reactant to form an insoluble ionic compound. It is called

- A)Combination reaction B)Decomposition reaction**
C) Displacement reaction D)Precipitation reaction.

Answer: D

Solution: Formation of an insoluble ionic compound (e.g., BaSO_4 from $\text{BaCl}_2 + \text{Na}_2\text{SO}_4$).

10. A brilliant yellow precipitate is formed in the following reaction

- A) $\text{Cl}_2(\text{aq}) + 2\text{NaBr}(\text{aq}) \rightarrow 2\text{NaCl}(\text{aq}) + \text{Br}_2(\text{aq})$**
B) $2\text{KI}(\text{aq}) + \text{Pb}(\text{NO}_3)_2(\text{aq}) \rightarrow 2\text{KNO}_3(\text{aq}) + \text{PbI}_2(\text{s}) \downarrow$
C) $\text{Na}_2\text{S}(\text{aq}) + 2\text{HCl}(\text{aq}) \rightarrow 2\text{NaCl}(\text{aq}) + \text{H}_2\text{S}(\text{g})$
D) $\text{HCl}(\text{aq}) + \text{NaOH}(\text{aq}) \rightarrow \text{NaCl}(\text{aq}) + \text{H}_2\text{O}(\text{l})$

Answer: B

Solution: PbI_2 (lead iodide) is a bright yellow precipitate.

JEE MAINS LEVEL QUESTIONS

11. Which one of the following would the following result in a displacement reaction?

A) Iron with magnesium chloride

B) magnesium with iron chloride

C) Iron with Zinc Sulphate

D) Gold with silver nitrate

Answer: B

Solution: Displacement Reaction occurs when a more reactive metal displaces a less reactive metal from its compound.

Reactivity Series: $\text{Mg} > \text{Fe} > \text{Zn} > \text{Au}$

Option B: $\text{Mg} + \text{FeCl}_2 \rightarrow \text{MgCl}_2 + \text{Fe}$ (Mg is more reactive than Fe)

12. What is made when magnesium reacts with hydrochloric acid?

A) Magnesium nitrate and hydrogen gas

B) Magnesium sulfate and hydrogen gas

C) Magnesium oxide and oxygen gas

D) Magnesium chloride and hydrogen gas

Answer: D

Solution: Reaction: $\text{Mg} + 2\text{HCl} \rightarrow \text{MgCl}_2 + \text{H}_2\uparrow$

This is a classic metal-acid displacement reaction, producing a salt (MgCl_2) and H_2 gas.

13. Which of the following will not undergo reaction?

A) Zinc metal + zinc oxide

B) Iron metal + copper oxide

C) Zinc metal + iron oxide

D) Magnesium + iron oxide

Answer: A

Solution: A metal cannot displace itself from its own compound.

14. In which of the following reaction the solution becomes bluish in colour

A) Silver + Copper nitrate

B) Zinc + Hydrochloric Acid

C) Copper + Silver nitrate

D) Silver nitrate + Sodium Hydroxide

Answer: C

Solution: Reaction: $\text{Cu} + 2\text{AgNO}_3 \rightarrow \text{Cu(NO}_3)_2 \text{ (blue)} + 2\text{Ag}\uparrow$

$\text{Cu(NO}_3)_2$ in water forms a blue-colored solution.

15. Which of the following reaction doesn't take place?

A) $\text{Mg(s)} + \text{Cu(NO}_3)_2\text{(aq)} \rightarrow \text{Mg(NO}_3)_2\text{(aq)} + \text{Cu(s)}$

B) $\text{Cu(s)} + \text{Mg(NO}_3)_2\text{(aq)} \rightarrow \text{Cu(NO}_3)_2\text{(aq)} + \text{Mg(s)}$

C) $\text{Cl}_2\text{(aq)} + 2\text{NaBr(aq)} \rightarrow 2\text{NaCl(aq)} + \text{Br}_2\text{(aq)}$

D) $\text{Cu(s)} + 2\text{AgNO}_3\text{(aq)} \rightarrow 2\text{Ag(s)} + \text{Cu(NO}_3)_2\text{(aq)}$

Answer: B

Solution: Cu is less reactive than Mg ($\text{Cu} < \text{Mg}$), so no displacement occurs.

16. In which of the following the blue solution turns light green in colour?

- A) $\text{CuSO}_4 + \text{Fe} \rightarrow \text{FeSO}_4 + \text{Cu}$ B) $\text{Cu(s)} + \text{Mg(NO}_3)_2(\text{aq}) \rightarrow \text{Cu(NO}_3)_2(\text{aq}) + \text{Mg(s)}$
C) $\text{Cl}_2(\text{aq}) + 2\text{NaBr(aq)} \rightarrow 2\text{NaCl(aq)} + \text{Br}_2(\text{aq})$
D) $\text{Cu(s)} + 2\text{AgNO}_3(\text{aq}) \rightarrow 2\text{Ag(s)} + \text{Cu(NO}_3)_2(\text{aq})$

Answer: A

Solution: CuSO_4 (blue solution)

Fe displaces Cu $\rightarrow \text{FeSO}_4$ (light green solution)

This is a classic example of color change from blue \rightarrow light green

17. Which of the following statement is correct?

- A) Fluorine is the most reactive halogen B) Iodine is the most reactive halogen
C) Chlorine is the most reactive halogen D) Bromine is the most reactive halogen

Answer: A

Solution: Reactivity Order: $\text{F} > \text{Cl} > \text{Br} > \text{I}$

Fluorine is the most electronegative and reactive halogen.

18. Which of the following reaction takes place

- A) $\text{Cl}_2(\text{g}) + 2\text{NaBr(aq)} \rightarrow 2\text{NaCl(aq)} + \text{Br}_2(\text{l})$ B) $\text{Br}_2(\text{g}) + 2\text{NaI(aq)} \rightarrow 2\text{NaBr(aq)} + \text{I}_2(\text{l})$
C) Both A & B D) None of the above

Answer: C

Solution: Halogen Displacement: More reactive halogens displace less reactive ones.

A) $\text{Cl}_2 + 2\text{NaBr} \rightarrow 2\text{NaCl} + \text{Br}_2$ ($\text{Cl}_2 > \text{Br}_2$)

B) $\text{Br}_2 + 2\text{NaI} \rightarrow 2\text{NaBr} + \text{I}_2$ ($\text{Br}_2 > \text{I}_2$)

19. $\text{HCl(aq)} + \text{NaOH(aq)} \rightarrow \text{NaCl(aq)} + \text{H}_2\text{O(l)}$ is an example for

- A) Neutralisation B) Decomposition reaction
C) Double displacement reaction. D) Both A & C

Answer: D

Solution: Neutralization: Acid (HCl) + Base (NaOH) \rightarrow Salt (NaCl) + Water (H_2O).

Double Displacement: H^+ and Na^+ ions exchange places.

20. Which of the following reactions are precipitation reactions?

- A) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$
B) $\text{BaCl}_2(\text{aq}) + \text{Na}_2\text{SO}_4(\text{aq}) \rightarrow \text{BaSO}_4(\text{s}) + 2\text{NaCl}_{(\text{aq})}$
C) Both A & B D) None

Answer: C

Solution: Precipitation involves formation of an insoluble solid.

A) $\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} \downarrow$ (white ppt) + NaNO_3

B) $\text{BaCl}_2 + \text{Na}_2\text{SO}_4 \rightarrow \text{BaSO}_4 \downarrow$ (white ppt) + 2NaCl

JEE ADVANCED LEVEL

MULTICORRECT TYPE:

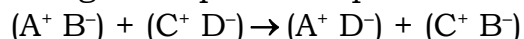
21. $(A^+ B^-) + (C^+ D^-) \rightarrow (A^+ D^-) + (C^+ B^-)$ represents:

- A) Chemical displacement B) Chemical double displacement reaction.
C) Chemical double decomposition reaction. D) Chemical combination.

Answer: B,C

Solution: Understanding the Reaction Format:

The given equation represents:



This shows an exchange of ions between two compounds.

A^+ pairs with D^- , and C^+ pairs with B^-

- A) Chemical displacement: Incorrect. Displacement involves one element replacing another in a compound (e.g., $Zn + CuSO_4 \rightarrow ZnSO_4 + Cu$). This is not ion exchange.
B) Chemical double displacement: Correct. The reaction fits the definition of double displacement, where ions swap partners.
C) Chemical double decomposition: Correct. This is an older term for double displacement, emphasizing the "decomposition" and recombination of ions.
D) Chemical combination: Incorrect. Combination reactions involve two substances forming one product (e.g., $A + B \rightarrow AB$).

STATEMENT TYPE:

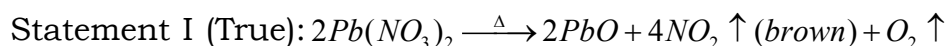
- A) Statement-I, is True, Statement - II is True; Statement - II is a correct explanation for Statement-I
B) Statement - I is True, Statement is True; Statement -II is NOT a correct explanation for Statement - I
C) Statement - I is True, Statement - II , is False
D) Statement - I is False, Statement - II is True

22. **Statement I :Lead nitrate on thermal decomposition gives lead oxide ,brown coloured gas called nitrogen dioxide and oxygen gas**

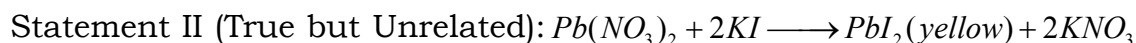
Statement II :lead nitrate reacts with potassium iodide to form yellow ppt of lead iodide and the reaction is double displacement as well as precipitation reaction.

Answer:B

Solution:



This is a thermal decomposition reaction, producing PbO , NO_2 , and O_2 .



This is a double displacement and precipitation reaction, but it does not explain Statement I.

- 23. Statement -I: A single product is formed in displacement reaction.
Statement -II: A single reactant is involved in decomposition reaction.**

Answer:D

Solution: Statement I (False):

Displacement reactions always produce two products (e.g.,

Statement II (True):

Decomposition reactions involve one reactant breaking into multiple products (e.g.,

COMPREHENSION TYPE :

Comprehension-I:

A more reactive element displaces less reactive element from its aqueous salt solution is called displacement reaction.

- 24. $A+BC \rightarrow AC+B$ is reaction .**

A)Combination

B)Decomposition

C)Displacement

D)Double displacement.

Answer:C

Solution: The given reaction $A+BC \rightarrow AC+B$ represents a displacement reaction, where: A more reactive element (A) displaces a less reactive element (B) from its compound (BC).

This follows the general form of displacement reactions, where one element replaces another in a compound.

INTEGER TYPE:

- 25. How many oxygen atoms are present in zinc sulphate?**

Answer:4

Solution: Chemical Formula of Zinc Sulphate: $ZnSO_4$

Subscript for Oxygen (O): 4

Total Oxygen Atoms: 1 molecule of $ZnSO_4$ contains 4 oxygen atoms.

- 26. Double displacement reactions are of types.**

Answer:3

Solution: Double displacement reactions are of three main types: precipitation, neutralization, and gas formation

MATRIX MATCH TYPE:

- 27. COLUMN -I**

A) $AB \rightarrow A + B$

B) $A+ BC \rightarrow AC+B$

C) $A+B \rightarrow AB$

D) $AB_{(aq)} + CD_{(aq)} \rightarrow AD_{(aq)} + CB_{(aq)}$

COLUMN-II

1) displacement

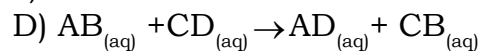
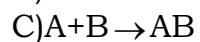
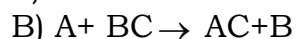
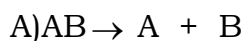
2) decomposition

3) double displacement

4) Combination

Answer:A-2,B-1,C-4,D-3

Solution:



2) decomposition

1) displacement

4) Combination

3) double displacement

KEY

TEACHING TASK									
JEE MAIN LEVEL									
1	2	3	4	5	6	7	8	9	10
A	B	C	A	D	B	C	A	D	B
11	12								
A	C								
JEE ADVANCED LEVEL									
13	14	15	16	17	18	19	20	21	22
C,D	A,B	A	B	B	C	C	A	2	4
23									
A-4,B-1,C-2,D-3									
LEARNER'S TASK									
CONCEPTUAL UNDERSTANDING QUESTIONS (CUQ's)									
1	2	3	4	5	6	7	8	9	10
C	A	C	C	D	C	D	D	D	B
JEE MAINS LEVEL QUESTIONS									
11	12	13	14	15	16	17	18	19	20
B	D	A	C	B	A	A	C	D	C
JEE ADVANCED LEVEL									
21	22	23	24	25	26	27			
C	B	D	C	4	3	A-2,B-1,C-4,D-3			



Educational Operating System