

ରାସାୟନିକ ସମୀକରଣ (Chemical Equation)

ପ୍ରତୀକ ଓ ସଂକ୍ଷିପ୍ତ ଆକାରରେ ଯେଉଁ ରାସାୟନିକ ପରିବର୍ତ୍ତନକୁ ଦର୍ଶାଏ ତାହାକୁ ରାସାୟନିକ ସମୀକରଣ କୁହାଯାଏ ।

$$\text{AgNO}_3 + \text{NaCl} \rightarrow \text{NaNO}_3 + \text{AgCl}$$

$$\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$$

ଗୁଡିକାଣ୍ଡ (Reactants)
→
ଉତ୍ପାଦ (Products)

ରାସାୟନିକ ସମୀକରଣ ଓ ତାର ସମତୁଲ୍ୟତା ପଦ୍ଧତି

Chemical Equation and its balancing method

ଭିଡିଓ ସଂଖ୍ୟା - 4
(Video Number)

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The IITian.

ସମୀକରଣକୁ ସମତୁଲ୍ୟ କରିବା ପଦ୍ଧତି (Balancing Chemical Equation)

- ବସ୍ତୁତ୍ୱ ସଂରକ୍ଷଣ ନିୟମ (Law of conservation of mass) ଅନୁସାରେ ପ୍ରତିକାରକ ଯାହାକି ସମୁଦାୟ ବସ୍ତୁତ୍ୱ ସହିତ ଉତ୍ପାଦକୁ ସମତୁଲ୍ୟ କରିବା ପାଇଁ ଆବଶ୍ୟକ ।
- ସମସ୍ତ ପାରମ୍ପରିକ ସମୀକରଣ ସମତୁଲ୍ୟ ହେବା ଆବଶ୍ୟକ ।
- ଏହା ଓ ତାହାର ପଦ୍ଧତି ସମତୁଲ୍ୟତା ଆବଶ୍ୟକ ।
- ଏହି ପଦ୍ଧତି କିପରି କରାଯାଏ ତାହା ଦେଖନ୍ତୁ ।

(A) ଟ୍ରାଇ ଥାଲ୍ ଟ୍ରାଏଲ୍ ପଦ୍ଧତି (Hit & Trial method)
ବା ନିରୀକ୍ଷଣ ପଦ୍ଧତି (Inspection method)

ତୁରନ୍ତ ଉପଯୁକ୍ତ ପ୍ରତୀକ ଓ ସଂକ୍ଷିପ୍ତରେ ଯେଉଁ ଆବଶ୍ୟକ ସମ୍ପୂର୍ଣ୍ଣ କରାଯାଇ ପାରେ ।

$$\text{CaCO}_3 \rightarrow \text{CaO} + \text{CO}_2$$

$$\text{AgNO}_3 + \text{NaCl} \rightarrow \text{AgCl} + \text{NaNO}_3$$

ଏହି ସମୀକରଣକୁ ତୁରନ୍ତ ସମତୁଲ୍ୟ କରିବାକୁ ଯେଉଁ ପଦ୍ଧତି ବ୍ୟବହାର କରାଯାଏ ତାହାକୁ ନିରୀକ୍ଷଣ ପଦ୍ଧତି କୁହାଯାଏ ।

$$\text{Zn} + \text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$$

(ଅସମତୁଲ୍ୟ)

$$\text{Zn} + 2\text{HCl} \rightarrow \text{ZnCl}_2 + \text{H}_2$$

(ସମତୁଲ୍ୟ)

$$\text{FeCl}_3 + \text{NaOH} \rightarrow \text{Fe(OH)}_3 + \text{NaCl}$$

(ଅସମତୁଲ୍ୟ)

$$\text{FeCl}_3 + 3\text{NaOH} \rightarrow \text{Fe(OH)}_3 + 3\text{NaCl}$$

(ସମତୁଲ୍ୟ)

$$\text{KClO}_3 \rightarrow \text{KCl} + \text{O}_2$$

(Unbalanced)

$$2\text{KClO}_3 \rightarrow 2\text{KCl} + 3\text{O}_2$$

(Balanced)

$$\text{Pb(NO}_3)_2 \rightarrow \text{PbO} + \text{NO}_2 + \text{O}_2$$

(ଅସମତୁଲ୍ୟ)

$$\text{Pb(NO}_3)_2 \rightarrow \text{PbO} + 2\text{NO}_2 + \text{O}_2$$

(ଅସମତୁଲ୍ୟ)

$$\text{Pb(NO}_3)_2 \rightarrow \text{PbO} + 2\text{NO}_2 + \frac{1}{2}\text{O}_2$$

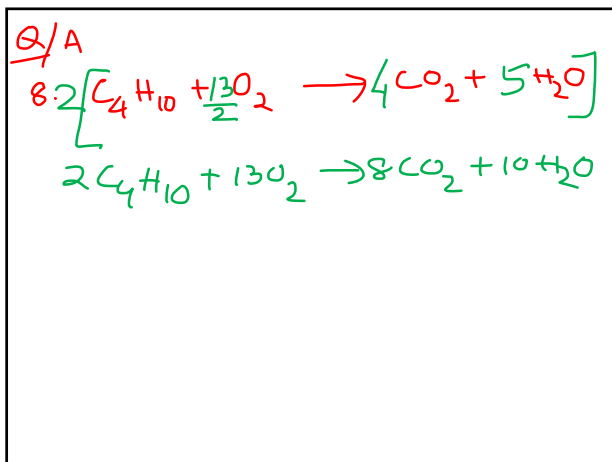
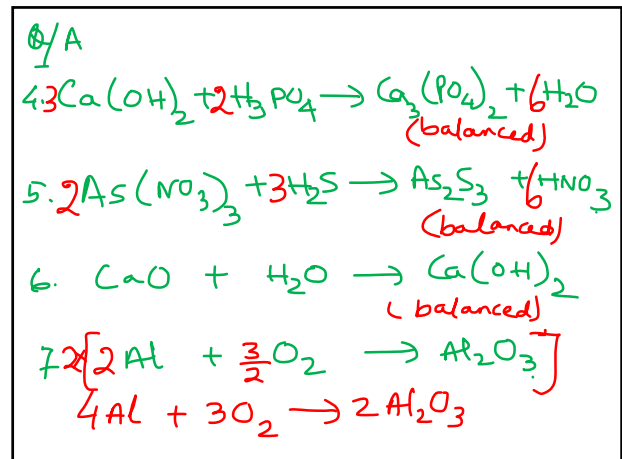
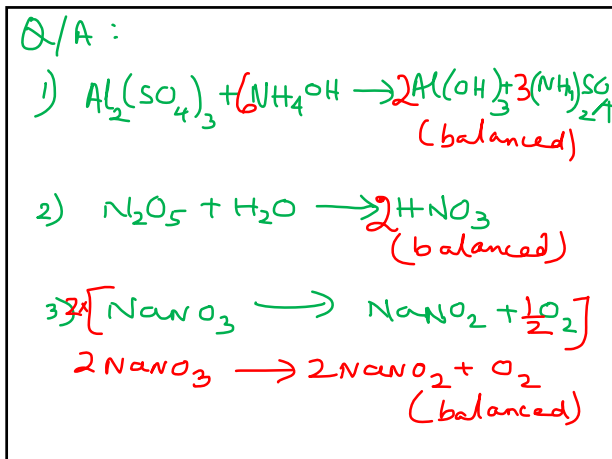
(ଅସମତୁଲ୍ୟ)

ଉପରୋକ୍ତ ସମୀକରଣକୁ 2 ଗୁଣିବାକୁ

$$2 \times [\text{Pb(NO}_3)_2 \rightarrow \text{PbO} + 2\text{NO}_2 + \frac{1}{2}\text{O}_2]$$

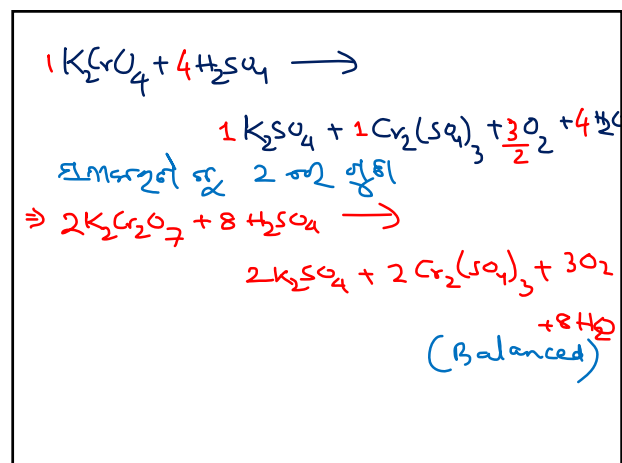
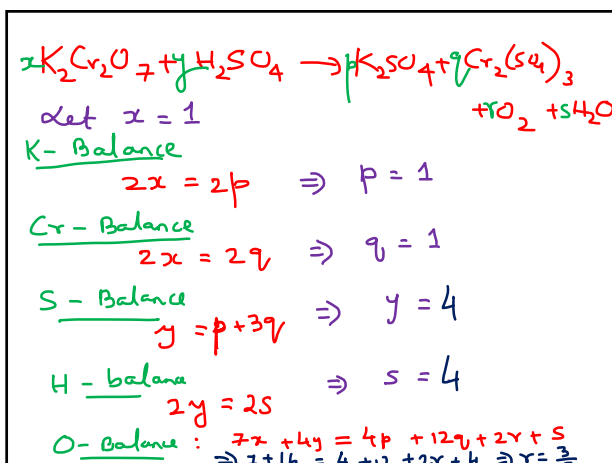
$$\Rightarrow 2\text{Pb(NO}_3)_2 \rightarrow 2\text{PbO} + 4\text{NO}_2 + \text{O}_2$$

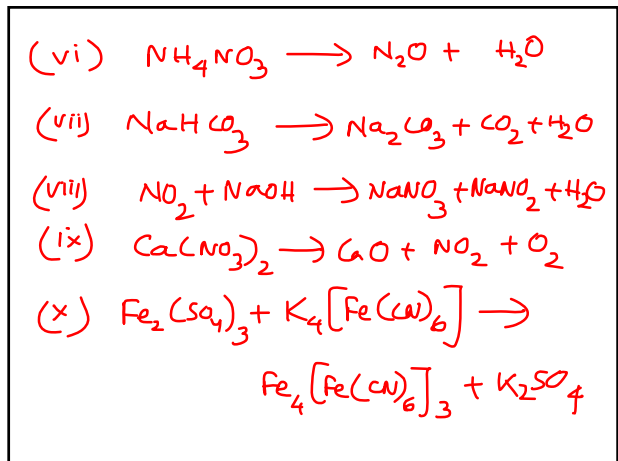
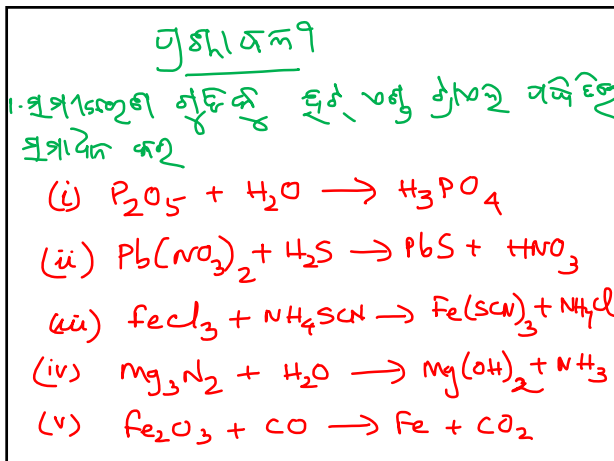
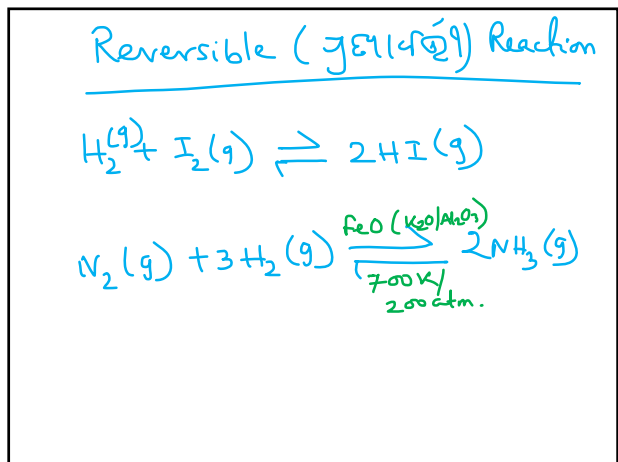
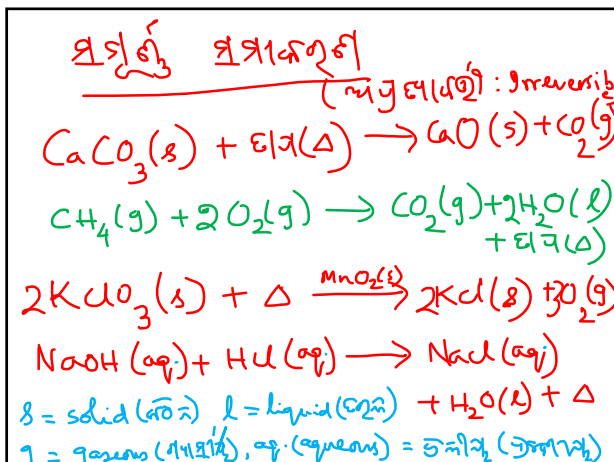
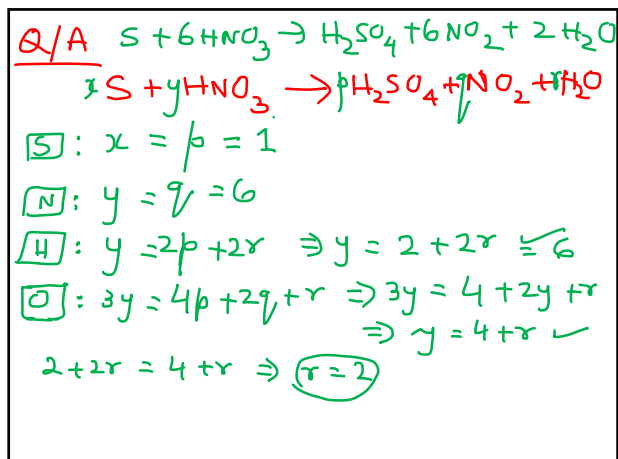
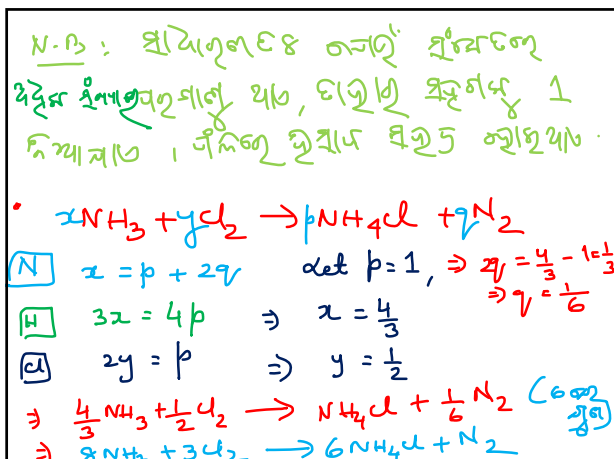
(Balanced)



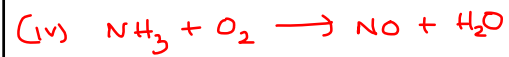
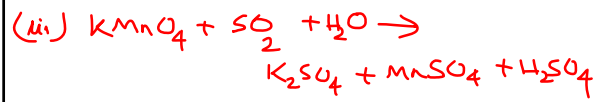
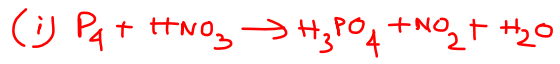
⑤ बीजगणिधिक पद्धति
(Algebraic method)

- यह एक प्रयोगात्मक और सरल पद्धति है।
- इससे बीजगणिधिक पद्धति से प्रत्येक प्रश्न को हल किया जा सकता है।





② ବିଭିନ୍ନ ପଦାର୍ଥର ରାସાયନିକ୍ ସମୀକରଣ ସମ୍ପାଦନ କର ।



ଅନୁକ୍ରମିକ ଭାବରେ :

ଧାତୁ-ଅକ୍ସିଡ଼ ସମୀକରଣ

ଓ ଦ୍ରବଣୀୟତା ନିୟମ

(Ionic Equation & Solubility Rules)