

YAKEEN NEET 2.0

2026

Redox Reaction

Physical Chemistry

Lecture -01

By- Amit Mahajan Sir





Topics to be covered

- ✓ 1 Revision of Last Class
- ✓ 2 Redox reactions
- ✓ 3 Oxidation no and its rules
- 4 MEDICS Test no 1
- 5 Magarmach Practice Questions (MPQ) & Home work from modules



Rules to Attend Class


- ✓ 1. Always sit in a peaceful environment with headphone and be ready with your copy and pen.
- ✓ 2. Never ever attend a class from in between or don't join a live class in the middle of the chapter.
- ✓ 3. Make sure to revise the last class before attending the next class & always complete your Magarmach Practice Questions.
- ✓ 4. Never ever engage in chat whether live or recorded on the topic which is not being discussed in current class as by doing so u can be blocked by the admin team or your subscription can be cancelled.



Rules to Attend Class



- ✓ 5. Try to make maximum notes during the class if something is left then u can use the notes pdf after the class to complete the remaining class.
- ✓ 6. Always ask your doubts in doubt section to get answer from faculty. Before asking any doubt please check whether same doubt has been asked by someone or not.



There is one big flaw in your Preparation that's name is Backlog ? What do we say to Backlog ?



NOT TODAY !!!

MEDICS



Mastery

Checks your grasp over
NEET-level concepts

Evaluation

Judging both knowledge
and test-smartness

Decision Making

Testing your speed + accuracy under pressure

Intuition

Some answers need gut + logic –
can you spot the trick?

Concepts

It's all about strong basics –
no shortcuts here

Strategy

The MEDICS test – built
for those who heal,
hustle, and hope.

Questions on Basic Concepts of Chemistry

1. Which of the following is not a physical change?

- (A) Boiling of water
(B) Melting of ice

✓ (C) Rusting of iron $Fe \rightarrow Fe_2O_3 \cdot xH_2O$
(D) Dissolving sugar in water

2. Which of the following is a diatomic molecule?

CO_2
 CH_4
 NH_3

- (A) Carbon dioxide
(B) Methane
(C) Ammonia

✓ (D) Nitrogen N_2

5. Which unit is used to express concentration?

- (A) Gram (B) Mole
✓ (C) Molarity (D) Atomic mass unit

6. Avogadro's number is the number of particles in

- (A) 1 g of a substance
(B) 1 cm³ of a substance
(D) 1 L of a substance

✓ (C) 1 mol of substance.

Questions on Basics of Chemistry

1.1 mole contains

- ✓ (A) $6.022 \times 10^{+23}$ particles
(B) $1.66 \times 10^{+23}$ particles
(C) $3.01 \times 10^{+23}$ particles
(D) $1.00 \times 10^{+23}$ particles

2. The molecular mass of H_2O is

- (A) 16 u
✓ (B) 18 u
(C) 20 u
(D) 22 u

7. Which is the lightest subatomic particle?

- (A) Proton (B) Neutron
✓ (C) Electron (D) ~~Positron~~

there.
None of

8. Which of the following has the same number of protons and electrons?

- ✓ (A) Sodium atom Na 21
(B) Magnesium ion Mg
(C) Chloride ion Cl^-
(D) Hydrogen molecule H_2

Q⁹ find volume of NH_3 formed if 6 L H_2 react with excess of N_2 ?



$$3\text{L} \rightarrow 2\text{L}$$

$$6\text{L} \rightarrow \frac{2}{3} \times 6 = 4\text{L}$$

(a) 1 L

(b) 2 L

(c) 3 L

(d) 4 L

Q10 which has highest no. of atoms:

from 1g O_2 & 1g O_3

16
8

$$\text{atoms} = \frac{1}{32} \times N_A \times 2 = \frac{1}{16} N_A$$

$$\text{---}^{O_3} = \frac{1}{48} \times N_A \times 3 = \frac{1}{16} N_A$$

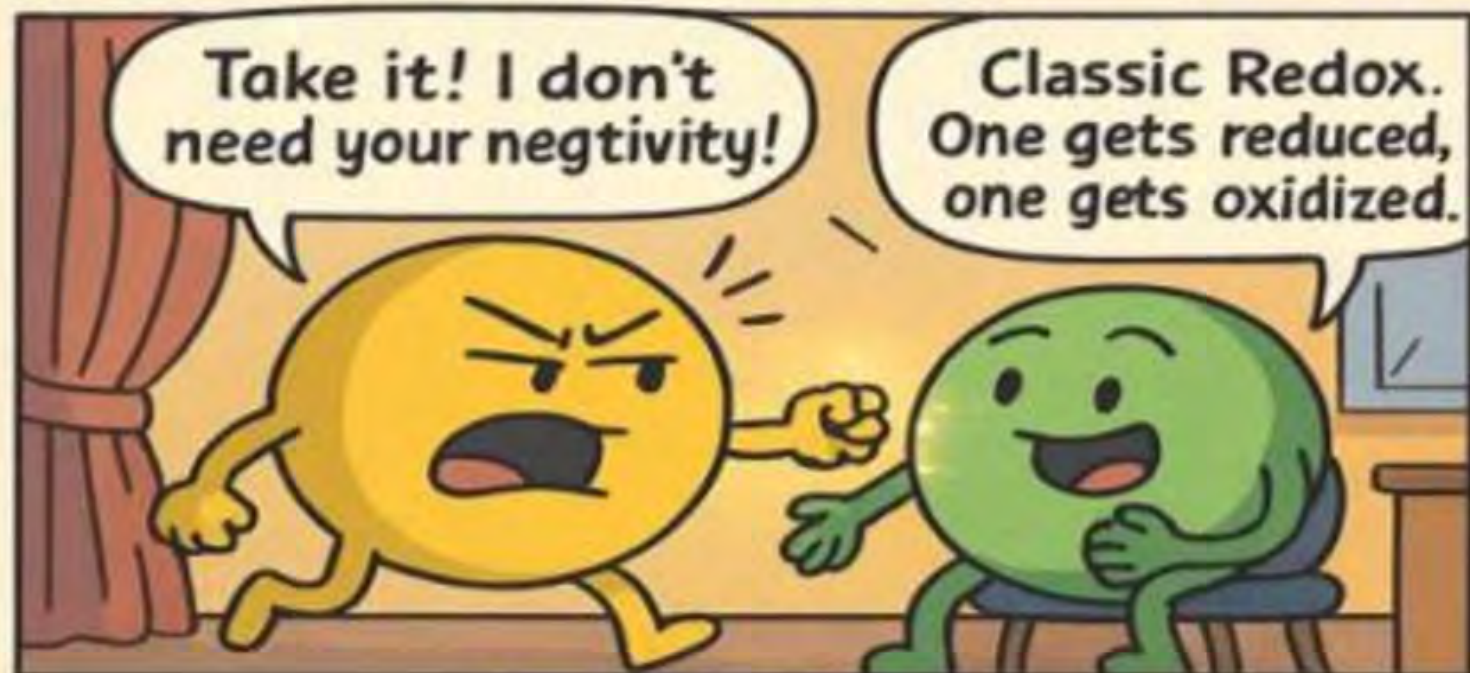
(a) O_2

(b) O_3

✓ (c) Both have same

(d) Not enough info.

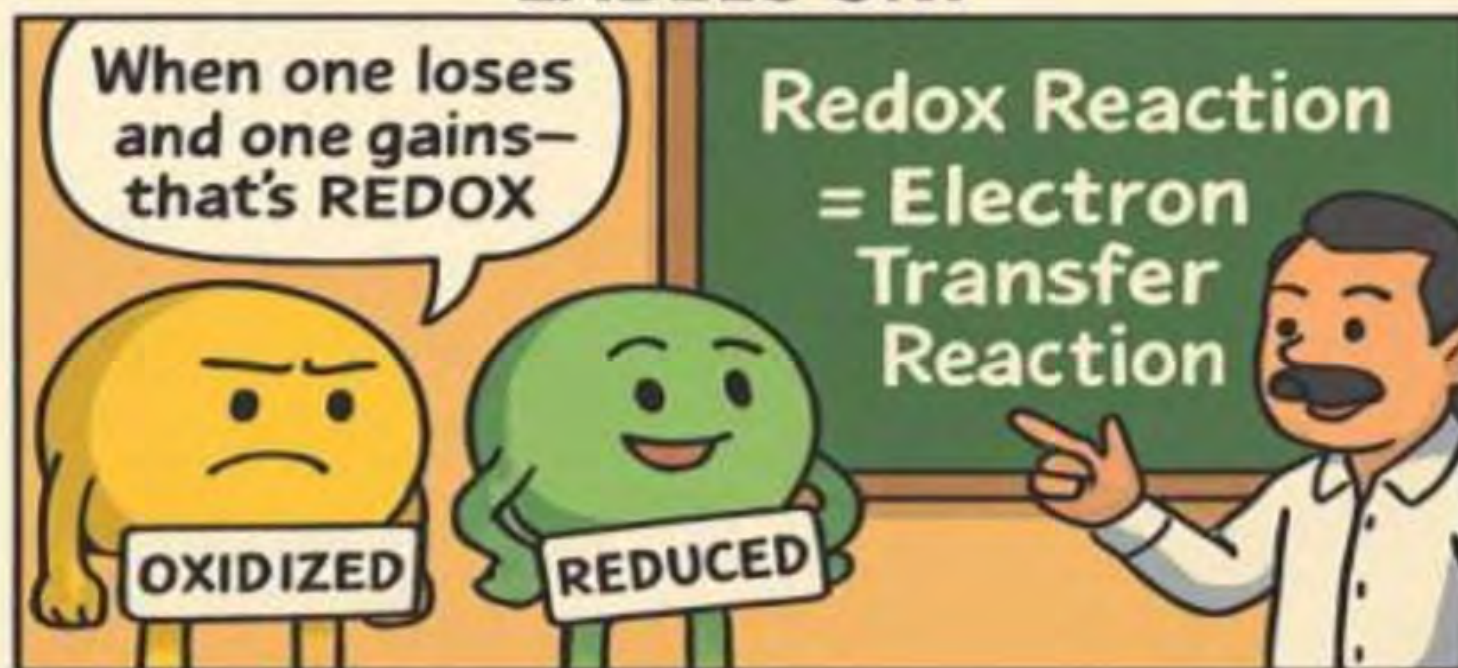
REDOX ROOMMATES:: EK ELECTRON KI KAHANI



LABELS ON!



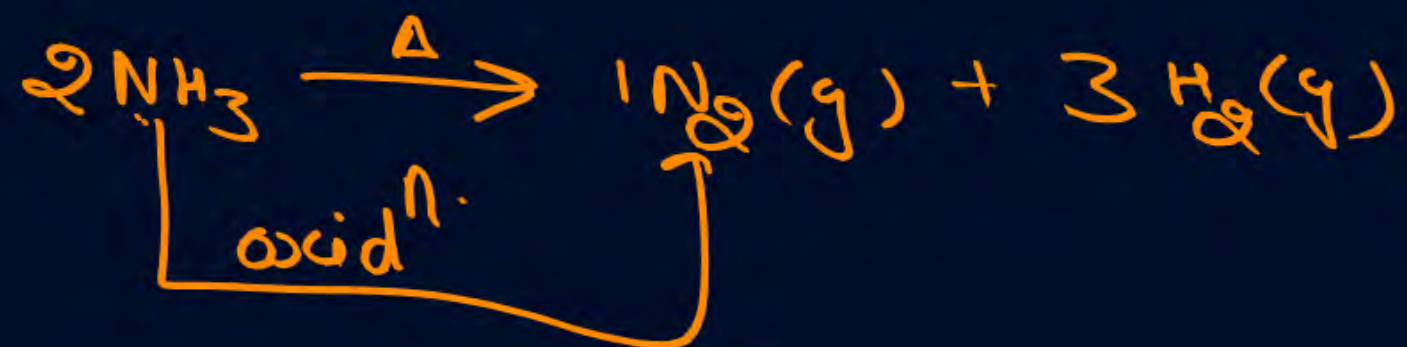
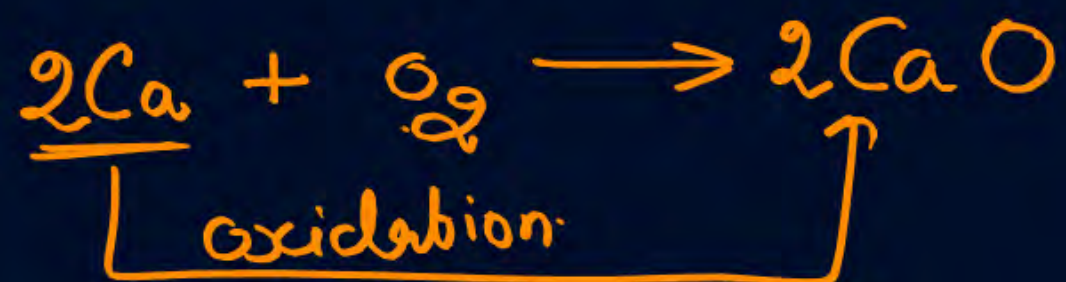
LABELS ON!





Oxidation

① addition of O_2 & loss of H_2



① Loss of electron (e^-)



$n = \text{no. of electrons}$



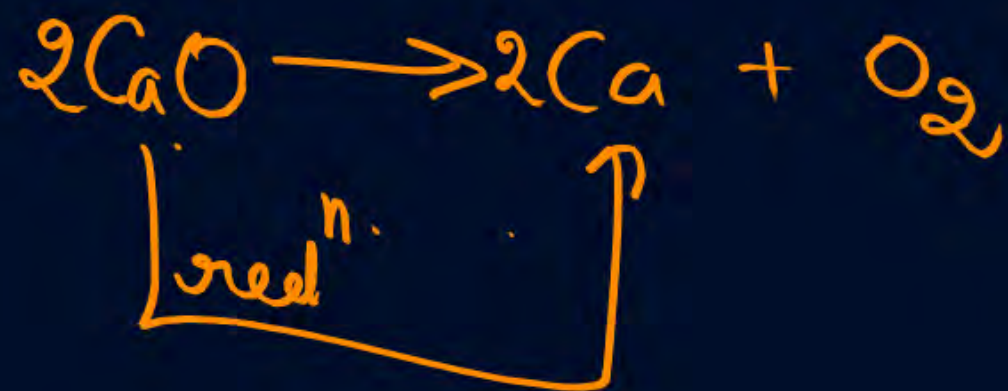
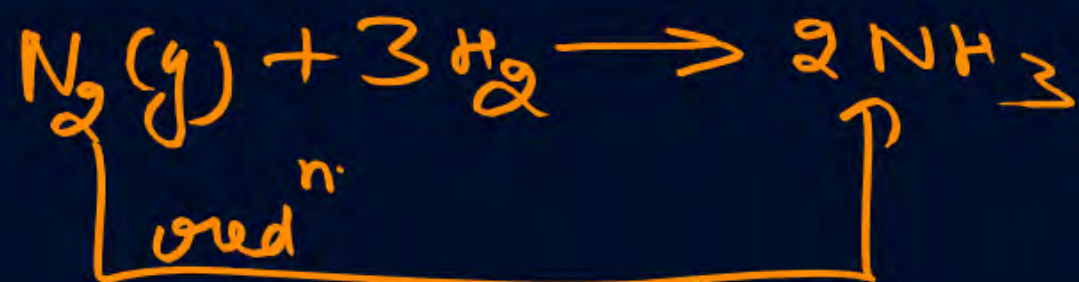
② (+)ve ↑ or (-)ve ↓ = e^- loss \Rightarrow when hi. left to right move.





Reduction

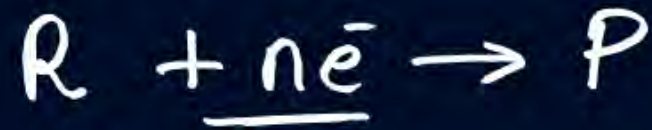
① addition of H_2 & loss of O_2 .



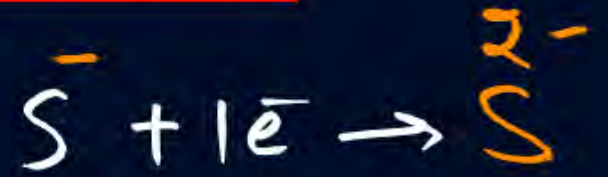
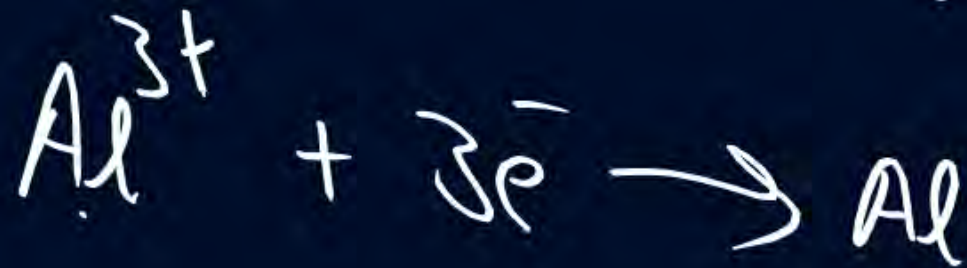
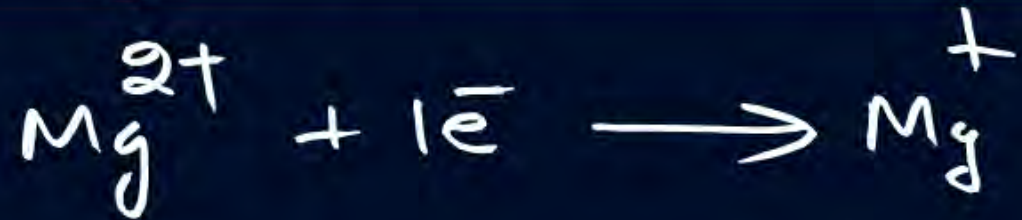
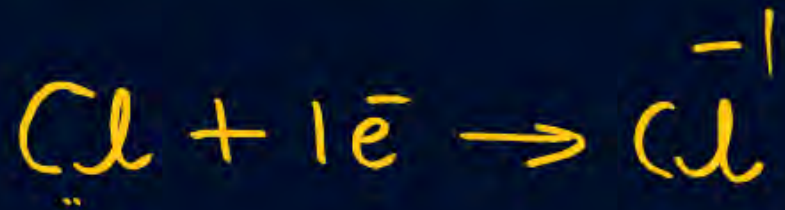
MIT



① $\text{red}^n \rightarrow$ Gain of electron.



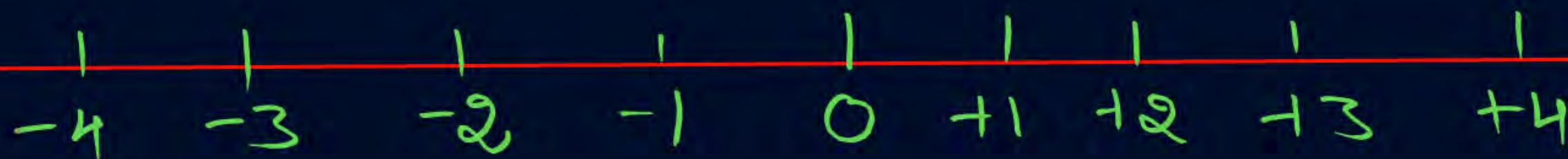
② $(+)\text{ve} \downarrow \text{ or } (-)\text{ve} \uparrow = \bar{e} \text{ gain} \Rightarrow \text{utna hi right to left.}$





Number Line System

$R \rightarrow P \rightarrow \text{Left to right} \rightarrow \text{oxid}^n$



$R \rightarrow P \leftarrow \text{right to left} \rightarrow \text{red}^n$



Redox Reaction

REDOX ROOMMATES:: EK ELECTRON KI KAHANI



LABELS ON!



LABELS ON!

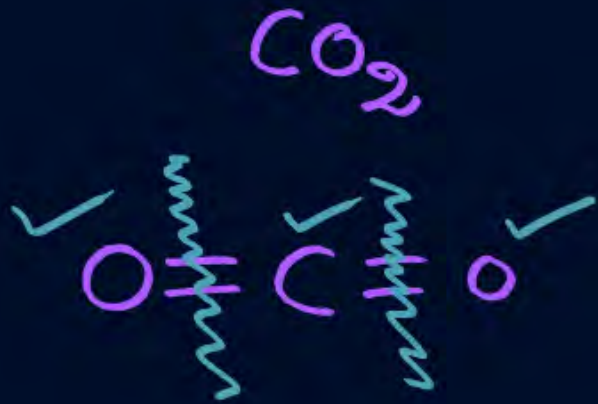




Oxidation Number

(O.N.)

Charge develop after breaking of bonds.

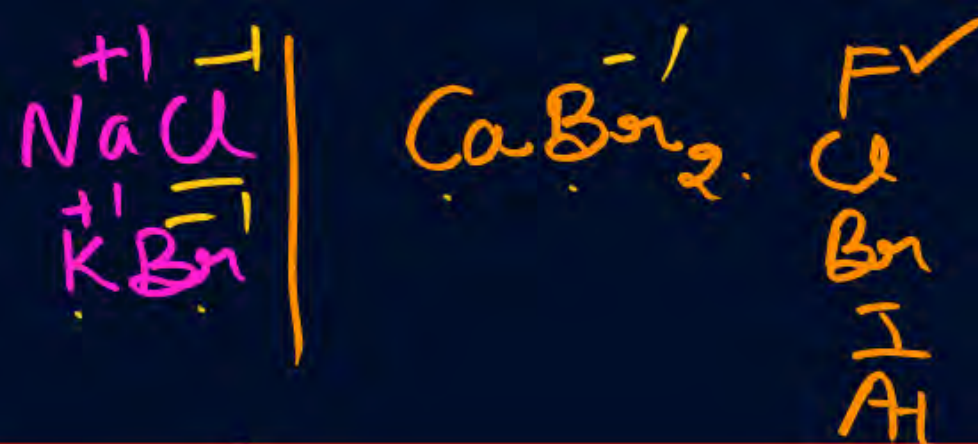


Some ions and molecule will help to calculate oxidation number.

Species	Total charge on species = oxidation No.
X^- (halide ion) F^-, Cl^-, Br^-, I^-	-1
CN^- (cyanide ion) CN^-	-1
CO_3^{2-} CO_3^{2-}	-2
SO_4^{2-} SO_4^{2-}	-2
$(NO_2)^-$ $(NO_2)^-$	-1
NO_2^- NO_2^-	-1
PO_4^{3-} PO_4^{3-}	-3
NO_3^- NO_3^-	-1
S^{2-} S^{2-}	-2
H_2O H_2O	0
NH_3	0
NO^{+1} (attached to metal) NO^{+1}	+1
CO (C)	0



Rules to find Oxidation Number



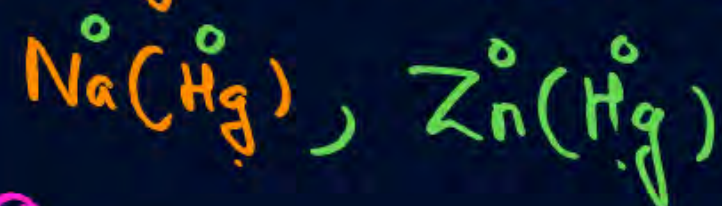
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① ion Charge = O.N.

② all elements elementary stt.
O.N. = zero.

few ex: $\text{He}, \text{H}_2, \text{N}_2, \text{S}_8, \text{Cl}_2, \text{Na}$ etc.

Alloys \rightarrow metals O.N. = zero



③ 1st grp. metals in Combined stt. \rightarrow O.N. = +1
 $\text{Li}, \text{Na}, \text{K}, \text{Rb}, \text{Cs}, \text{Fr}$

II nd grp. metals \rightarrow - = +2
 $(\text{Be}, \text{Mg}, \text{Ca}, \text{Sr}, \text{Ba}, \text{Ra})$

Halogens \rightarrow 17th grp. \rightarrow Combined stt. \rightarrow -1
 $\text{F}, \text{Cl}, \text{Br}, \text{I}, \text{At}$.

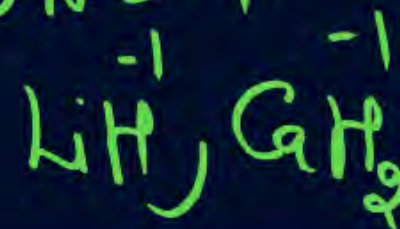
except inter halogen Compds \rightarrow More E.N. \rightarrow -1
 $(\overset{-1}{\text{Cl}}\overset{+1}{\text{F}}_3), \text{Br}\overset{-1}{\text{F}}_5$

④ Hydrogen Combined stt.

Non-metals
 \downarrow
O.N. = +1



metals.
 \downarrow
O.N. = -1



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⑤ Oxygen \Rightarrow C.S. \Rightarrow O.N. = -2
 for ex: CaO , CaSO_4 , HNO_3

\rightarrow oxides \rightarrow -2 CaO , MgO , Li_2O

\rightarrow peroxide \rightarrow -1 H_2O_2 , Na_2O_2

\rightarrow superoxide \rightarrow $-\frac{1}{2}$ KO_2 , RbO_2

⑥ Sum of all atoms

O.N.

\rightarrow in molecule = 0

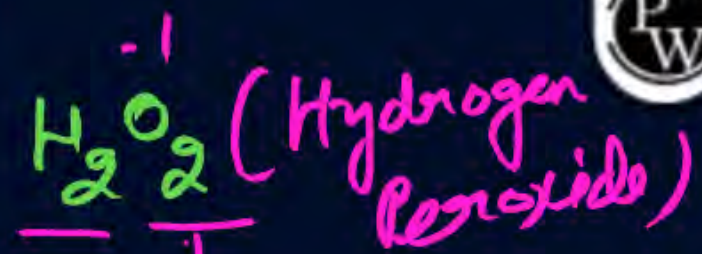
\rightarrow in ion = Charge

⑦ More E.N. \rightarrow (-)ve

Less E.N. \rightarrow (+)ve
 Periodic table

L to R E.N. \uparrow

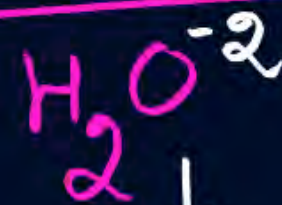
Top to bottom
 E.N. \downarrow



$$2 + 2x = 0$$

$$2x = -2$$

$$x = \frac{-2}{2} = -1$$



$$2 + x = 0$$

$$x = -2$$

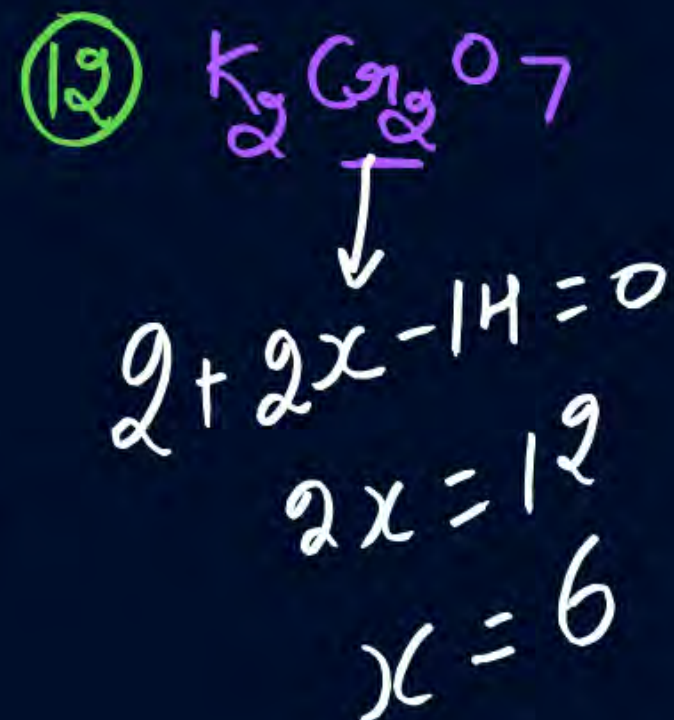
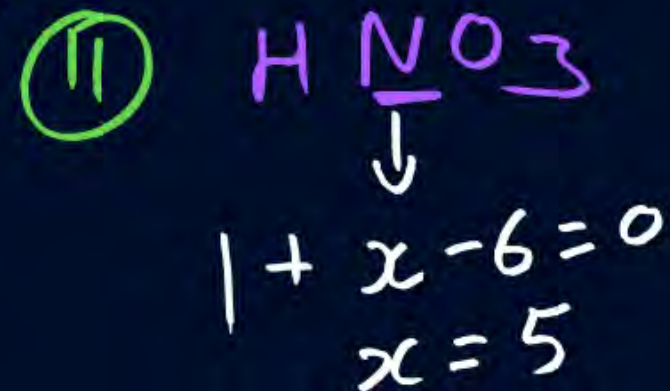
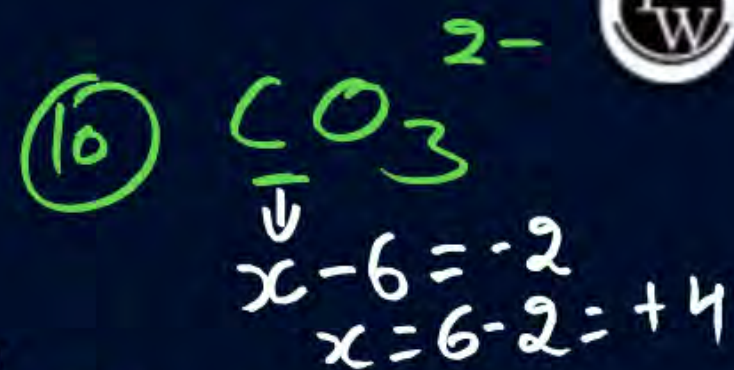
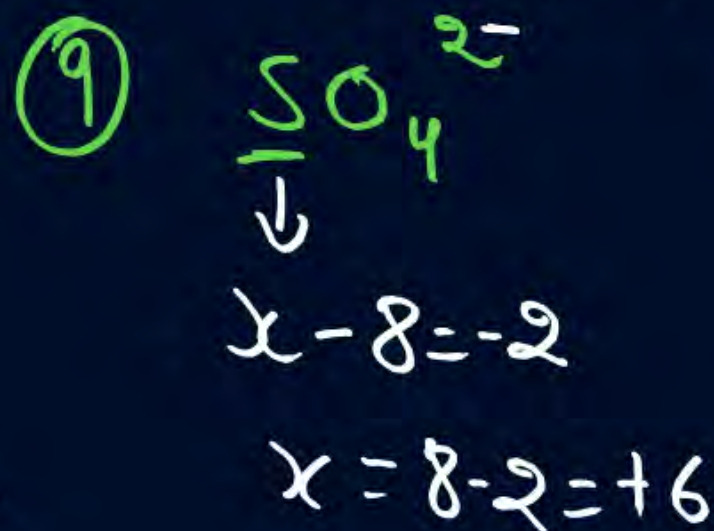
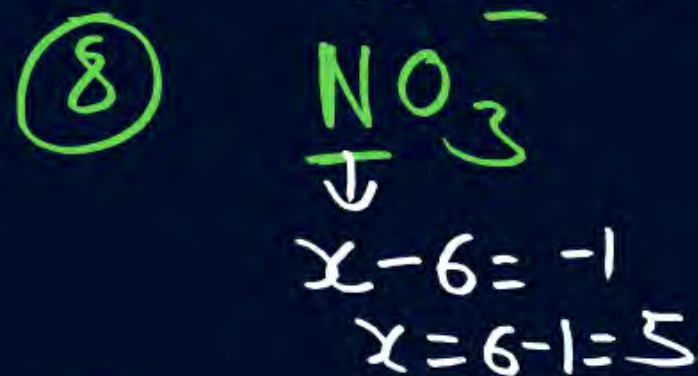
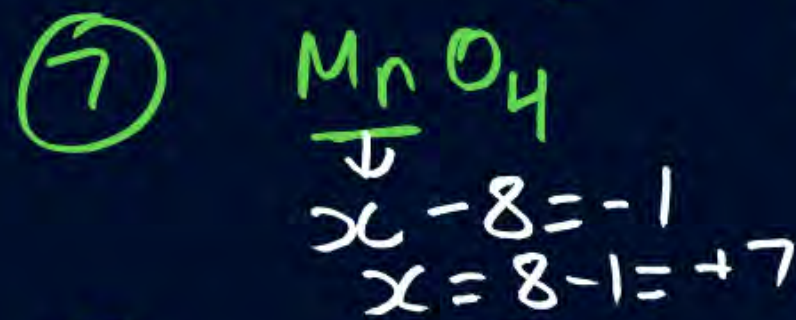
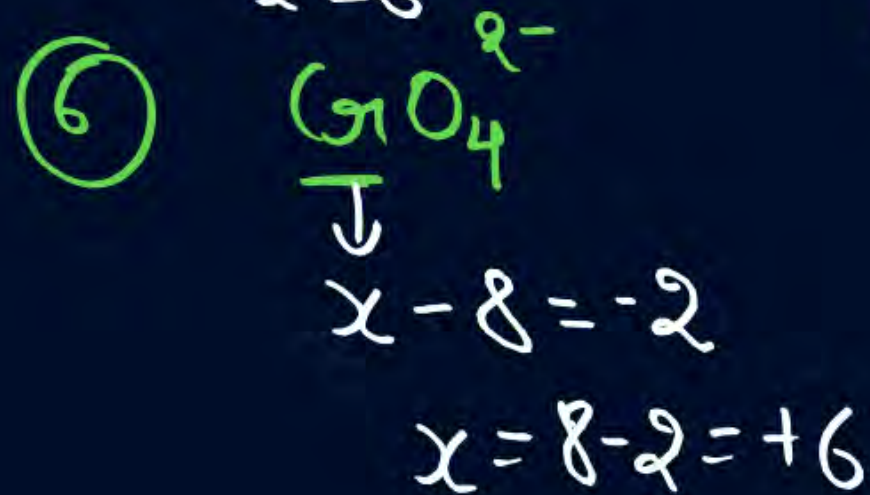
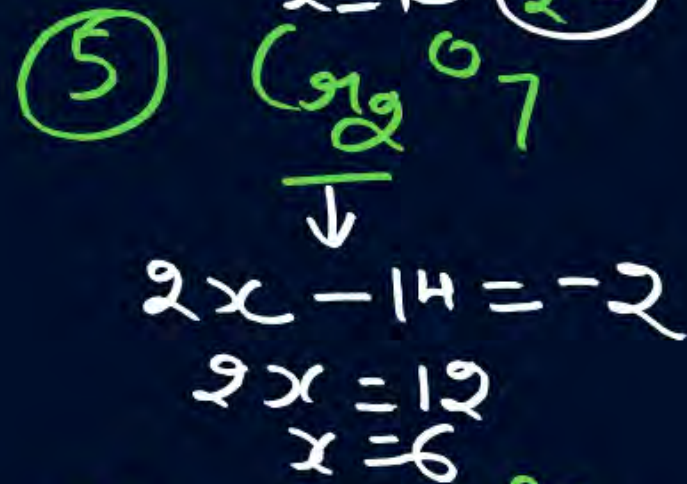
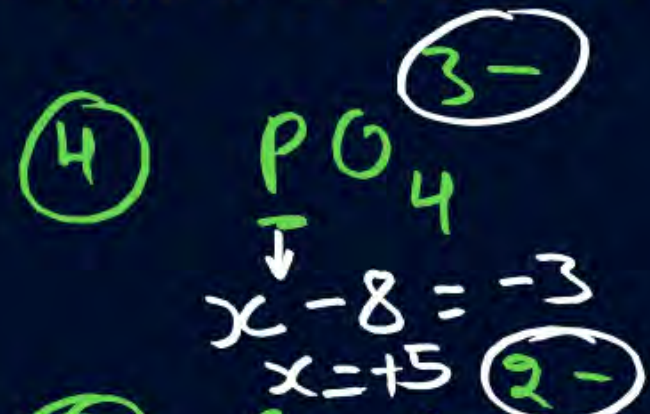
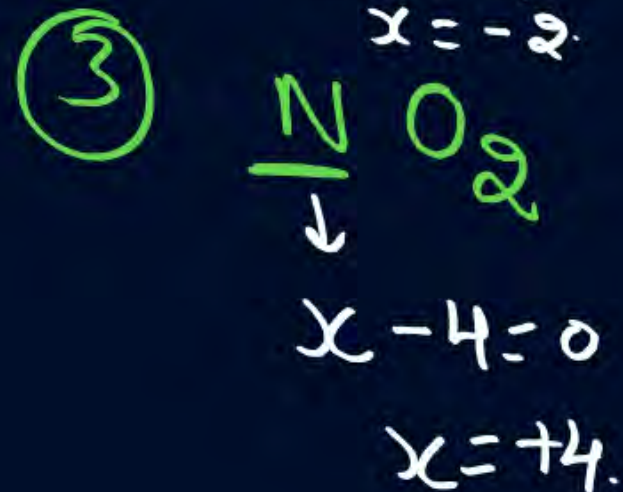
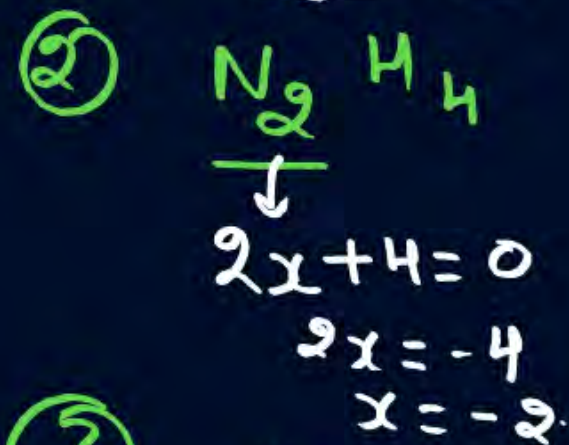
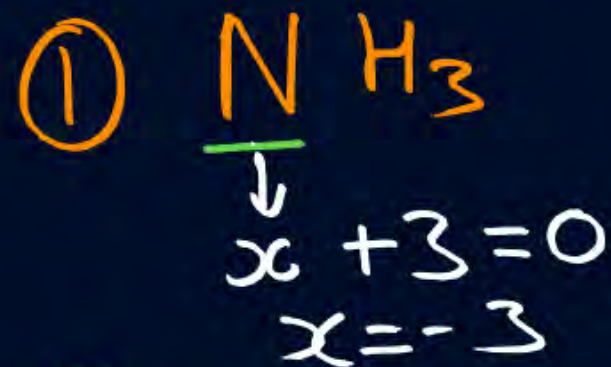


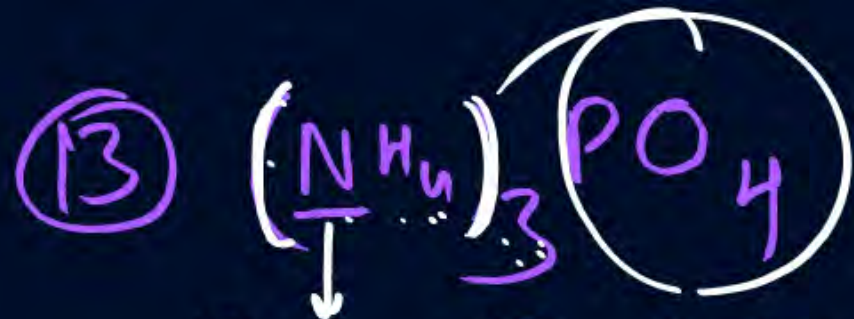
$$1 + 2x = 0$$

$$2x = -1$$

$$x = -\frac{1}{2}$$

Q Find oxidⁿ no. of underlined atom in following:-

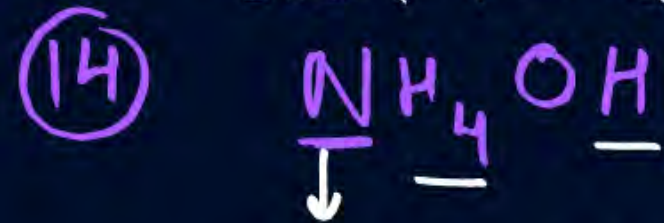




$$3x + 12 - 3 = 0$$

$$3x + 9 = 0 \Rightarrow 3x = -9$$

$$x = -\frac{9}{3} = -3$$



$$x + 5 - 2 = 0$$

$$x = -3$$



$$2x - 10 = 0$$

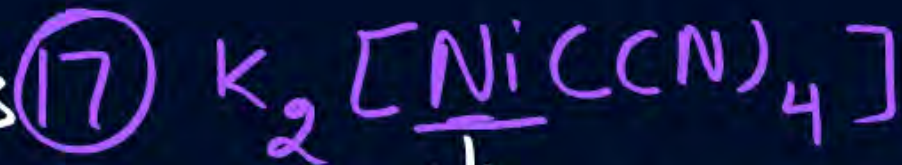
$$2x = 10$$

$$x = 5$$



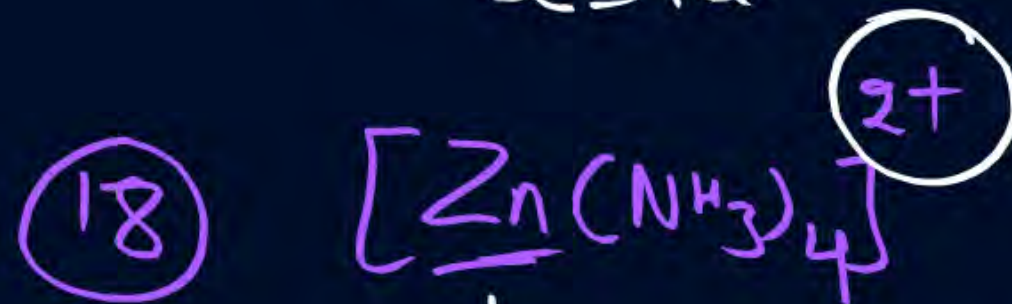
$$4 + x - 6 = 0$$

$$x = +2$$



$$2 + x - 4 = 0$$

$$x = +2$$



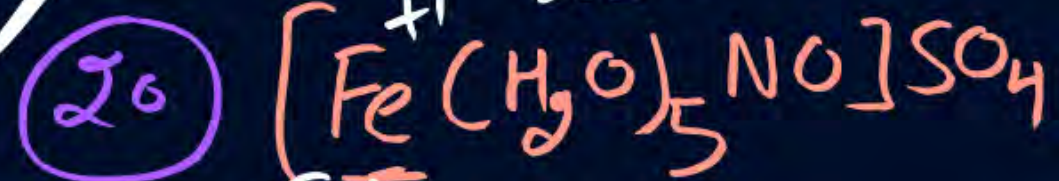
$$x + 4 \times 0 = +2$$

$$x = +2$$



$$x + 4 \times 0 = 0$$

$$x = 0$$



$$x + 5 \times 0 + 1 \times 1 + (-2) = 0$$

$$x + 1 - 2 = 0$$

$$x - 1 = 0$$

$$x = +1$$

Brown ring test

(21) $\text{K} \underline{\text{ClO}_3}$
 \downarrow
 $1 + x - 6 = 0$
 $x = +5$

(22) $\underline{\text{ClF}_3}$ ✓
 \downarrow
 $x - 3 = 0$
 $x = +3$

(23) $\underline{\text{BrF}_5}$
 \downarrow
 $x - 5 = 0$
 $x = +5$

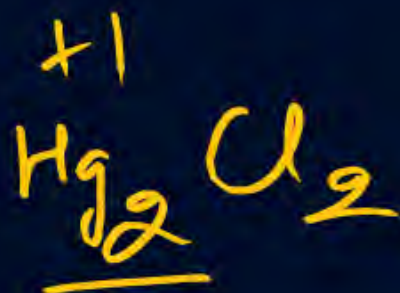
(24) $\underline{\text{ICl}}$
 \downarrow
 $x - 1 = 0$
 $x = +1$

(25) $\underline{\text{IF}_7}$
 \downarrow
 $x - 7 = 0$
 $x = +7$

(26) $\overset{+1}{\text{O}_2} \text{F}_2$
 \downarrow
 $2x - 2 = 0$
 $2x = 2$
 $x = +1$

(27) $\overset{+2}{\text{O}} \text{F}_2$
 \downarrow
 $x - 2 = 0$
 $x = +2$

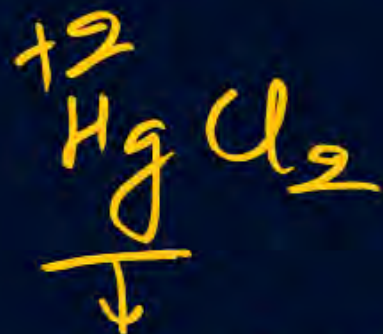
(28)



$$2x - 2 = 0$$

$$x = +1$$

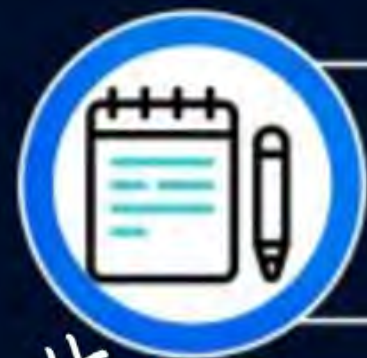
(29)



$$x - 2 = 0$$

$$x = +2$$

MEDICS → Monday
↓
Test no ÷ 2
Complete some basic of Chemistry →

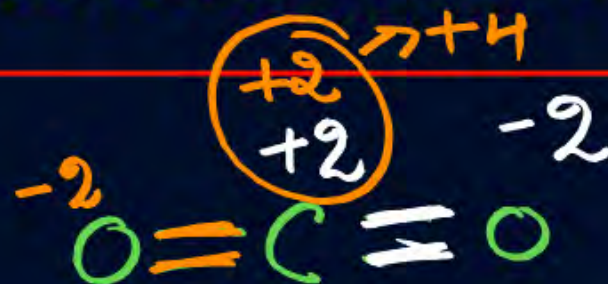
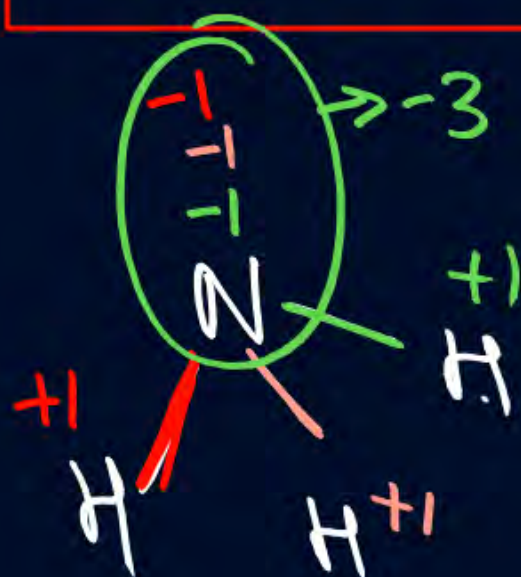


Another way to find Oxidation Number

- For every single covalent bond
- More electronegative atom has -1 Oxidation state
- Less electronegative atom has +1 Oxidation state



S₈



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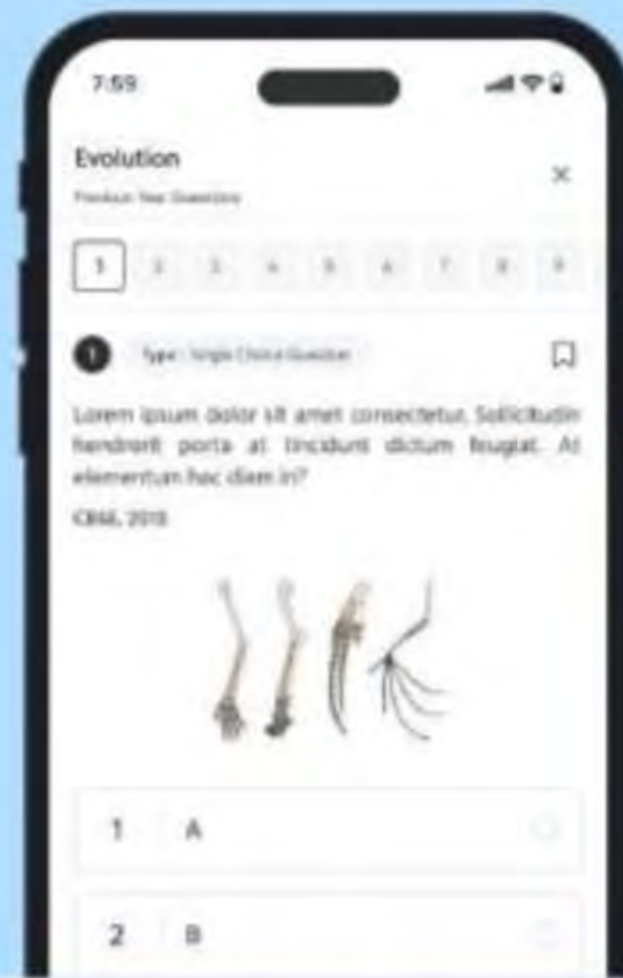
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