

① 3d

② $= \frac{56}{28} = 2$

③ Na

④ 1+

⑤ c

⑥ (ii) is correct
half filled subshell configuration more stable

⑦ a) Cu

b) hydrogen gas

⑧ a) distance increases energy level increases.

b) correct

c) correct

d) s subshell common

⑨ a) moles = $\frac{120}{24} = 5$ moles

molecules = $5N_A$

atoms = $5N_A$

b) 1 mole of oxygen = 16g of oxygen

16g of oxygen = $1 \times 6.022 \times 10^{23}$ atoms of oxygen

64g.

⑩ a) a) 4L

b) cylinder A as volume decreases pressure increases } Boyle's Law

⑪ a) 4

b) 3d

c) 10

⑫ m-m of $SO_2 = 64$

a) 64

b) noble ~~64~~

100
15
4
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a) mass of 1gmm $\text{SO}_2 = 64$

b) find molecules in 1gmm SO_2

$$\text{moles} = \frac{64}{64} = 1 \text{ mole}$$

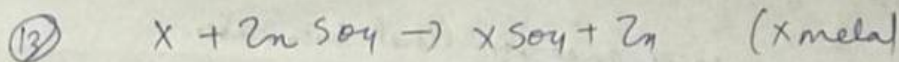
$$\text{molecules} = 1 \times 6.022 \times 10^{23}$$

$$1 \text{gmm } \text{SO}_2 = 64$$

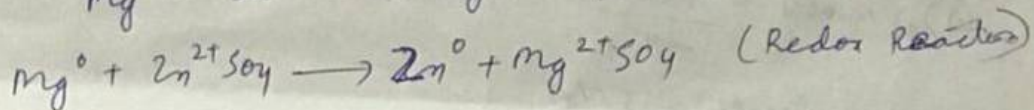
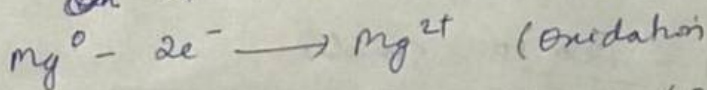
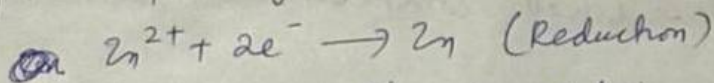
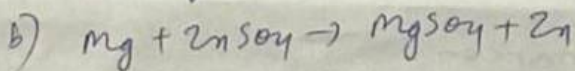
c) find no. of moles of molecules in 32g of SO_2

$$\text{moles} = \frac{320}{64} = 5 \text{ mole}$$

$$\text{molecules} = 5 \text{NA}$$



a) Z is more reactive than Zn
So Mg is the metal



c) Zn occurs Reduction as Zn^{2+} changed to Zn
~~Zn changed from its ionic state to metallic~~
 Zn^{2+} (metallic state) \rightarrow Zn^0 (ionic state)

14) a) 22.4 L

b) no. of moles = $\frac{\text{Volume}}{22.4}$

$$= \frac{112}{22.4}$$

$$= \frac{1120}{224} = \underline{\underline{5 \text{ mole}}}$$

$$\frac{1 \times 224 \times 5}{1120}$$

c) molecules = 5 NA

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$$a) \frac{V_1}{T_1} = \frac{V_2}{T_2} = \frac{V_3}{T_3}$$

$$\frac{600}{300} = \frac{800}{T_2} = \frac{a}{450}$$

$$600 T_2 = 800 \times 300$$

$$T_2 = \frac{800 \times 300}{600}$$

$$1200 = \frac{800}{400} = \frac{V_3}{450}$$

$$\frac{800}{400} = \frac{V_3}{450}$$

$$V_3 = \frac{450 \times 800}{400} = 900$$

$$\frac{275}{4} = 68.75$$

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- a) (a) $T_2 = 400$
- (b) $V_3 = 900$

b) Charles law

17

~~3s² 3p¹~~

a) 1s² 2s² 2p⁶ 3s² 3p¹

b) period - 3
block - p

c) 1s² 2s² 2p⁶ 3s² 3p⁶

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a) Boyle

b) volume - 44.8 L

$$V_1 = 44.8 \text{ L}$$

$$P_1 = 1 \text{ atm}$$

$$V_2 = 22.4 \text{ L}$$

$$P_2 = ?$$

$$P_1 V_1 = P_2 V_2$$

$$1 \times 44.8 = P_2 \times 22.4$$

$$P_2 = \frac{1 \times 44.8}{22.4}$$

$$P_2 = 2 \text{ atm}$$

c) To increase vol of gas without changing pressure and mass is to increase temperature as by Charles law

- 18)
- a) B
 - b) D
 - c) A
 - d) PA_2

19)

- energy of molecules in gas
- distance b/w molecules
- attraction force b/w molecules
- freedom of movement of molecules in gas

- a) . The distance between the molecules is very large.
the average kinetic
- Molecules are far apart in gases. The intermolecular force of attraction is very less in gases.
 - The molecules in gases have more freedom to move compared to solids & liquids.
 - They have a great deal of space between them and high kinetic energy.
- b) When the gas is put under pressure by reducing volume of container the space between the particles is reduced and the pressure exerted by their collisions increase.
- If volume is held constant but temperature of gas increases then pressure will also increase.

20 a) $1s^2 2s^2 2p^6 3s^2 3p^6 4s^2 3d^5$

b) In MnO_2 Mn has +4 oxidation state

so $1s^2 2s^2 2p^6 3s^2 3p^6 3d^3$

c) because of small energy difference between d and s subshells they show variable oxidation state