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Answer to question No: 1 (a).

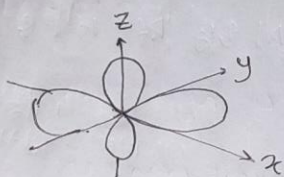e Orbitals is place where electrons are grouped in & spends 90% to 95% of it's time.
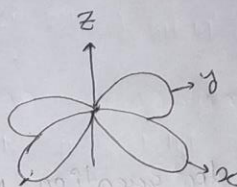

fig: d_{xy}

figure: $d_{x^2-y^2}$

Answer to question No: 1 (b).

Lewis structure:

Lewis structure is a simplified representation of the valence shell electrons in a molecule.

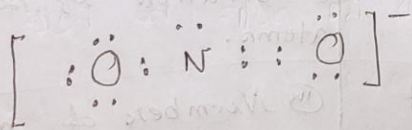It is used to show how the electrons are arranged around individual atoms in a molecule.

$$\left[:\ddot{O}:N:::\ddot{O} \right]^{-}$$
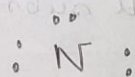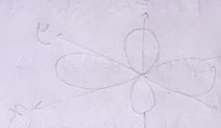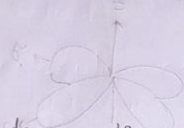
figure: NO^{2-} Lewis structure.

$$:\ddot{N}:$$

figure: N^{3-}

Answer to question NO: 2(a).

for 3p subshell:

$$n = 3.$$
$$l = 1.$$
$$m_j = -1, 0, +1.$$

Answer to question NO: 2(b).

Mole	Molecule.
① Mole is the quantity of anything that has the same number of atoms present in 12g of 12C as isotope.	① Molecule is a chemical species that is formed due to a combination of several atoms through chemical bonding.
⑪ Used to measure the quantity of a substance	⑪ Used to name a combination of several atoms.
⑪⑪ Given it' the unit 'mol'	⑪⑪ Number of molecules can be measured as the number of mol's present

(2c)

$$\text{mole} = \frac{25 \cdot 6}{60} = 0 \cdot 427 \text{ mole}$$

number of molecule, $n = \dfrac{N}{4}$

$$= 0 \cdot 427 \times 6 \cdot 02 \times 10^{23}$$

$$= 2 \cdot 57 \times 10^{23} \text{ molecule}$$

1 molecule contains 4 hydrogen atoms.

$$\therefore 2 \cdot 57 \times 10^{23} \quad (4 \times 2 \cdot 57 \times 10 \times 10^{23}) \text{ of H atoms.}$$

$$\Rightarrow 1 \cdot 028 \times 10^{24}.$$