

Quiz (Formation of Ionic Compounds)

1. The following table shows the numbers of protons, electrons and neutrons inside the particles represented by the letters W to Z. The particles are either atoms or ions. (The letters W to Z are not atomic symbols.)

Particle	Number of		
	Protons	Electrons	Neutrons
W	15	18	16
X	12	10	12
Y	12	12	12
Z	10	10	10

- (a) Which of the above particles is an atom of a noble gas?
- (b) Which of the above particles is/are ion(s)?
- (c) (i) Which TWO particles represent an atom and an ion of the same element?
- (ii) Draw the electron diagrams of the particles mentioned in (c)(i). (Use the letters of the particles to represent the atomic symbols.)
2. Draw an electron diagram of the compound formed from each of the following pairs of elements (showing electrons in the outermost shells only).
- (a) Potassium and sulphur
- (b) Sodium and iodine
- (c) Sodium and nitrogen
- (d) Calcium and bromine
3. The formula of an ionic compound is found to be X_3Y_2 (X is a metal while Y is a non-metal; X and Y are not atomic symbols.). Both the ions of X and Y have the electronic arrangement 2,8.
- (a) What is the charge on the ion of X?
- (b) What is the charge on the ion of Y?
- (c) What are the electronic arrangements of atoms of X and Y?
- (d) Identify elements X and Y.

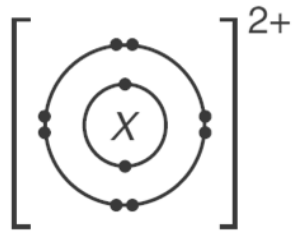
Suggested Answer

1. (a) Z

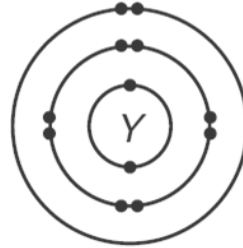
(b) W and X

(c) (i) W and Y

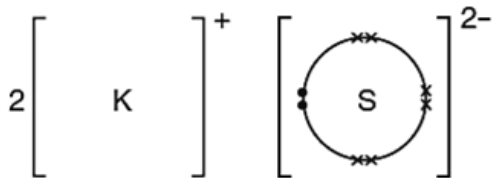
(ii) X:



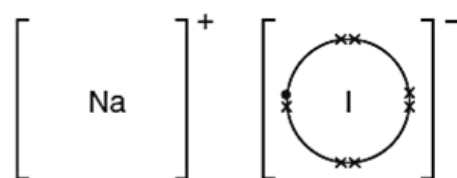
Y:



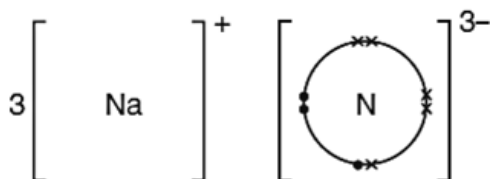
2. (a)



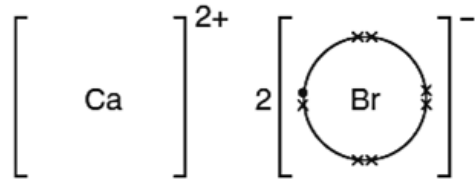
(b)



(c)



(d)



3. (a) Charge on the ion of X = +2

(b) Charge on the ion of Y = -3

(c) X atom has 2 more electrons than X^{2+} ion, hence its electronic arrangement is 2, 8, 2.

Y atom has 3 less electrons than Y^{3-} ion, hence its electronic arrangement is 2, 5.

(d) X is magnesium.

Y is nitrogen.