



# CHEMISTRY

## BOOKS - BHARATI BHAWAN

### CHEMISTRY (HINGLISH)

#### ELEMENTARY IDEA OF BONDING

#### Fill In The Blanks

1. Two atoms of the same element combine to form \_\_\_\_\_ bond.



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2. In a molecule of nitrogen ( $N_2$ ) \_\_\_\_ electrons are shared by each nitrogen atom.



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3. An atom gives up an electron to form a \_\_\_\_\_ ion.



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4. Hydrogen chloride ( $HCl$ ) is a \_\_\_\_\_ molecule.



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5. A \_\_\_\_\_ bond exists between the two nitrogen atoms in a molecule of nitrogen.



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6. The force that holds the atoms closely together in a metal is known as the \_\_\_\_ bond.



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7. Atoms which gain electrons are said to be

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**Write Yes Or No**

1. Do ionic compounds have low boiling points ?



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2. Do the covalent compounds conduct electricity ?



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3. Is it correct to say that in a metal. The metal ions are immersed in a sea of electrons ?





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4. The atoms lose or gain electrons to achieve a noble gas electronic configuration. Do you agree ?



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5. Are covalent compounds usually solids ?



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## Mark The Statements True T Or False F

1. State whether the following statement is true or false:

The Aqueous solution of an ionic compound conducts electricity because there are plenty of free electrons in the solution.



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2. Only covalent bonds are present in methane ( $CH_4$ )



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**3.** The chemical bond formed between carbon and bromine is ionic .



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**4.** The number of electrons in sodium ion is 10.



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5. Carbon tetrachloride dissolves in water, but sodium chloride does not.



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6. Metal atoms tend to lose electrons , whereas nonmetals tend to gain electrons.



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7. Covalent compounds have low melting points because



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## Multiple Choice Questions

1. Which of the following statements is (are) correct about the bonding in metals ?

A. Metal atoms from anions

B. Metal atoms form cations.

C. The atoms in a metal are haphazardly distributed.

D. Layers of atoms cannot slip over each other.

**Answer: B**



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2. Which of the following is (are) ionic compound (s) ?



**Answer: A::C::D**



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3. Which of the following is (are) not covalent compound(s) ?

A. C and H

B. H and Cl

C. Mg and O

D. Na and O

**Answer: A::B**



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4. Which of the following is (are) not covalent compound(s) ?

A.  $KBr$

B.  $CO_2$

C.  $NaCl$

D.  $NH_3$

**Answer: A::C**



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5. Two elements A and B combine to form a compound C by the transfer of electrons from A to B which of the following is (are) not true for C ?

A. It has a high melting point

B. it has a low boiling point

C. It conducts electricity.

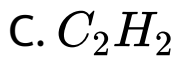
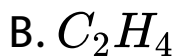
D. It is a solid.

**Answer: B**



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6. Which of the following molecules has (have) a triple bond



**Answer: C**



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## Very Short Answer Questions

1. From the following , choose the ionic compounds :

(i)  $CaCl_2$  (ii)  $CCl_4$  (iii)  $KCl$  (iv)  $H_2S$



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2. What type of bond is formed when two atoms combine by sharing of electrons ?



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3. What is a metallic bond ?



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4. Why do atoms combine to form a molecule ?



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5. Why are ionic compounds solid and hard at room temperature?



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6. What happens when sodium chloride is dissolved in water ?



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7. An atom has one electron more than its nearest noble gas atom. What type of ion can the atom form ?



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8. A metal atom X forms an oxide of the type  $X_2O$ . State the number of electrons present in the valence shell of the atom X.



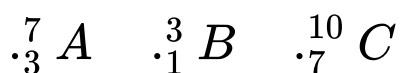
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9. The valences of zinc ion and phosphate ion are  $2^+$  and  $3^-$  respectively. Write the formula of the compound formed when these two ions combine.



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10. Which of the following is a metal ?



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## Short Answer Questions

1. (i) Write the electron-dot structures for sodium, oxygen and magnesium.

(ii) Show the formation of  $Na_2O$  and  $MgO$  by

the transfer of electrons.

(iii) What are the ions present in these compounds?



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2. Why do ionic compounds have high melting points?



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3. Sodium chloride is an ionic compound whereas hydrogen chloride is Mainly covalent because



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4. How is a molecule of chlorine formed ?



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5. What is octet rule ?



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6. What is the formula of the compound formed when an element A (atomic number = 19) combines with an element B (atomic number = 17) ?



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7. A compound  $AB_2$  is formed when A donates one electron each to two B atoms. What type



of bond is formed between A and B atoms ?



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8. How is sodium sulphide formed when sodium reacts with sulphur.



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9. What is a covalent bond ? How many covalent bonds are present in the following

molecules ?

$C_2H_6$ ,  $CO_2$ ,  $N_2$  and  $NH_3$



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**10.** Distinguish between a double bond and a triple bond. Give one example of each.



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**Long Answer Questions**

1. An element X reacts with chlorine to form a compound of formula  $XCl_2$ . Write the formulae of compounds which you expect to be formed when the element X combines with oxygen.



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2. Taking the example of sodium chloride , explain how do metals combine with nonmetals.





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3. Explain why does sodium chloride, a nonconductor, of electricity in the solid state, becomes a good conductor of electricity when dissolved in water or in the molten state.



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4. How is the compound formed when the element A having electronic configuration 2,4 combines with the element B of electronic

configuration 2,8,7 ? Name the type of bonds formed .



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5. The electron arrangements of four elements are given below :

A 2,8,7 B 2,8,18,8

C 2,8,1 D 2,8,6

(i) Name the type of bond formed when A combines with C.

(ii) Which of the four elements is an inert gas ?

(iii) Write the formula of the compound formed between C and D.



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