Scientific Aptitude

Metals & Non-Metals

Application Based Questions

Q.I. Match the following:

Directions: Given below are two columns - column I and column II. Match the two columns and write the correct answer in the given blank grid. Note: There could be more than one correct answer for element in column I.

Column – I		Column – II				
(A)	Mercury	(i)	Metal			
(B)	Bromine	(ii)	Non-metal			
(C)	Sodium	(iii)	Liquid at room temperature			
(D)	Chloride	(iv)	Used for amalgam formation			

Q.2. Fill in the blanks:

Directions: Complete the blanks from the list given below to match each of the descriptions given.

Brass, Steel, Carbon, Iron, Magnesium oxide

1.	An element that is a non-metal.	
2.	An element that is a metal.	
3.	A mixture that is a metal.	
4.	A compound that is made up of a metal and a non-metal.	
5.	A mixture that contains two metal.	

Q.3. Multiple choice questions:

Directions: Read the following questions and choose the answer that best answers the questions.

1. Which two of these elements are metals?

I. Iodine	II. Aluminum	III. Zinc	IV. Carbon
(a) I and II	(b) II and III	(c) III and IV	(d) IV and I

2. The given table represents the use of non-metal.

		Non-metal	Common use										
		i	Charcoal, diamor	nd									
		Nitrogen	i										
		iii	Insecticides										
	The information in w	hich row completes the	a givan tahla?										
	(a) i Carbon: ii fragzing food: iii sulphur (b) i Sulphur; ii kitchen foil: iii zing												
	(a) 1-Carbon; 11-Ireezi	ng Iood; iii-suipnur	(b) 1-Sulphur; 11-kitch	ien Ioii; iii-zinc									
	(c) i-Carbon; ii-kitche	n foil; iii-zinc	(d) i-Sulphur; ii-freez	zing food; iii-carbon									
3.	The characteristic properties of metals are												
	I. Malleability	II. Ductility	III. Formation of acid	dic oxides									
	(a) I and II only	(b) II and III only	(c) III and I only	(d) All of the above									
4.	The characteristic properties of non-metals are												
	I. Formation of acidic oxides. II. High density.												
	III. Tendency to form anions.												
	(a) I and II only	(b) I and III only	(c) II and III only	(d) All of the above.									
5.	Which of the following are solid non-metals?												
	I. Carbon	II. Sulphur	III. Phosphorus										
	(a) I and II only	(b) II and III only	(c) III and I only	(d) All of the above.									
6.	Which of the followin	g are liquid metals?											
	I. Platinum	II. Sodium	III. Mercury	IV. Gallium									
	(a) I and II only	(b) II and III only	(c) III and IV only	(d) IV and I only									
7.	Which of the following is a liquid at room temperature												
	I. Bromine	II. Iodine	III. Mercury										
	(a) I and II only	(b) II and III only	(c) I and III only	(d) All of the above									

8. Which of the following will displace copper from a solution of copper (II) sulphate?

I. Zn	II. Fe	III. Ag	IV. Mg
(a) I and II only	(b) II and in only	(c) I, II and III only	(d) I, II and IV only

Q.4. Assertion & Reasons:

The question given below consists of a Statement-1 (assertion) and a Statement-2 (reason). Use the following key to choose the appropriate answer.

- (a) If both Statement-1 and Statement-2 are correct and Statement-2 is the correct explanation of Statement-1.
- (b) If both Statement-1 and Statement-2 are correct but Statement-2 is not the correct explanation of Statement-1.
- (c) If Statement-1 is correct, but Statement-2 is incorrect
- (d) If Statement-1 is incorrect, but Statement-2 is correct
- (e) If both Statement-1 and Statement-2 are incorrect.
- 1. **Statement-1:** Non-metals are sonorous.

Statement-2: Most of the non-metals occur as liquids.

- Statement-1: To avoid rusting of iron we use the process of galvanisation.
 Statement-2: Rusting is a type of corrosion.
- Ans.
- Statement-1: Sodium reacts with cold water to produce an acidic oxide and hydrogen gas.
 Statement-2: Sodium is an active metal.
- Ans.

4. Statement-1: Aluminum vessels cannot be used for storing alkali solutions.
 Statement-2: Alkali solutions react with aluminum metal to form soluble salts.

Ans.

Statement-1: The blue colour of copper (II) sulphate is destroyed when iron fillings are added to it.
 Statement-2: When irons filling are added to copper (II) sulphate solution/ copper is displaced by iron.

Ans.

Q.5. Subjective questions:

1. Classify the elements present in the compounds as metals and non-metals.

Compound	Metals	Non-metals
Copper sulphate		
Sodium chloride		
Calcium carbonate		
Glucose		

2. Why do copper cannot displace zinc from its salt solution?

Ans.

3. Sonia is unable to melt a small piece of gold. Suggest a better choice?

4.	Metals are said to	be	shiny,	then	why	do	some	metals	generally	appear	to	be	dull?	How	can	their
	brightness be restore	ed?														

Ans.

- **5.** M is an element in the form of powder. M burns in oxygen and the product is soluble in water. The solution is tested with litmus. Write down one word which will correctly complete each of the following sentences.
 - (i) If M is a metal, then the litmus will turn
 - (ii) If M is a non-metal, then the litmus will turn

(iii) If M is a reactive metal, then will be evolved when M reacts with dilute sulphuric acid.

(iv) If M is a metal, it will form oxide, which will form solution with water.

6. Give one example of displacement of hydrogen, by metal, from an acid.

Ans.

7. Metals replace hydrogen from acids, whereas non-metals do not. Why?

Ans.

8. Why iron sheets are coated with zinc?
Ans.

9. Why is sodium kept immersed in kerosene oil?

10. Why does common salt absorbs moisture from air?

Ans.

11. One of the characteristic properties of a metal is that they possess a metallic lustre. However the utensils made of aluminium used by us in our daily life are not so shiny. Why?