



CHEMISTRY

BOOKS - EDUCART PUBLICATION

SAMPLE PAPER 4

Section A

1. Which of the following changes are exothermic in nature?

A. Dissolution of ammonium chloride in water

B. Decomposition of silver bromide

C. Decomposition of ferrous sulphate

D. Dilution of sulphuric acid

Answer: D



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2. A dilute ferrous sulphate solution was added gradually to the beaker containing acidified potassium permanganate solution. The light purple colour of the solution fades and finally disappears. Select the correct statement.

A. Colour disappears due to dilution as no reaction is involved.

B. $KMnO_4$ is oxidising agent and oxidises $FeSO_4$

C. $KMnO_4$ decomposes in presence of $FeSO_4$ as $KMnO_4$ is less stable

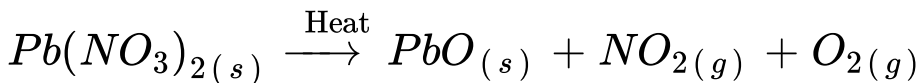
D. $FeSO_4$ acts as oxidising agent and oxidises $KMnO_4$

Answer: B

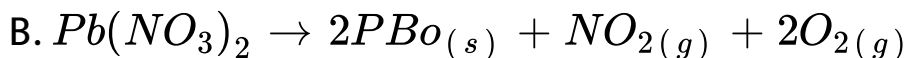
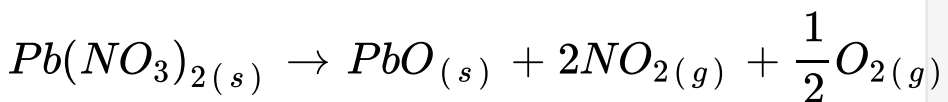


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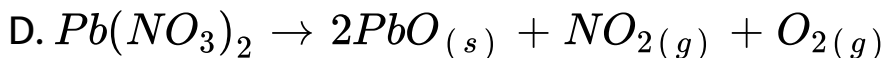
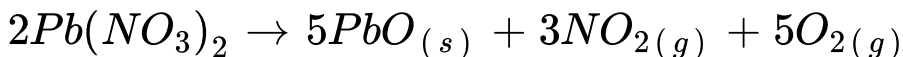
3. Balance the following chemical equation:



A.



C.



Answer: A



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4. Why does not a wall immediately acquire a white colour when a coating of slaked lime is applied on it?

A. slaked lime reacts with oxygen to form calcium carbonate, which imparts white colour

B. slaked lime reacts with carbon dioxide to form calcium hydroxide which imparts white colour

C. slaked lime reacts with carbon dioxide to form calcium carbonate which imparts white colour

D. slaked lime turns white on solidification

Answer: C



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5. The pH value of which of the salts will be greater than 7?

I. Sodium carbonate

II. Sodium chloride

III. Sodium sulphate

IV. Sodium Hydrogen Carbonate

A. Both I and II

B. Both II and IV

C. Both I and III

D. Both I and IV

Answer: D



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6. The process of dilution of acid or base with water will result in:

A. No change in the concentration of ions

(H_3O^+ / OH^-) per unit volume

B. Decrease in the concentration of ions

(H_3O^+ / OH^-) per unit volume

C. Increase in the concentration of ions

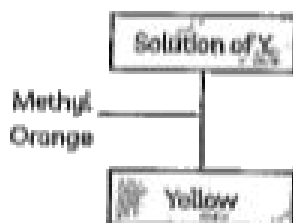
(H_3O^+ / OH^-) Per unit volume

D. Decrease in the concentration of H_3O^+ ions
but increase in concentration of OH^- ions
per unit volume

Answer: b

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7. Solution of a substance X changes its colour to pink when Phenolphthalein is added to it. Solution of another substance Y change its colour to yellow on adding methyl orange as shown in the figure below:



Identify the correct nature of solutions of X and Y:

- A. Both X and Y are basic
- B. X is basic and Y is acidic
- C. X is acidic and Y is basic
- D. Both X and Y are acidic

Answer: A

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8. Which of the following is a/are strong acids

HNO_3 , HCl , CH_3COOH , H_2CO_3

A. HNO_3 , H_2CO_3

B. HNO_3 , HCl

C. HCl , CH_3COOH

D. H_2CO_3 , CH_3COOH

Answer: B



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9. Why is sodium metal, never left open in air?

- A. It melts at room temperature
- B. It reacts with moisture present in air violently
- C. It reacts with oxygen present in air violently
- D. Both b and c

Answer: C

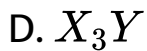
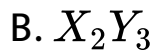
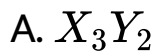


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10. Study the given table:

Atom	Sub-atomic particles		
	Proton	Neutron	Electron
X	12	12	12
Y	7	8	7

X and Y combine to form a compound of formula:



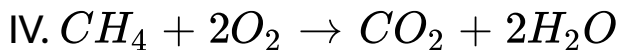
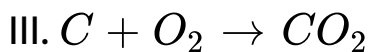
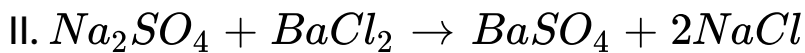
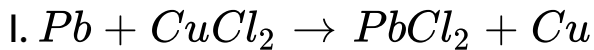
Answer: A



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Section B

1. Select the correct equation (s) which represent double displacement reaction?



A. I and IV

B. II only

C. I and II

D. III and IV

Answer: B

2. Study the table below which shows different colour produced by universal indicator in A, B, C and

D

Solution	Colour of universal indicator
P	Blue
Q	Green
R	Red
S	Violet

Which of them is strongly basic?

A. P

B. Q

C. R

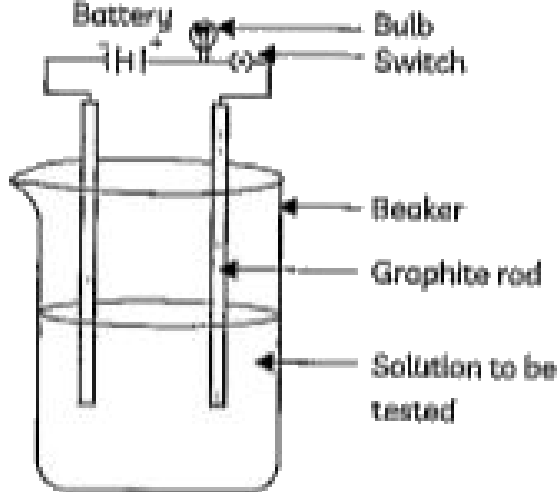
D. S

Answer: D



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3. An experiment was performed to test the electrical conductivity of some substances as shown in figure below:



The solution of which of the following will not conduct electricity?

- A. Sodium chloride
- B. Magnesium Iodide
- C. Alcohol
- D. Calcium oxide

Answer: C



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4. Following metals are taken and each of them was tested for its reaction with cold water, hot water and steam: Zn, Al, Cu, Fe, Mg, Na, K

Select the correct observations:

I. Na and K react violently with cold water.

II. Mg does not react with cold water but reacts with hot water.

III. Al, Zn and Cu react with steam

IV. Fe does not react with water or steam at all

A. Both I and II

B. Both II and III

C. Both I and IV

D. Both II and IV

Answer: A



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5. What happens when dilute hydrochloric acid is added to iron filling:

A. Hydrogen gas and iron chloride are formed

B. Chlorine gas and hydrogen gas evolved

C. Iron salt and water produced

D. No reaction takes place

Answer: A



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6. Assertion (A): When hydrogen and chlorine are placed in sunlight, hydrogen chloride is formed

Reason(R):It is an example of combustion reaction.

A. Both A and R are true, and R is the correct explanation of A

B. Both A and R are true, but R is not the correct explanation of A

C. A is true but R is false.

D. A is false but R is true.

Answer: C



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7. Assertion (A): Most reactive metals reacts with dilute acids to liberate hydrogen gas.

Reason(R): Very few reactive metals react with bases to liberates hydrogen gas.

A. Both A and R are true, and R is the correct explanation of A

B. Both A and R are true, but R is not the correct explanation of A

C. A is true but R is false.

D. A is false but R is true.

Answer: B

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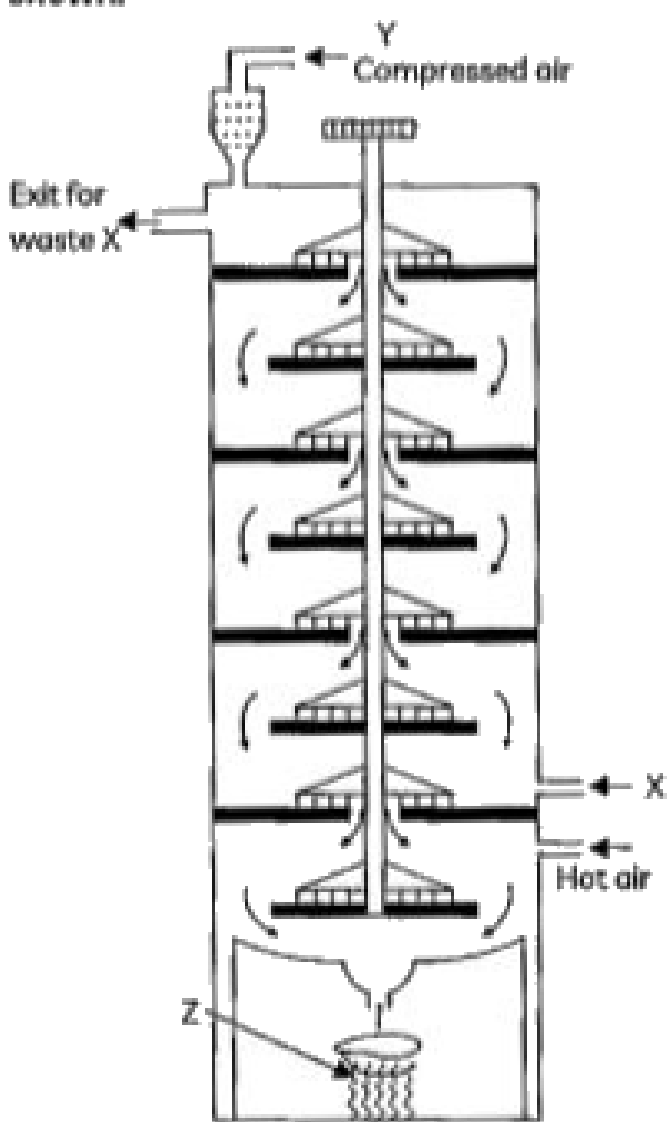
8. Study the table below and select the row that has the correct information:

	Break down of pyruvate in	Take place in	End products
(a)	Absence of oxygen	yeast	Lactic acid + Energy
(b)	Lack of oxygen	Muscle cells	Ethanol + CO ₂ + Energy
(c)	Presence of oxygen	Mitochondria	CO ₂ + H ₂ O + Energy
(d)	Presence of oxygen	Mitochondria	Ethanol - CO ₂ + Energy



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9. A compound Z is manufactured by the action of a gas X, which is a product of Chlor alkali process, on a substance Y in a plant as shown:



Z is used as an oxidising agent in many chemical industries and also used for disinfecting drinking water.

Select the row containing the correct identification of X,Y and Z from the table below:

	X	Y	Z
(a)	Caustic soda	Chlorine gas	Washing soda
(b)	Dry slaked lime	Hydrogen gas	Bleaching powder
(c)	Chlorine gas	Dry slaked lime	Baking powder
(d)	Chlorine gas	Dry slaked lime	Bleaching powder

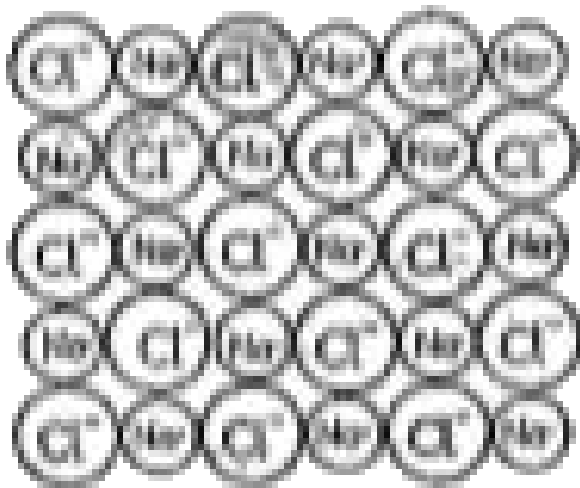


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Section C

1. Case 1: When an element composed of atoms that readily lose electrons (a metal) reacts with an element composed of atoms that readily gain electrons (a nonmetal), a transfer of electrons usually occurs, producing ions. The compound formed by this transfer is stabilized by the electrostatic attraction (ionic bonds) between the ions of opposite charge present in the compound. For example, when each sodium atom in a sample of sodium metal (group 1) gives up one electron to form a sodium cation, Na^+ , and each chlorine atom in a sample of chlorine gas (group 17) accepts one electron to form a chloride anion, Cl^- the

resulting compound, NaCl, is composed of sodium ions and chloride ions in the ratio of one Na^+ ion for each Cl^- ion.



Similarly each calcium atom (group 2) can give up two electrons and transfer one to each of two chlorine atoms to form $CaCl_2$ which is composed of Ca^{2+} and Cl^- ions in the ratio of one Ca^{2+} ion to two Cl^- ions. A compound that contains ions and is held together by ionic bonds is called an ionic

compound. The periodic table can help us recognize many of the compounds that are ionic. Ionic compounds are solids that typically melt at high temperature and boil at even higher temperatures.

The melting and boiling points of some common compounds is given below.

Melting and boiling points of common compounds

S.No.	Compound	Chemical formula	Melting point (K)	Boiling point (K)
(i)	Ethanol	C_2H_5OH	159	351
(ii)	Ammonia	NH_3	195.4	239.7
(iii)	Cesium bromide	$CsBr$	909	1573
(iv)	Magnesium oxide	MgO	3098	3873
(v)	Methane	CH_4	91	112
(vi)	Sodium chloride	$NaCl$	1074	1686
(vii)	Hydrogen	H_2	63	77
(viii)	Water	H_2O	273	373

Which of the compounds given in table above are ionic compounds?

I. Magnesium oxide

II. Sodium chloride

III. Ammonia

IV. Cesium bromida

A. Both I and II

B. I,II and III

C. I,II and IV

D. Both V and III

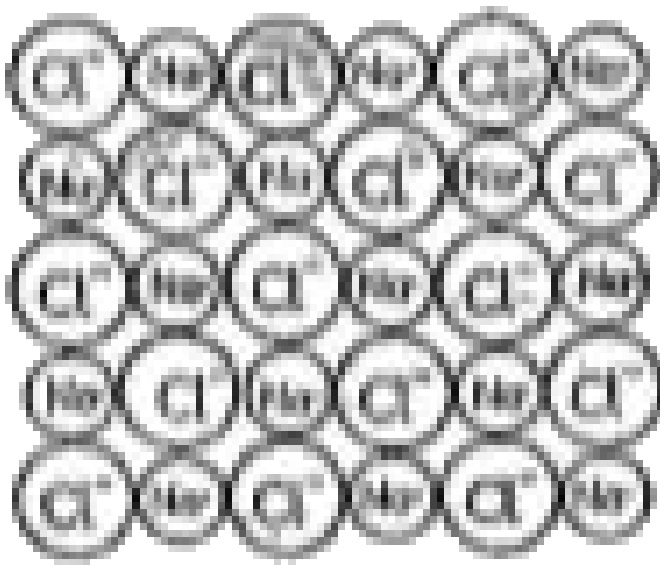
Answer: C



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2. Case 1: When an element composed of atoms that readily lose electrons (a metal) reacts with an

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The atomic number of four elements P,Q,R,S are 10,12,14 and 16 respectively. The two elements which can react to form ionic compounds are:

A. P and S

B. Q and R

C. P and R

D. Q and S

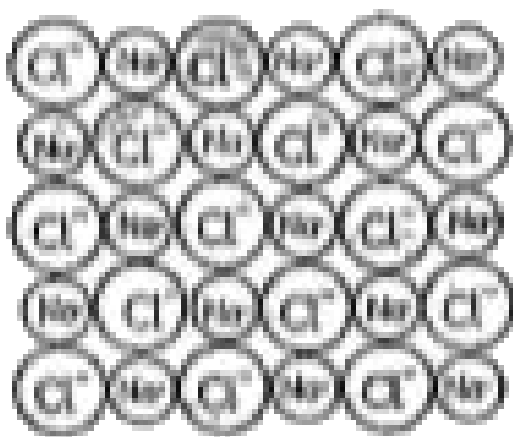
Answer: D



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Which of the following statement is true about ionic compounds?

I. Ionic compounds are crystalline solids

II. Ionic compounds are soluble in solvents such as kerosen and petrol.

III. Ionic compounds conduct electricity when dissolved in water.

IV. Ionic compounds conduct electricity in the molten state.

A. Both I and II

B. Both I and III

C. I,II and IV

D. I,II and IV

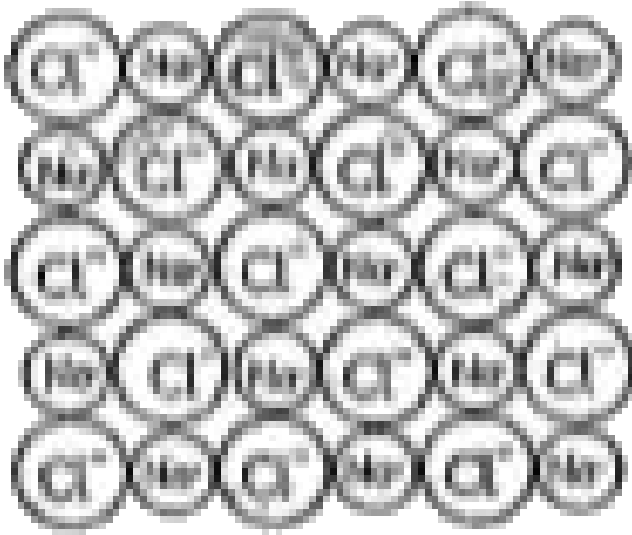
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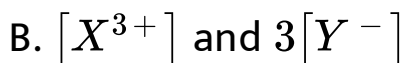
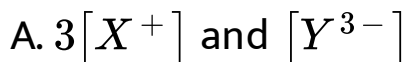
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An element X having atomic number 13 atoms a compound with element Y having atomic number 9.

The cations and anions formed will be:



D. $[X^{3-}]$ and $[Y^{3-}]$

Answer: B



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