CHEMISTRY

BOOKS - CBSE MODEL PAPER

SAMPLE PAPER 2022

Section A

1. Reema took 5ml of Lead Nitrate solution in a beaker and added approximately 4ml of

Potassium Iodide solution to it. What would she observe?

A. The solution turned red.

B. Yellow precipitate was formed.

C. White precipitate was formed

D. The reaction mixture became hot

Answer:

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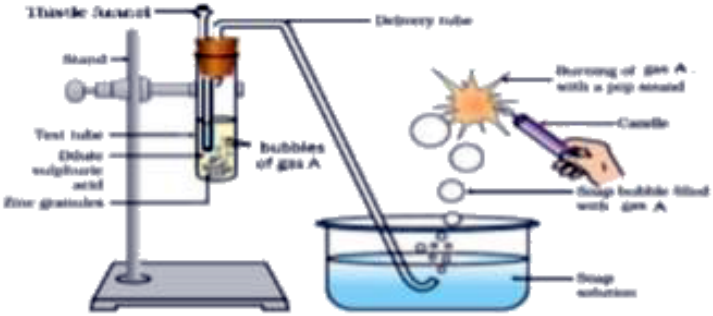
2. Identify gas A in the following experiment.



A. Nitrogen

B. Hydrogen

C. Oxygen

D. Carbon dioxide

Answer:

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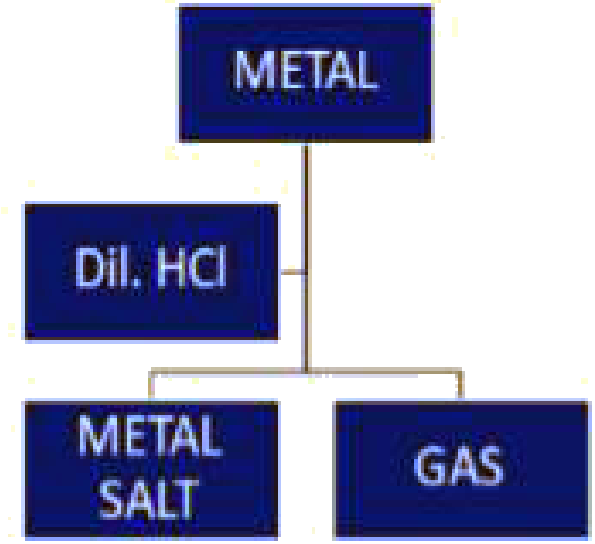
3.



Which of the following two combinations are correct?

	Metal	Gas Evolved
(i)	Copper	Yes
(ii)	Iron	Yes
(iii)	Magnesium	No
(iv)	Zinc	Yes

A. i and iii

B. i and iv

C. ii and iii

D. ii and iv

Answer:

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4. Which of the following correctly represents a balanced chemical equation?

A.

$$Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$$

B.

$$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + 4H_2(g)$$

C.

$$3Fe(s) + H_2O(g) \rightarrow Fe_3O_4(s) + H_2(g)$$

D.

$$3Fe(s) + 4H_2O(g) \rightarrow Fe_3O_4(s) + H_2(g)$$

Answer:

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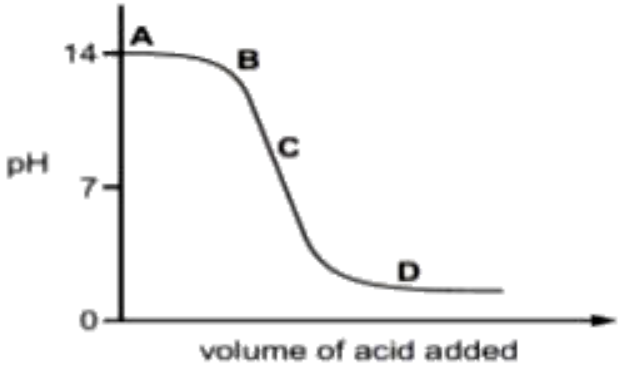
5. The graph given below depicts a neutralization reaction (acid + alkali $\rightarrow$ salt + water).The pH of a solution changes as we add excess of acid to an alkali.



Which letter denotes the area of the graph where both acid and salt are present?

A. A

B. B

C. C

D. D

Answer:

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6. In the reaction of iron with copper sulphate solution:

$CuSO_4$ + Fe $\rightarrow$ Cu + $FeSO_4$

Which option in the given table correctly represents the substance oxidised and the reducing agent?

OPTION	Substance Oxidized	Reducing Agent
A	Fe	Fe
B	Fe	$FeSO_4$
C	Cu	Fe
D	$CuSO_4$	Fe

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7. The chemical reaction between copper and oxygen can be categorized as:

A. Displacement reaction

B. Decomposition reaction

C. Combination reaction

D. Double displacement reaction

Answer:

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8. Which of the given options correctly represents the Parent acid and base of

Calcium Carbonate?

OPTION	PARENT ACID	PARENT BASE
A	HCl	NaOH
B	H_2CO_3	$Ca(OH)_2$
C	H_3PO_3	$CaSO_4$
D	H_2SO_4	$CaSO_4$

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9. How will you protect yourself from the heat generated while diluting a concentrated acid?

A. By adding acid to water with constant stirring

B. By adding water to acid with constant stirring

C. By adding water to acid followed by base.

D. By adding base to acid with constant stirring.

Answer:

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10. Why is it important to balance a skeletal chemical equation?

A. To verify law of conservation of energy.

B. To verify the law of constant proportion.

C. To verify the law of conservation of mass.

D. To verify the law of conservation of momentum

Answer:

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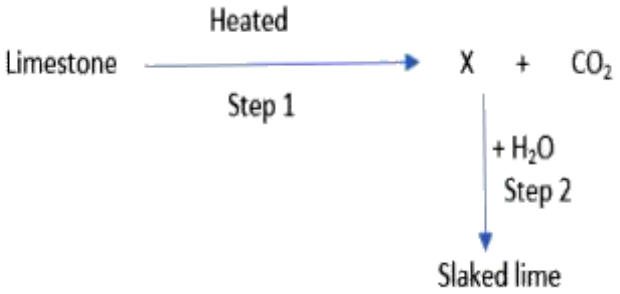
Section B



1.

Identify the correct option from the given table which represents the type of reactions

occurring in step 1 and step 2.

	endothermic	exothermic
A	×	✓
B	✓	×
C	✓	✓
D	×	×

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2. In which year is concentration of hydrogen ion the highest?

A. 2002

B. 2008

C. 2011

D. 2005

Answer:

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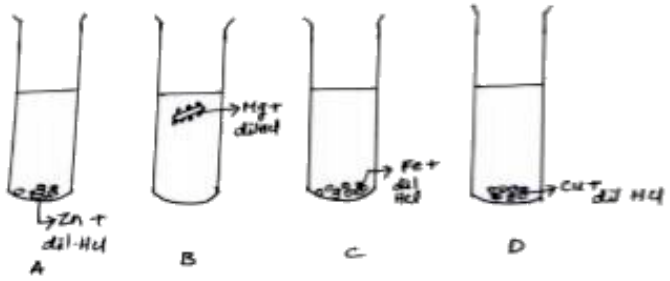
3. The diagram shows the reaction between metal and dil. acid.



What is the reason for different behaviour of Mg in test tube B?

A. Mg is lighter element than dil. HCl

B. Mg reacts with dil. HCl to produce $H2$ gas which helps in floating

C. Mg reacts with dil. HCl to produce $N2$ gas which helps in floating

D. Mg reacts with dil. HCl to produce $CO2$ gas which helps in floating

Answer:

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4. The table shown below gives information about four substances: A, B, C and D.

SUBSTANCE	MELTING POINT (K)	ELECTRICAL CONDUCTIVITY	
		SOLID	LIQUID/ AQUEOUS
A	295	Good	Good
B	1210	Poor	Good
C	1890	Poor	Good
D	1160	Poor	Poor

Identify Ionic compounds from the above given substances.

A. A, B

B. B, C

C. A, B, D

D. A, C, D

Answer:

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5. Vinay observed that the stain of curry on a white shirt becomes reddish-brown when soap is scrubbed on it, but it turns yellow again when the shirt is washed with plenty of water. What might be the reason for his observation?

i. Soap is acidic in nature

ii. Soap is basic in nature

iii. Turmeric is a natural indicator which gives reddish tinge in bases

iv. Turmeric is a natural indicator which gives reddish tinge in acids

A. i and ii

B. ii and iii

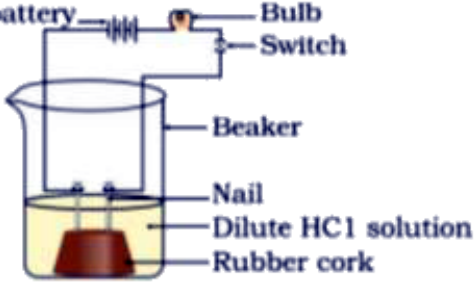
C. i and iv

D. ii and iv

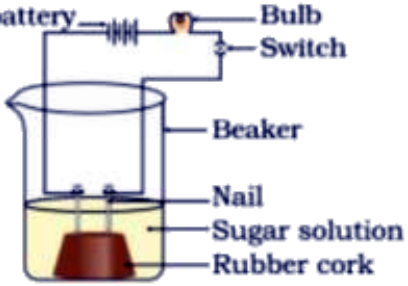
Answer:

6. In which of the following setups would the bulb glow?

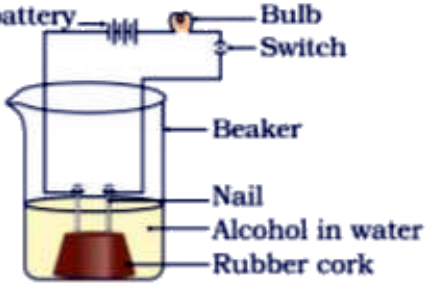
(i)


6 volt battery
Bulb
Switch
Beaker
Nail
Dilute HC1 solution
Rubber cork

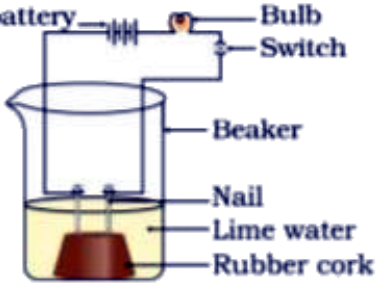
(ii)


6 volt battery
Bulb
Switch
Beaker
Nail
Sugar solution
Rubber cork

(iii)


6 volt battery
Bulb
Switch
Beaker
Nail
Alcohol in water
Rubber cork

(iv)


6 volt battery
Bulb
Switch
Beaker
Nail
Lime water
Rubber cork

A. i and ii

B. i and iv

C. ii, iii and iv

D. i, ii and iv

Answer:

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7. Assertion: Fresh milk in which baking soda is added, takes a longer time to set as curd.

Reason: Baking soda decreases the pH value of fresh milk to below 6.

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

B. Both A and R are true and 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:

8. The table given below shows the reaction of a few elements with acids and bases to evolve Hydrogen gas.

Element	Acid	Base
A	x	x
B	✓	✓
C	✓	x
D	✓	✓

Which of these elements form amphoteric oxides?

A. A and D

B. B and D

C. A and C

D. C and D

Answer:

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9. The table given below shows the reaction of a few elements with acids and bases to evolve Hydrogen gas.

Element	Acid	Base
A	×	×
B	✓	✓
C	✓	×
D	✓	✓

Which of these elements form amphoteric oxides?

A. A and D

B. B and D

C. A and C

D. B and D

Answer:

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Section C

1. The Salt Story

From: The New Indian Express 9 March 2021

The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium compounds.

One such compound is Sodium hydrogen carbonate, used in baking, as an antacid and in

soda acid fire extinguishers.

The table shows the mass of various compounds obtained when 1litre of sea water is evaporated

COMPOUND	FORMULA	MASS OF SOLID PRESENT /g
Sodium Chloride	NaCl	28.0
Magnesium Chloride	$MgCl_2$	8.0
Magnesium Sulphate	$MgSO_4$	6.0
Calcium Sulphate	$CaSO_4$	2.0
Calcium Carbonate	$CaCO_3$	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

Which compound in the table reacts with acids to release carbon dioxide?

A. NaCl

B. $CaSO_4$

C. $CaCO_3$

D. $MgSO_4$

Answer:

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2. The Salt Story

From: The New Indian Express 9 March 2021

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Calcium Sulphate	$CaSO_4$	2.0
Calcium Carbonate	$CaCO_3$	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

How many grams of Magnesium Sulphate are

present in 135g of solid left by evaporation of sea water?

A. 6g

B. 12g

C. 18g

D. 24g

Answer:

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3. The Salt Story

From: The New Indian Express 9 March 2021

The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium compounds.

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Calcium Sulphate	$CaSO_4$	2.0
Calcium Carbonate	$CaCO_3$	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

What is the saturated solution of Sodium Chloride called?

A. Brine

B. Lime water

C. Slaked lime

D. Soda water

Answer:

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4. The Salt Story

From: The New Indian Express 9 March 2021

The salt pans in Marakkanam, a port town about 120 km from Chennai are the third largest producer of salt in Tamil Nadu. Separation of salt from water is a laborious process and the salt obtained is used as raw materials for manufacture of various sodium

compounds.

One such compound is Sodium hydrogen carbonate, used in baking, as an antacid and in soda acid fire extinguishers.

The table shows the mass of various compounds obtained when 1litre of sea water is evaporated

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Sodium Chloride	NaCl	28.0
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Magnesium Sulphate	$MgSO_4$	6.0
Calcium Sulphate	$CaSO_4$	2.0
Calcium Carbonate	$CaCO_3$	1.0
TOTAL AMOUNT OF SALT OBTAINED		45.0

What is the pH of the acid which is used in the formation of common salt?

A. Between 1 to 3

B. Between 6 to 8

C. Between 8 to 10

D. Between 11 to 13

Answer:

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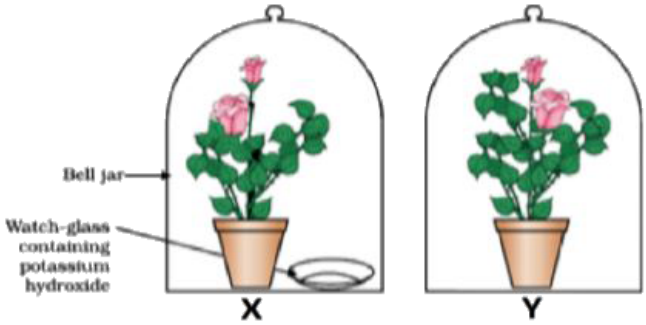
5. The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two

healthy potted plants were kept in the dark for 72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.



This experimental set up is used to prove essentiality of which of the following requirements of photosynthesis?

A. Chlorophyll

B. Oxygen

C. Carbon dioxide

D. Sunlight

Answer:

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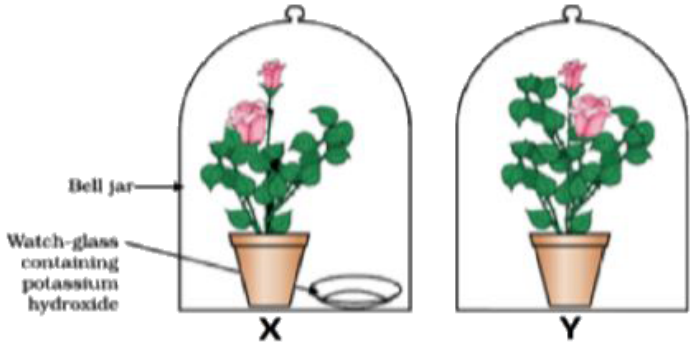
6. The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two

healthy potted plants were kept in the dark for 72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.



The function of KOH is to absorb

A. Oxygen

B. Carbon dioxide.

C. Moisture.

D. Sunlight

Answer:

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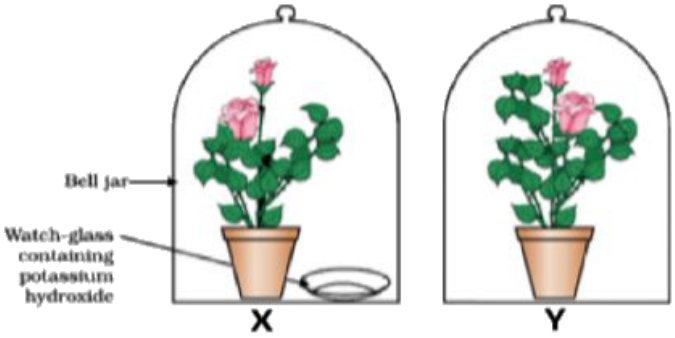
7. The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two healthy potted plants were kept in the dark for

72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.



Which of the following statements shows the correct results of Iodine Test performed on the leaf from plant X and Y respectively?

A. Blue - black colour would be obtained on the leaf of plant Xand no change in colour on leaf of plant Y.

B. Blue - black colour would be obtained on the leaf of plant Y and no change in colour onleaf of plant X.

C. Red colour would be obtained on the leaf of plant X and brown colour on the leaf of plant Y.

D. Red colour would be obtained on the leaf of plant Y and brown colour on the leaf of plant X.

Answer:

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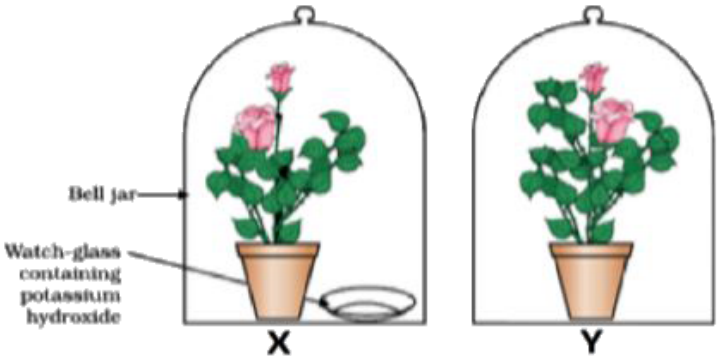
8. The Figure shown below represents an activity to prove the requirements for photosynthesis. During this activity, two healthy potted plants were kept in the dark for

72 hours. After 72 hours, KOH is kept in the watch glass in setup X and not in setup Y. Both these setups are air tight and have been kept in light for 6 hours. Then, Iodine Test is performed with one leaf from each of the two plants X and Y.



Which of the following steps can be followed for making the apparatus air tight?

i. placing the plants on glass plate

ii. using a suction pump.

iii. applying aseline to seal the bottom of jar.

iv. creating vacuum

A. i and ii

B. ii. and iii

C. i. and iii

D. ii. and iv

Answer:

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Alternative Questions Section A

1. A gas is evolved when Dil. Sulphuric Acid reacts with Zinc granules. It gives a pop sound when lit match stick is introduced near it. Identify the gas?

A. Nitrogen

B. Hydrogen

C. Oxygen

D. Carbon dioxide

Answer:

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2. Metal X reacts with Dil. HCl to form Metal Salt and Gas. Identify X?

A. Copper

B. Mercury

C. Silver

D. Zinc

Answer:

Watch Video Solution

3. In the neutralization reaction when excess of acid is added to an alkali, salt and water are produced. What is the nature of the solution after the reaction occurs?

A. Amphoteric

B. Acidic

C. Basic

D. Neutral

Answer:

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Alternative Questions Section B

1. Even though rain water is the purest form of water, it acts as an electrolyte. However, distilled water cannot be an electrolyte.

The reason for this is

A. rain water consists of dissolved oxygen

B. rain water consists of dissolved oxides of sulphur

C. rain water consists of dissolved Nitrogen

D. rain water consists of dissolved oxides of Hydrogen

Answer:

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2. The reason for different behaviour (floating) of Mg in dil HCl is due to:

A. Mg is lighter element than dil. HCl

B. Mg reacts with dil. HCl to produce H_2 gas which helps in floating

C. Mg reacts with dil. HCl to produce N_2 gas which helps in floating

D. Mg reacts with dil. HCl to produce CO_2 gas which helps in floating

Answer:

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3. Which of the following solutions are electrolytes?

i. Dil. HCl

ii. Sugar Solution

iii. Alcohol in water

iv. Lime water

A. i and ii

B. i and iv

C. ii, iii and iv

D. i, ii and iv

Answer:

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Section A

1. The table shows the electronic structures of four elements.

Element	Electronic Structure
P	2,6
Q	2,8,1
R	2,8,7
S	2,8,8

a. Identify which element(s) will form covalent bonds with carbon.

b. "Carbon reacts with an element in the above table to form several compounds." Give suitable reason.

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2. The diagram below shows part of the periodic table.

a. Which elements would react together to form covalent compounds?

b. Between the two elements W and Z, which will have a bigger atomic radius? Why?

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Section B

1. Choose an element from period 3 of modern periodic table that matches the description given below in each instance. Give reason for your choice.

a. It has a similar structure to diamond.

b. It has same valency as Lithium.

c. It has variable valency and is a member of the Oxygen family (group 16).

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2. a. How many isomers are possible for the compound with the molecular formula C_4H_8 ? Draw the electron dot structure of branched chain isomer.

b. How will you prove that C_4H_8 and C_5H_{10} are homologues ?

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3. A carbon compound 'A' having melting point 156K and boiling point 351K, with molecular formula C_2H_6O is soluble in water in all

proportions.

a. Identify 'A' and draw its electron dot structure.

b. Give the molecular formulae of any two homologues of 'A'.

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4. Gas A, found in the upper layers of the atmosphere, is a deadly poison but is essential for all living beings. The amount of this gas started declining sharply in the 1980s.

a. Identify Gas A. How is it formed at higher levels of the atmosphere?

b. Why is it essential for all living beings? State the cause for the depletion of this gas.

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