



CHEMISTRY

BOOKS - MTG IIT JEE FOUNDATION

FOOTSTEPS towards(CBSE Board)

Section A

1. Name the materials used in making parachutes and ropes for rock climbing.



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2. Name the materials used in making non-stick cookwares.



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3. Give one use of each of the following:

Bakelite



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4. Give one use of each of the following:

Acrylic



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5. What will happen if you drop
a silver ring in a copper sulphate solution?



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6. What will happen if you drop copper wire into ferrous sulphate solution?



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7. Name the products formed by destructive distillation of coal.



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8. Define the term 'ignition temperature?'



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9. Name the metal which is an essential component of haemoglobin.



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10. Differentiate between metals and non-metals on the basis of sonorosity.



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11. Give name of the non-metal which is source of energy in the Sun and stars.



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12. Differentiate between metals and non-metals on the basis of ductility.



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13. Synthetic fibres are not comfortable to wear in summers. Why?



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14. Paper cup containing water does not catch fire when placed over a flame. Give reason.



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15. Given below is the characteristic of plastics.

Write two uses for the characteristic. Light,
strong and durable



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16. Which is a better fuel-coal or coke? Why?



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17. Define carbonisation.



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18. Given below is the characteristic of plastics.

Write two uses for the characteristic. Poor conductors of heat and electricity



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19. Fires produced by burning petrol are not extinguished by pouring water. Give reason.



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20. Give the name of one natural polymer.



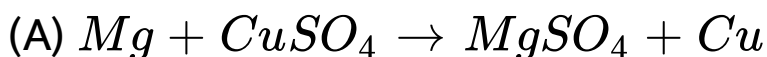
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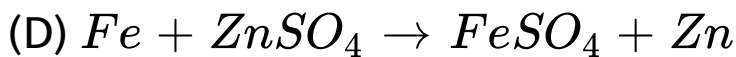
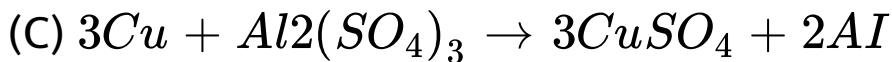
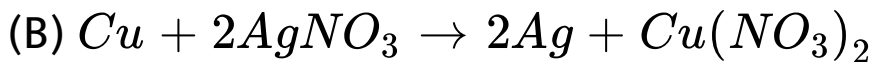
21. Full form of LPG



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22. Identify the incorrect reactions.





A. (A) and (B)

B. (A) and (D)

C. (C) and (D)

D. (A), (B), (C) and (D)

Answer: C



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23. How natural gas can be obtain from crude oil?



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24. Assertion : Calcium starts floating on the surface of water as the bubbles of hydrogen gas produced stick to the surface of calcium.

Reason: Calcium does not react with water.

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

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

C. A is true, but R is false.

D. A is false, but R is true.

Answer: C



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25. Assertion : In case of oil fires, to extinguish the fire, the burning materials is not sprayed with water.

Reason: Density of water is less than density of oil.

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

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

C. A is true, but R is false.

D. A is false, but R is true.

Answer: C



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26. Assertion : The ignition temperature of kerosene oil is lower than that of wood.

Reason: A combustible substance cannot catch fire as long as its temperature is lower than its ignition temperature.

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

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

C. A is true, but R is false.

D. A is false, but R is true.

Answer: B



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27. Assertion: In refining of the crude oil, the hydrocarbons with the highest boiling points condense first and get collected near the base of the fractionating tower.

Reason: The temperature decreases from bottom to top in the fractionating column.

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

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

C. A is true, but R is false.

D. A is false, but R is true.

Answer: A




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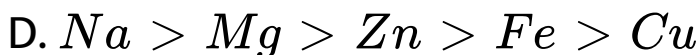
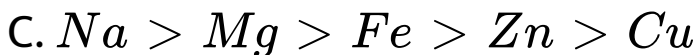
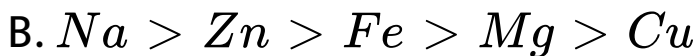
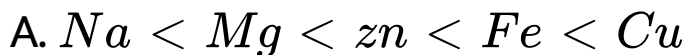
28. Most of the metals react chemically with other substances in one form or another. Few metals which do not react with common chemicals are called noble metals e.g., silver, gold, platinum. The rate of reaction with which metals react is not same for all the metals. The rate of reaction depends on the reactivity of metals. On the basis of their reactive nature, a series known as reactivity series has been drawn in which metals are arranged in decreasing order of their reactivity.

Metal	Symbol
Potassium	K
Sodium	Na
Calcium	Ca
Magnesium	Mg
Aluminium	Al
Zinc	Zn
Iron	Fe
Lead	Pb
Hydrogen	H
Copper	Cu
Mercury	Hg
Silver	Ag
Gold	Au

Reactivity decreases



Which of the following represents the correct reactivity order of metals with water?




Answer: D



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Iron	Fe	
Lead	Pb	
Hydrogen	H	
Copper	Cu	
Mercury	Hg	
Silver	Ag	
Gold	Au	

A strip of magnesium ribbon is added to some solutions of metal nitrates. Which metal nitrate will have no reaction with magnesium?

A. Silver nitrate

B. Zinc nitrate

C. Potassium nitrate

D. Lead nitrate


Answer: C



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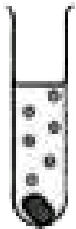
30. Most of the metals react chemically with other substances in one form or another. Few metals which do not react with common chemicals are called noble metals e.g., silver,

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Zinc	Zn	
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Hydrogen	H	
Copper	Cu	
Mercury	Hg	
Silver	Ag	
Gold	Au	

Pieces of copper, lead, aluminium and zinc are

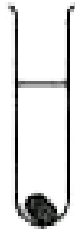
added to dilute hydrochloric acid. Which of the following test tubes most likely contains zinc?



(I)



(II)



(III)



(IV)

A. (I)

B. (II)

C. (III)

D. (IV)

Answer: D



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31. Most of the metals react chemically with other substances in one form or another. Few metals which do not react with common chemicals are called noble metals e.g., silver, gold, platinum. The rate of reaction with which metals react is not same for all the metals. The rate of reaction depends on the reactivity of metals. On the basis of their reactive nature, a

series known as reactivity series has been drawn in which metals are arranged in decreasing order of their reactivity.

Metal	Symbol	
Potassium	K	↓ Reactivity decreases
Sodium	Na	
Calcium	Ca	
Magnesium	Mg	
Aluminium	Al	
Zinc	Zn	
Iron	Fe	
Lead	Pb	
Hydrogen	H	
Copper	Cu	
Mercury	Hg	
Silver	Ag	
Gold	Au	

Which metal would not produce bubbles of hydrogen gas when added to dilute hydrochloric acid?

A. Magnesium

B. Sodium

C. Iron

D. Silver


Answer: D



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32. Most of the metals react chemically with other substances in one form or another. Few metals which do not react with common chemicals are called noble metals e.g., silver,

gold, platinum. The rate of reaction with which metals react is not same for all the metals. The rate of reaction depends on the reactivity of metals. On the basis of their reactive nature, a series known as reactivity series has been drawn in which metals are arranged in decreasing order of their reactivity.

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Magnesium	Mg	
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Zinc	Zn	
Iron	Fe	
Lead	Pb	
Hydrogen	H	
Copper	Cu	
Mercury	Hg	
Silver	Ag	
Gold	Au	

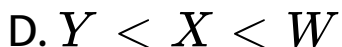
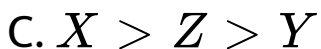
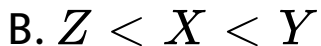
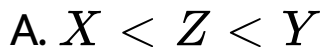
Observe the table given below:

Metals	Aqueous solution of ions			
	X^{3+}	Y^{3+}	Z^{3+}	W^{3+}
X	x	✓	✓	✓
Y	x	x	x	x
Z	x	✓	x	x

= reaction takes place

= reaction does not take place

Identify the correct order of reactivity of the given metals.



Answer: C



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S.No	Man-made plastic	Uses
1.	Polythene	Sheets of polythene are used to pack liquids such as milk.
2.	Polyvinyl chloride	Used as covering for electric wires, to make shoes, handbags, etc.
3.	Bakelite	Used for making buttons, plugs and switches.
4.	Teflon	Used as non-stick coating on pans and other cooking utensils.

33.

Which of the following is a copolymer?

A. Polythene

B. Bakelite

C. PVC

D. Teflon

Answer: B



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S.No	Man-made plastic	Uses
1.	Polythene	Sheets of polythene are used to pack liquids such as milk.
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34.

Which of the following is a synthetic polymer?

A. Starch

B. Protein

C. Cellulose

D. Nylon

Answer: D



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S.No	Man-made plastic	Uses
1.	Polythene	Sheets of polythene are used to pack liquids such as milk.
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3.	Bakelite	Used for making buttons, plugs and switches.
4.	Teflon	Used as non-stick coating on pans and other cooking utensils.

35.

Which of the following is a branched chain polymer?

A. Teflon

B. PVC

C. Polythene

D. Bakelite

Answer: D



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S.No	Man-made plastic	Uses
1.	Polythene	Sheets of polythene are used to pack liquids such as milk.
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36.

PVC is used for making raincoats and seat covers because

A. it can be rolled into thin sheets like polythene

B. it can be coated on a cloth base and is tougher than polythene

C. it has low melting point and is unreactive

D. it has high melting point and is very reactive.

Answer: B



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S.No	Man-made plastic	Uses
1.	Polythene	Sheets of polythene are used to pack liquids such as milk.
2.	Polyvinyl chloride	Used as covering for electric wires, to make shoes, handbags, etc.
3.	Bakelite	Used for making buttons, plugs and switches.
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37.

Which of the following is a thermosetting polymer?

A. PVC

B. Polythene

C. Bakelite

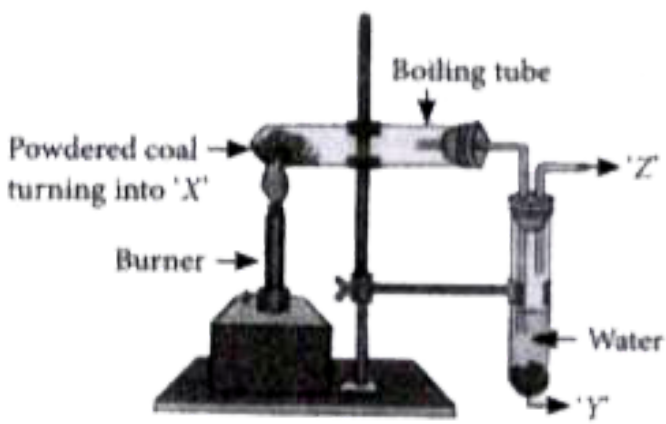
D. Teflon

Answer: C



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38. The given figure represents destructive distillation of coal. Destructive distillation is the strong heating of a substance in the absence of air.



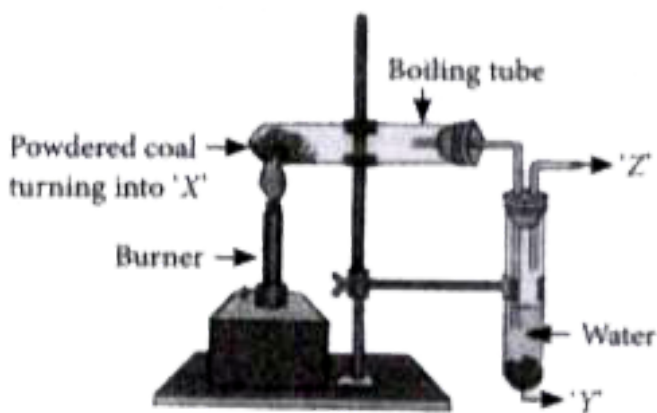
'X', 'Y' and 'Z' in the given figure is

- A. X Coal tar Y Coke Z Coal gas
- B. X Coal gas Y Coal tar Z Coke
- C. X Coke Y Coal tar Z Coal gas
- D. X Coke Y Coal gas Z Coal tar

Answer: C



39. The given figure represents destructive distillation of coal. Destructive distillation is the strong heating of a substance in the absence of air.



Match the columns.

	Column I		Column II
1.	Coke	P.	Black, thick liquid with an unpleasant smell
2.	Coal tar	Q.	Obtained during the processing of coal to get coke
3.	Coal gas	R.	Tough, porous and black substance

A. 1-O, 2-P, 3-R

B. 1-R, 2-P, 3-Q

C. 1-P, 2-R, 3-Q

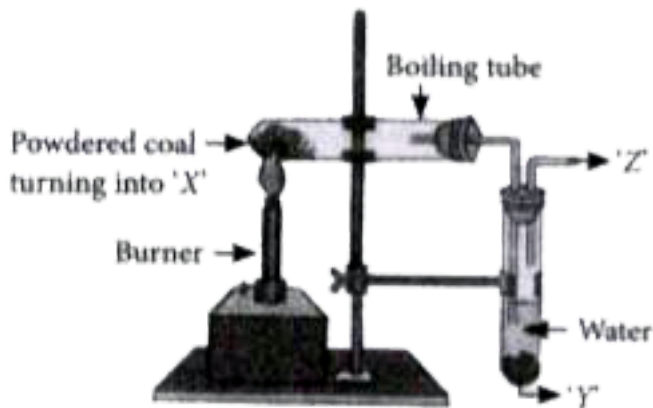
D. 1-Q, 2-R, 3-P

Answer: B



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40. The given figure represents destructive distillation of coal. Destructive distillation is the strong heating of a substance in the absence of air.



Which of the following is the correct statement?

A. Coal tar is an almost pure form of carbon.

B. On heating, coal produces mainly nitrogen dioxide gas.

C. Coke is not used in the manufacture of steel and in the extraction of many metals.

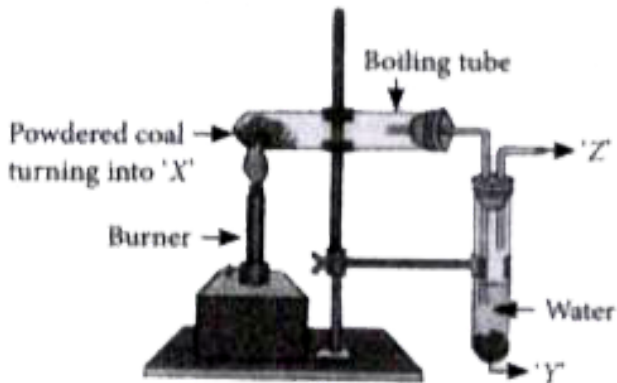
D. Coal gas was used for street lighting.

Answer: D



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41. The given figure represents destructive distillation of coal. Destructive distillation is the strong heating of a substance in the absence of air.



Coal is a fossil fuel and it cannot be prepared in a laboratory or industry because the formation of coal

(I) is a very slow process

(II) needs very low pressure and low temperature

(III) needs very high pressure and high temperature

(IV) causes air pollution

A. (I) and (II)

B. (II) and (IV)

C. (I) and (III)

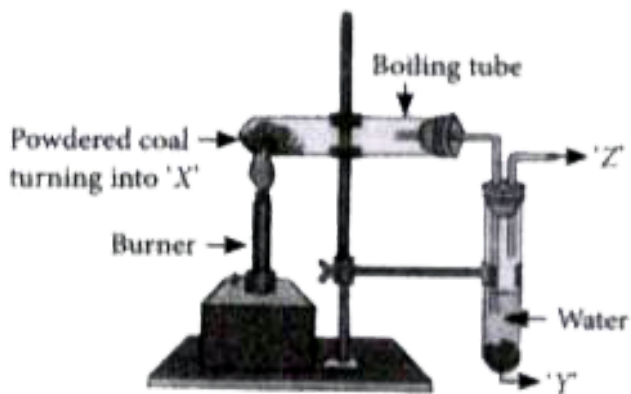
D. (III) and (IV)

Answer: C



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42. The given figure represents destructive distillation of coal. Destructive distillation is the strong heating of a substance in the absence of air.



is processed in industries to get some useful products such as 'Q', 'R' and 'S'. 'S' is obtained

during the processing of 'P' to get 'Q', 'R' is a mixture of about 200 substances. Identify 'P', 'R' and 'S'.

A. P Coal Q Coal tar R Coke S Coal gas

B. P Coke Q Coal R Coal tar S Coal gas

C. P Coal Q Coke R Coal tar S Coal gas

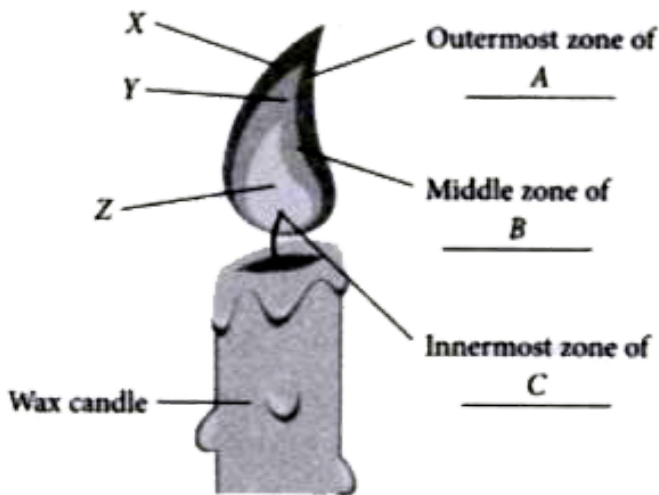
D. P Coke Q Coal R Coal gas S Coal tar

Answer: C



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43. A flame is the visible gaseous part of a fire. It is a zone of combustion of gaseous substances accompanied by evolution of heat and light. All substances do not burn with a flame. Only those substances that vaporise during burning produce flame. A candle flame is taken to study the various zones of a flame.



(A), (B) and (C) are respectively.

A. (A) Complete combustion (B) Partial combustion (C) Unburnt vapours

B. (A) Partial combustion (B) Complete combustion (C) Unburnt vapours

C. (A) Unburnt vapours (B) Partial combustion (C) Complete combustion

D. (A) Complete combustion (B) Unburnt vapours (C) Partial combustion

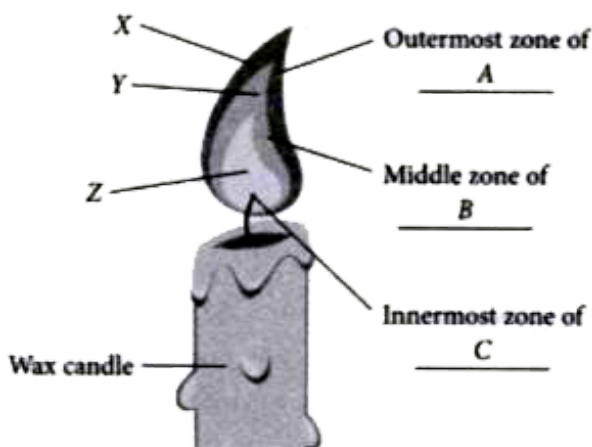
Answer: A



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44. A flame is the visible gaseous part of a fire. It is a zone of combustion of gaseous substances accompanied by evolution of heat

and light. All substances do not burn with a flame. Only those substances that vaporise during burning produce flame. A candle flame is taken to study the various zones of a flame.



Arrange X, Y and Z in increasing order of temperature.

A. $X < Y < Z$

B. $Z < Y < X$

C. $Z < X < Y$

D. $Y < Z < X$

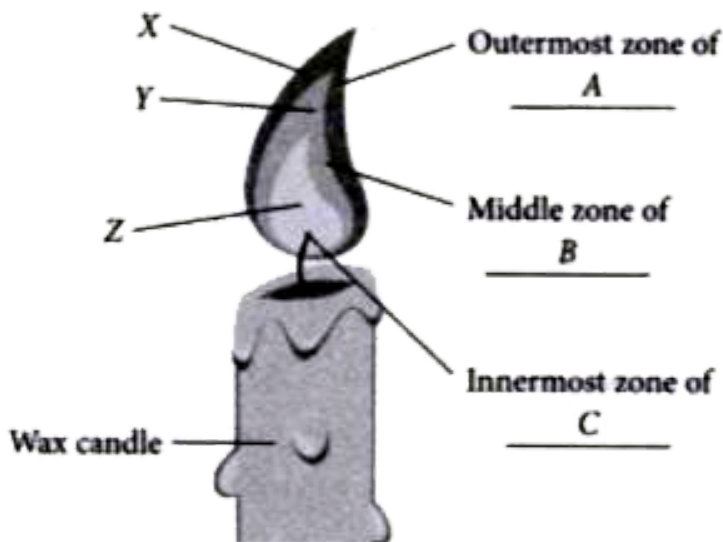
Answer: B



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45. A flame is the visible gaseous part of a fire. It is a zone of combustion of gaseous substances accompanied by evolution of heat and light. All substances do not burn with a

flame. Only those substances that vaporise during burning produce flame. A candle flame is taken to study the various zones of a flame.



Which zone of a candle flame is the zone of no combustion?

A. Outermost zone

B. Middle zone

C. Innermost zone

D. None of these

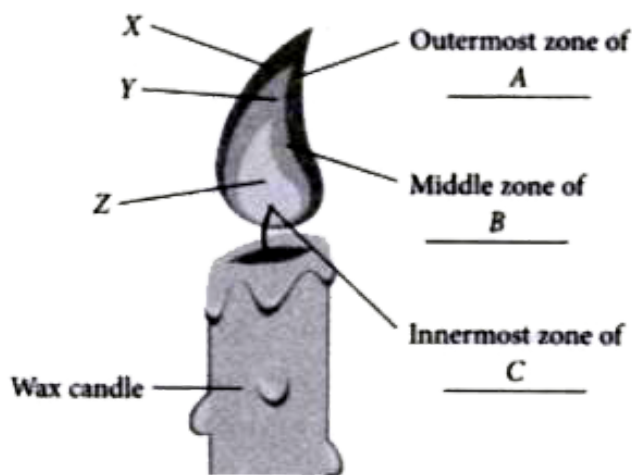
Answer: C



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46. A flame is the visible gaseous part of a fire. It is a zone of combustion of gaseous substances accompanied by evolution of heat and light. All substances do not burn with a

flame. Only those substances that vaporise during burning produce flame. A candle flame is taken to study the various zones of a flame.



The luminous and non-luminous zones of flame is respectively.

A. Outermost, middle zone

B. Innermost, outermost zone

C. Middle, outermost zone

D. Outermost, innermost zone

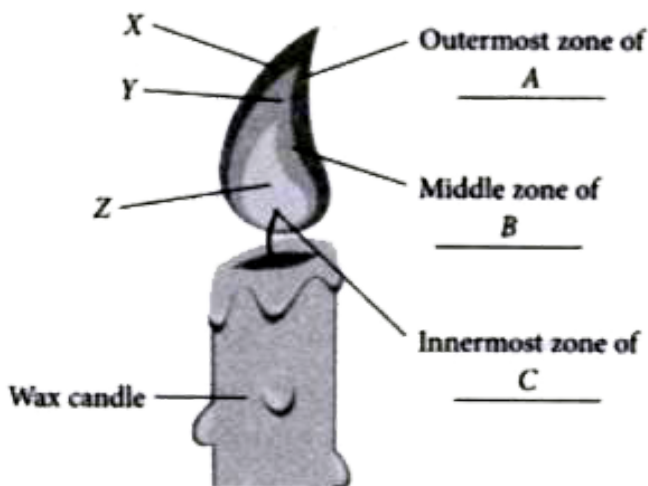
Answer: C



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47. A flame is the visible gaseous part of a fire. It is a zone of combustion of gaseous substances accompanied by evolution of heat and light. All substances do not burn with a flame. Only those substances that vaporise

during burning produce flame. A candle flame is taken to study the various zones of a flame.



Different zones of a candle flame are marked by the letters (A), (B) and (C).

Which of the following statements are correct?

(I) (B) is the hottest part of the flame.

(II) (C) is moderately hot.

(III) (A) is the hottest part of the flame.

(IV) (A) is moderately hot whereas (C) is the coldest part.

(V) (C) is the luminous zone.

(VI) (B) is the luminous zone.

(VII) (A) is the dark zone.

A. (III), (V) and (VII)

B. (III) and (VI)

C. (I), (IV) and (VI)

D. All of these

Answer: B



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Section B

1. What are thermosetting plastics? Give two examples.



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2. A highly reactive element 'A' is stored under water. It readily reacts with oxygen to give a

compound 'B' which dissolves in water. The aqueous solution of 'B' changes blue litmus to red. Identify the element 'A' and compound 'B'. Write the reactions involved.



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3. Define noble metals. Give two examples.



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4. What is calorific value of a fuel? Write its units.



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5. Which is a better fuel-biogas or wood? Why?



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6. Define combustion. What are the essential conditions required for combustion to occur?



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7. What are petrochemicals? What are their uses?



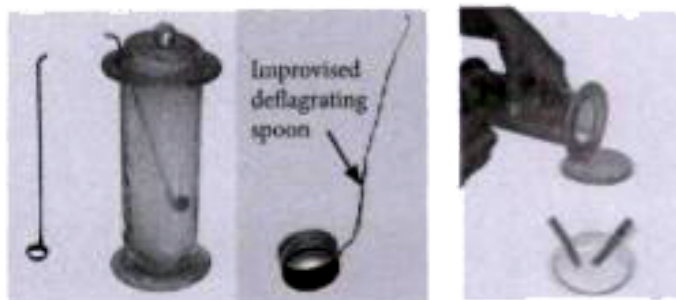
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8. Compare the water absorption capacities of natural and synthetic fibres. Illustrate with an activity.



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9. Observe the given figure which shows burning of sulphur powder and answer the questions that follow:

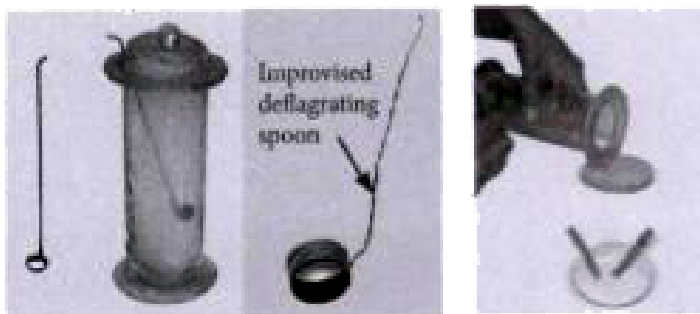


What colour changes do you observe in red and blue litmus papers? What does it indicate about nature of the solution - acidic or basic?



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10. Observe the given figure which shows burning of sulphur powder and answer the questions that follow:



Write the reactions involved.

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Section C

1. Write three differences between natural and synthetic fibres. Give two examples of each.



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2. How will you prove that luminous zone of a candle flame contains unburnt particles of carbon? Demonstrate with an experiment.



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3. How does a candle flame work? Explain the phenomena.



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4. Name the process used to separate the components of petroleum.



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5. Which property is used to separate the components of petroleum?



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6. Arrange the following fractions in order of their boiling points starting from the highest to the lowest: Diesel, Petroleum gas, Lubricating oil, Kerosene, Gasoline



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7. With the help of an experiment show that copper is more reactive than silver. Write the reaction involved.



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8. Explain the process of formation of Coal



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9. Describe the process of formation of petroleum .



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10. Compare the strength of wool, nylon and cotton with the help of an activity.



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11. Define rusting. What is the nature of rust formed? Give two methods by which rusting can be prevented.



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Section D

1. How will you prove that air is necessary for combustion



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2. How will you prove that

the non-luminous zone of a candle flame is the hottest zone?



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3. What is a fire extinguisher? Explain the construction and working of a soda acid type fire extinguisher.



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4. How is CNG obtained? What is its full form?

Write the advantages of using CNG over petrol or diesel.



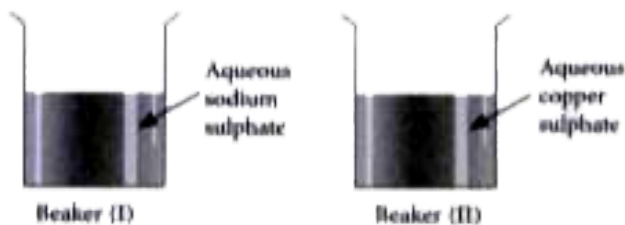
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5. Define galvanisation.



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6. Magnesium powder was added to two different salt solutions in beakers (I) and (II) as shown in the given figures. Answer the questions that follow:



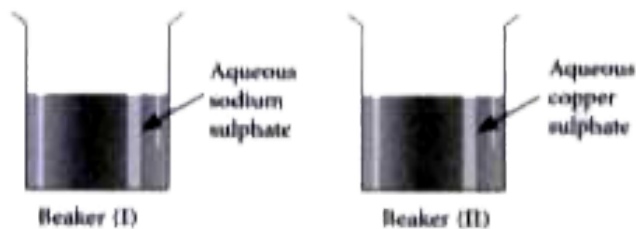
What

would you observe when magnesium powder is added to beaker (I)? Explain your answer.



[View Text Solution](#)

7. Magnesium powder was added to two different salt solutions in beakers (I) and (II) as shown in the given figures. Answer the questions that follow:

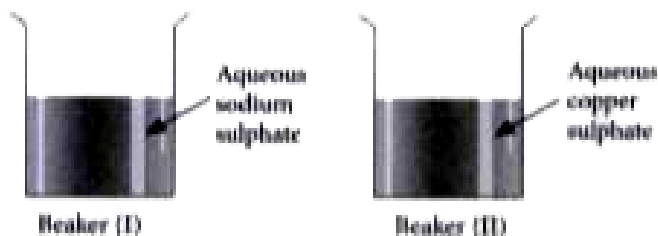


What would you observe when magnesium powder is added to beaker (II)? Explain your answer.



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8. Magnesium powder was added to two different salt solutions in beakers (I) and (II) as shown in the given figures. Answer the questions that follow:

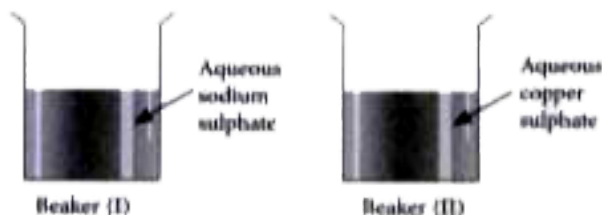


Write an equation for the reaction that takes place.



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9. Magnesium powder was added to two different salt solutions in beakers (I) and (II) as shown in the given figures. Answer the questions that follow:

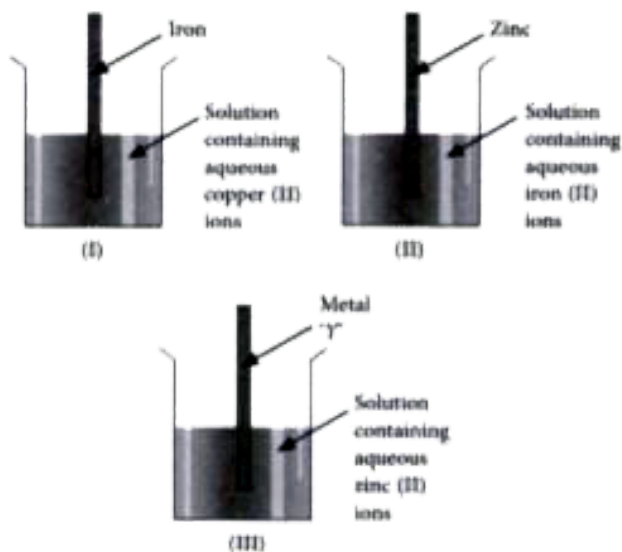


What can you deduce about the order of reactivity of the three metals? Write the order.



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10. Radha arranged three set-ups as shown in the following figures. She observed that reactions take place in all the three experiments. Answer the questions that follow:

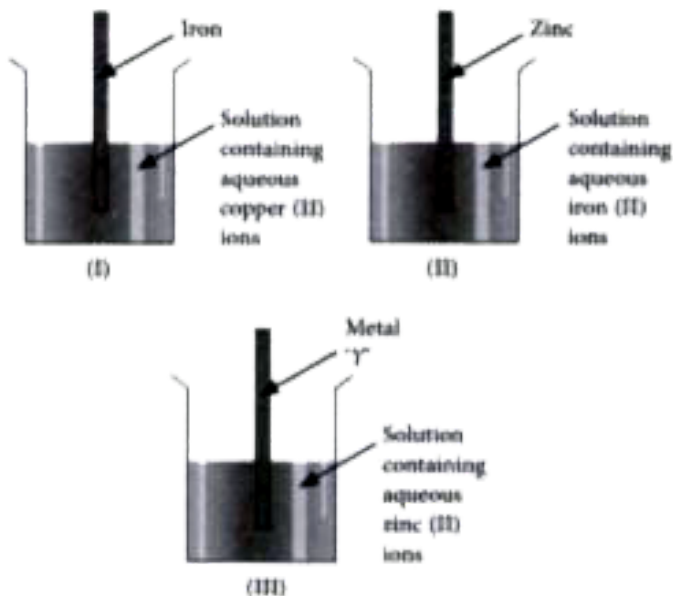


Describe the changes that will take place in all the three set-ups.



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11. Radha arranged three set-ups as shown in the following figures. She observed that reactions take place in all the three experiments. Answer the questions that follow:

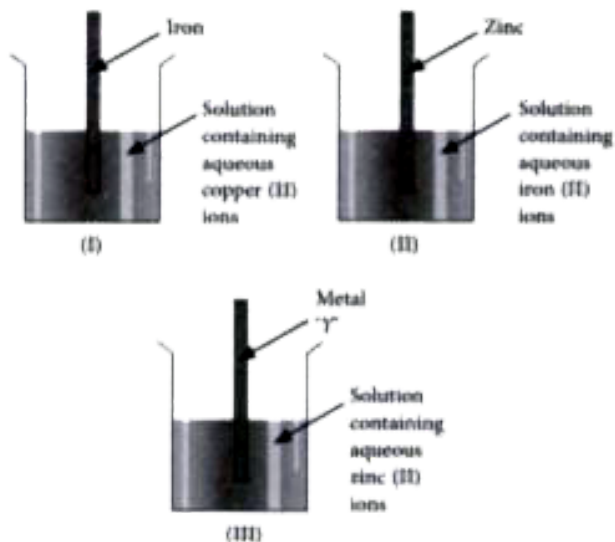


Explain why these changes occur.

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12. Radha arranged three set-ups as shown in the following figures. She observed that reactions take place in all the three

experiments. Answer the questions that follow:

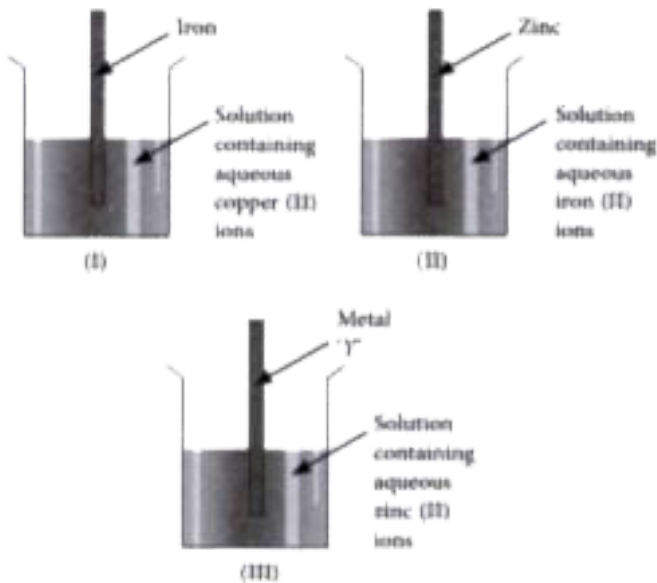


Write the reactions involved in all the three experiments.



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13. Radha arranged three set-ups as shown in the following figures. She observed that reactions take place in all the three experiments. Answer the questions that follow:

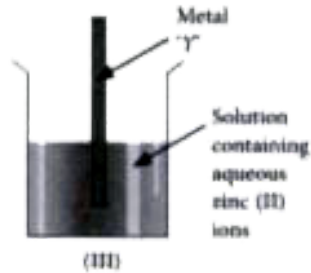
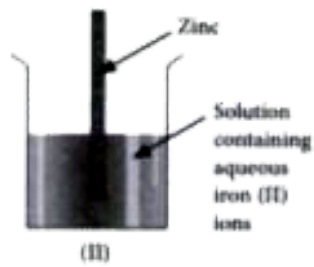
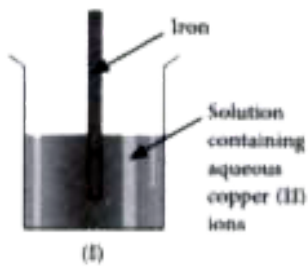


Arrange the four metals in order of increasing reactivity.



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14. Radha arranged three set-ups as shown in the following figures. She observed that reactions take place in all the three experiments. Answer the questions that follow:



What can be metal 'Y'?



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