CHEMISTRY

BOOKS - PEARSON IIT JEE FOUNDATION

SOME IMPORTANT ELEMENTS AND THEIR COMPOUNDS

Very Short Answer Typ Question

1. How are CO_2 and dust particles removed from air before subjecting air to liquefaction

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2. In rat poison, phosphorous is used in the form of _____

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3. Give the existence of chlorine in the combined state in nature?

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4. Name the most commonly found phosphates in nature.

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5. Explain the reaction of chlorine with magnesium

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6. In what forms does sulphur occur in the combined state in nature?

Watch Video Solution

7. List the physical properties of plastic sulphur.

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8. How can mercuric sulphide be prepared?

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9. The bacterial Conversion of Nitrogen into nitrogen compounds is called _____

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11. Explain the acidic nature of sulphur dioxide based on its reactivity with water

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14. Why do soaps not work in hard water ?

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15. What is the valency ofnitrogen in ammonia? What is CAN? How is it useful?

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16. The transition temperature ofrhombic and monoclinic sulphur _____

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17. Define glass blowing.What are the different methods employed for glass blowing

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18. What are the advantages of synthetic fibres over natural fibres

Watch Video Solution

19. Formula of fluorapatite is_____

Watch Video Solution

20. How does nitrogen occur in the combined state

Watch Video Solution

21. Mention the chemical formulae of

(i) Phosgene

(ii) tear gas and

(iii) chloroform

Watch Video Solution

22. What is the composition of ceramics?

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25. What is nitrolim? How is it obtaine

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26. _____ Process is used to extract sulphur from deposits near the earth' s crust

Watch Video Solution

27. Discuss the physical properties of chlorine

Watch Video Solution

28. How is principle of counter currents is usefhl in Bachmann plant?

Watch Video Solution

29. Why are dense white fumes formed when hydrogen chloride is dissolved in moist air

Watch Video Solution

30. Equal volumes of nitrogen and oxygen react to give _____

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Short Answer Type Question

1. Write the equation for the following

(i) Addition of concentrated HNO_3 to copper

(ii) Addition of dilute HNO_3 to zince

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2. Write a note on safety matches

Watch Video Solution

3. Describe how sulphur is extracted using the Sicilian process.

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4. Differentiate between rhombic and monoclinic sulphur

Watch Video Solution

5. How is H_2S used as an analytical reagent?

 Watch Video Solution

6. Mention the uses of chlorine

 Watch Video Solution

7. Explain the reaction of chlorine gas with turpentine.

 Watch Video Solution

8. Name the products formed in the following reactions

(i) Reaction of sodium nitrate with ammonium sulphate

(ii) Reaction of potasium iodic with nitric acid

(iii) Addition of HNO_3 to sulphur

Watch Video Solution

9. Explain the cleansing action of soaps.

Watch Video Solution

10. Write two uses of ammonia.

Watch Video Solution

11. Discuss briefly the chemical properties of H_2S.

Watch Video Solution

12. Explain various types of chemical fertilizers

Watch Video Solution

13. Why does sulphur dioxide act as a bleaching agent?

Watch Video Solution

14. What is plastic? Write a short note on different categories ofplastic.

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15. Explain with equations the electrical process for the extraction of phosphorous

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Essay Type Question

1. Write in detail about the compounds formed by phosphorous and their uses.

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2. Explain in detail how sulphuric acid is prepared by the Contact process

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3. Explain the construction and working of 3 Nelson cell.

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4. Discuss the method of preparation of bleaching powder.

Watch Video Solution

5. Explain the basic working of the Castner-Kellner cell, used for producing Naoh (sodium hydroxide).

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Level 1

1. The chemical formula of nitre is

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2. Ammonia on reaction with excess chlorine gives white dense fumes of

 Watch Video Solution

3. Sodium is deposited at the _____ during the electrolysis of brine solution

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4. Zinc sulphate solution on passage of H_2S gives flesh coloured precipitate. True or False?

Watch Video Solution

5. Generally laboratory apparatus are made with borosilicate. True or false?

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9. In Castner-Kellner cell, sodium ions react with mercury to form _____

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10. In Nelson cell H_2 is liberated at _____

Watch Video Solution

11. Oxygen required. for the combustion of safety matches can be produced from _____

Watch Video Solution

12. _____ bacteria convert atmospheric nitrogen into nitrogenous compounds

Watch Video Solution

13. Ammonia on reaction with potassium gives

_____

Watch Video Solution

14.

Column A			Column B	
A	Phosgene	( )	a.	Heating metallic chlorides with Conc. H_2SO_4
B	$CaOCl_2$	( )	b.	Reaction of HCl with NaOH
C	$NaOCl$	( )	c.	$COCl_2$
D	$HOCl$	( )	d.	Reaction of phosphorus with chlorine
E	Cl_2	( )	e.	CCl_3NO_2
F	Tear gas	( )	f.	Reaction of Cl_2 on slaked lime
G	PCl_5	( )	g.	Nascent oxygen
H	HCl	( )	h.	Oxidation of HCl by $K_2Cr_2O_7$

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15. Which of following statements regarding glass is false

A. Glass has high viscosity and hence exists in solid state.

B. Glass has no definite melting point.

C. Arrangement ofsilicate units in glass is similar to that in liquid state

D. Glass has regular crystalline arrangement and hence exists asa solid

Answer:

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16. Phosphor bronze is an alloy of

A. P, Cu and Sn

B. P, Cu and Sb

C. P, 7m and Sn

D. P, Cu and As

Answer:

Watch Video Solution

17. Which of the following loses its activity on storing for a long time ?

A. Chlorine

B. Hydrogen Chloride

C. Bleaching powder

D. Sodium hydroxide

Answer:

Watch Video Solution

18. Gypsum is

A. hydrated magnesium sulphate

B. anhydrous magnisium sulphate

C. hydrated calcium Sulphate

D. anhydrous calcium sulphate

Answer:

Watch Video Solution

19. Clay shows plasticity when

A. right proportion of Water is added to it.

B. it is fired (strongly heated

C. it is dried at room temperature after kneading.

D. it is glazed

Answer:

Watch Video Solution

20. Which of the following is false regarding epoxy resin?

A. It is a thermosetting polymer

B. It is less brittle in nature

C. It has relatively weak bands.

D. It has cross linking among polymeric chains

Answer:

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21. When Mg is burnt in the atmosphere of an element X white powder is obtained.When this is dissolved in water it gives a compoundY with pungent smell.What are X and Y?

A. C, CH_4

B. N_2, NH_3

C. P, PH_3

D. S, H_2S

Answer:

Watch Video Solution

22. The reducing property of SO_2 is shown in which of the following reactions

A.

$$SO_2 + H_2O + CL_2 \rightarrow 2HCL + H_2SO_4$$

B. $2H_2S + SO_2 \rightarrow 2H_2O + 3S$

C. $KOH + SO_2 \rightarrow K_2SO_3 + H_2O$

D. None of the above

Answer:

Watch Video Solution

23. The transparency of glass is attributed to which of the following properties of glass?

A. High viscosity

B. Regular pattern of arrangement of silicate units

C. Irregular pattern of arrangement of silicate units

D. High cocfficient of thermal expansion

Answer:

Watch Video Solution

24. A soil is supplied with ammonium phosphate fertilizer. Which of the following types of bacteria is not involved in the process ofthc absorption of this fertilizer by plants

A. Anunonifying bacteria

B. Nitrosifying bacteria

C. Nitzifying bacteria

D. None of these

Answer:

Watch Video Solution

25. The gas liberated when concentrated sulphuric acid is reated with copper

A. H_2

B. SO_3

C. H_2S

D. SO_2

Answer:

Watch Video Solution

26. A soil is highly deficienty in nitrigen . The crop requires nitrogen for immediate requirement as well as long term requirement . Which among the following is the most suitble fertilizer for the soil ?

A. Urea

B. Ammonium sulphate

C. Ammonium nitrate

D. Calcium ammonium nitrate

Answer:

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27. The process of glazing of ceramic article does not

A. make it impervious

B. impart glossy appearance

C. make it impact resistant

D. All the above

Answer:

View Text Solution

28. Sulphur, on heating follows Which of the following sequence?

A. solid $\rightarrow$ thick viscous liquid $\rightarrow$ thin liquid $\rightarrow$ gas

B. solid $\rightarrow$ semi solid $\rightarrow$ liquid $\rightarrow$ gas

C. solid $\rightarrow$ thin liquid $\rightarrow$ thick viscous $\rightarrow$ thin'liquid $\rightarrow$ gas

D. solid $\rightarrow$ powdery solid $\rightarrow$ thick viscous liquid $\rightarrow$ gas

Answer:

Watch Video Solution

29. Which among the following is true With regardingth ermoplastics and thermosettings

A. Thermosettings are permanent setting resins but thermoplastics are not, since they can be softened on cooling

B. Thermoplastics are less brittle when compared to thermosettings due to the absence of long chain polymers.

C. Thennosettings are more brittle When compared to thermoplastics due to the

presence of strong bonds.

D. The chemical nature of thermoplastics can be altered by repeated heating and cooling

Answer:

View Text Solution

30. Steps involved in the Frasch process are given below. Arrange them in the correct sequence ,

Three melts the sulphur below melting point

The sulphur foam formed rises in the middle pipe and is collected.

Surerheated steam under pressure is sent through the outermost pipe

Hot compressed air is sent through the innermost pipe , which froth up the molten sulphur below

Three concentric pipes are drilled through the ground to the sulphur deposits

A. e c a d b

B. e a d c b

C. e a d b c

D. e d a c b

Answer:

View Text Solution

31. Different steps involved in the manufacture of sulphuric acid in contact process are given below. Arrange them in the correct sequence

Formation of oleum

Oxidation of SO_2 ,

Hydrolysis of oleum

Combustion of sulphur

A. d a c b

B. a d b c

C. d b a c

D. a d c b

Answer:

Watch Video Solution

32. Arrange the different forms ofsulphur formed during heating fouowed by cooling

Meu sulphur

Flower of sulphur

Rhombic sulphur

sulphur vapoar

Lambda sulphur

Monoclinic sulphur

A. e c f a d b

B. c f e a d b

C. c f a e d b

D. c f e a b d

Answer:

Watch Video Solution

33. Slaked lime on reaction with ammonium chloride gives

A. calcmrn hydroxide and ammonia

B. calcium hydroxide and nitrogen

C. calcmm chlonde and nitrogen dioxide

D. calcium chloride and ammonia

Answer:

Watch Video Solution

34. Different steps involved ind the mechanism of preparation of sodium hydoxide by Castner process are given bleow .Arrange them in correct sequence .

(i)$2Cl^- \rightarrow Cl_2 + 2e^-$

(b) $Na_aHg - 2e^- \rightarrow 2Na^+ + Hg$

(c) $2H_2O + 2e^- \rightarrow H_2 + 2OH$

(d) $Hg + 2Na^+ 2\bar{e} \rightarrow Na_2HG$

(e)$2NaCl \rightarrow 2Na^+ 2Cl$

(f) $2Na^+ + 2OH^- \rightarrow 2NaOH$

A. e d c b a f

B. e b c a d f

C. d b a e c f

D. e a d b c f

Answer:

Watch Video Solution

35. The steps involved in the manufacture of glass are given below. Arrahge them in the correct sequence

Moderate colling

Addition of cullet

Formation of respective silicates

Preparation of fine powder of raw materials

Heating of cullet at about 1600K to 1700K

A. d b e c a

B. d e b a c

C. d e c b a

D. d b c e a

Answer:

 Watch Video Solution

36. Different processes involved in the manufactureo f pottery or ceramic materials are given below. Arrange them in a proper sequence.

Change in the physical and chemical proerties

of the substance

Heating to a suitable high tempreture

Drying of the mixture

Prepartion of mixture by adding water to raw materials

A. b a d c

B. d c b a

C. d c a b

D. c d b a

Answer:

Watch Video Solution

37. The compounds formed when ammonia reacts with excess of chlorine are

A. NH_4CL, HCL

B. NCL_3, HCL

C. N_2, HCL

D. NH_4CL, NCL_3

Answer:

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38. In elcctrothcrmic reduction, calcium phosphate is mixed with

A. sand, sulphur

B. coke, sand

C. sulphur, coke

D. sulphur, phosphorus

Answer:

Watch Video Solution

39. HNO_3 on reaction with phosphorus gives

A. phosphorus acid

B. phosphoric acid

C. metaphosphoric acid

D. hypophosphoric acid

Answer:

Watch Video Solution

40. Sulphur on reaction with HNO_3 gives _____

A. H_2SO_4, NO_2, H_2O

B. H_2SO_3, NO_2, H_2O

C. H_2SO_4, NO, H_2O

D. H_2SO_3, NO, H_2O

Answer:

Watch Video Solution

41. Which of the following metal liberates hydrogen when treated with dilute H_2SO_4 ?

A. Cu

B. Zn

C. Mg

D. Fe

Answer:

Watch Video Solution

42. The bleaching action of bleaching powder is due to the formation of

A. Chlorate ion

B. chloride ion

C. chlorite ion

D. hypochlorite ion

Answer:

Watch Video Solution

43. Which among the following types of glass is used in the manufacture of doors and windows 0f automobiles?

A. Laminated glass

B. Fibre glass

C. Foam glass

D. Opaque glass

Answer:

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44. Which of the following plastics can be recycled?

A. Melamine

B. Polyethylene

C. Bakelite

D. Both (1) and (2)

Answer:

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Level 2

1. Two moist red roses are taken in two containers A and B into which anhydride of sulphurous acid and a greenish yellow coloured gas are passed respectively. What changes are observed With respect to two roses inA and B? How do you account for these changes?

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2. Among white phosphorous and red phosphorous which is more preferable for use in match sticks? Give reason in support of your answer

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3. When a burning paraffin candle is introduced into two jars containing oxygen and chlorine gases separately, what

observations can be made? Explain with appropriate reasons

View Text Solution

4. When chlorine reacts With hot and concentrated caustic alkali XOH, one of the products,Y is formed by this reaction is used as an oicidiser in the match industry. Identify the compoundY and the element X.

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5. Two samples of sulphur are heated separately startirig at $60^{\circ}C$. One sample is found to melt at $114^{\circ}C$ and the other one melts at $119^{\circ}C$. How do you account for this

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6. Bone ash contains both micro and macro nutrients in it. However it is not used as a fertilizer. It is converted to superphosphate oflime which is an important fertilizer. Give reason

View Text Solution

7. Iron rod is dipped in come HNO_3. Then it is made to react with copper sulphate solution. What observations are found in this process? Give reasons in support of your answer

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8. Noble metals like gold and platinum are insoluble both in HCl and in HNO_3. But, they

are soluble in aquaregia. Justify

View Text Solution

9. Farmers are advised to grow beans or peas plants in crop rotation. Give reasons in support of your answer.

View Text Solution

10. When coppcr metal is subjected to treatment With nitric acid, difFerenr. oxides of

nitrogen are liberated with different concentrations ofnitric acid. Explain the reason

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11. Ammonium chloride on reaction with quick lime gives a gas X w hich turns red litmus blue. Excess of X and greenish yellow gas are taken in container A and excess ofgreenish yellow gas and X are taken in container B which on reaction gives difFerent sets ofproducts.When

moist litmus paper is introduced into the jars, it turned to red in jar B . Identify the reactions involved and give equations.

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12. Hydrogen chloride gas can be subjected to drying only with conc. H_2SO_4 but not with quick lime or phosphorus pentoxide. Explain

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13. Why are soaps ineffective during usage With hard water which contains soluble salts of calcium and magnesium?

View Text Solution

14. When a binary salt ofiron reactsw ith hydrochloric acid it gives out a gas which can be used for identification of many metal ions. Identify the salt, the gas and explain how it is usefill in detecting metal ions.

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15. Nitric acid is colourless when freshly prepared. But, on long standing, it turns to yellow. How do you account for this?

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16. Two research scholars Rony and Jony, needed red phosphorus and White phosphorus respectively, for a research programme. Both of them went to a chemical

store to purchase red phosphorus and white phosphorus.The store keeper gave a normal glass bottle containing red phosphorus and a glass bottle containing white phosphorus which was kept in water.Justify the above observations

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17. A solid nonmetal A on exposure to air forms a compound B which on dissolution in water forms the highest oxy acid C. Identify

different type of salts which can be formed when C reacts with caustic potash

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18. Though P_2O_5 is a very good desiccant, its utility for drying is limited. Give reasons

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19. In an industry, H_2S gas is mixed with chlorine gas before releasing it into the

atmosphere. Give the appropriate reason.

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20. A solid nonmetal X on burning gives a compound Y which under high temperature and pressure conditions in presence of catalyst gets oxidised to Z. Z can give the ic acid of the nonmetal on dissolution in water. However, it is not a preferred reaction for the preparation of the acid. Give reason and explain the method employed for the

preparation of the it: acid from Z and mention the precautions required during dilution of the acid.

View Text Solution

21. Concentrated HNO_3 and concentrated H_2SO_4 can t be used for the preparation of H_2S. Give reason

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22. Rekha and Lekha took two fresh red roses and kept them in two containers A and B into which anhydride of sulphurous acid and a greenish yellow coloured gas are passed respectively. After a few minutes these two roses lose their colour but on being exposed to the atmosphere, it was observed that Rekha' s rose regained its colour but Lekha' s rose did not. How do you account for the above changes?

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23. During the sunnner vacation, a chemistry laboratory assistant stored the chemicals in their respective bottles.After a few months it was observed that the lids of the bottles in which sodium hydroxide was stored was struck tight, He went to a lecturer for finding the solution for this problem.What solution could be suggested by the lecturer

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24. Ranchu' s father is working in a fertilizer industry. One day at home he heard his father making suggestion to his colleague that between nitrate salts and ammonium salts, nitrate salts are preferable for use as a fertilizer .The next day Ranchu asked his brother the reason for their father' s suggestion. What answer did his brother give

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25. Thermoplastics can be moulded again and again where as thermosettings cannot bem oulded. Give reason

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Level 3

1. Two non metallic gaseous elements react in 1 : 3 ratio to give another gas X . A mixture of X and oxygen is taken in a jar and a burning

match stick is introduced into it. Another sample of the same mixture containing large excess of O_2, is passed over heated platinumThe mixture of gaseous products is dissolved in water to giveY and Z which are colourless. Z on long standing turnst o yellow, Identify X,Y and Z by giving reasons wherever necessary.Also identify the exothermic reaction in the above sequence.

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2. Both slow cooling and rapid cooling of glass are avoided. How do you account for this?

View Text Solution

3. Why is common salt sprinkled over pots during the heating process while making potS?

View Text Solution

4. Phosphorite rock when treated with phosphoric acid gives a fertilizer which is preferred to a fertiliser obtained from the same mineral on treatment with conc. sulphuric acid justify

View Text Solution

5. Why is the compound AgCl used in photo gray lenses

View Text Solution

6. Bleaching powder in cold water is an excellent bleaching agent. But it cannot act as a good bleaching agent when dissolved in hot water.Why?

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7. Hydrofiuoric acid cannot be stored in glass bottles like all other acids. Give reason.

Watch Video Solution

8. Certain phosphates are helpful in making hard water soft.Which phosphates are used and how do they help in making water soft?

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9. Both H_2SO_4 and HNO_3 cause damage to skin when the skin comes in contact with them. Compare and contrast the reasons

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10. Nitric acid attacks all the metals except noble metals but the nature of products of same metal along with corresponding nitrates depends upon the concentration of HNO_3. Explain.

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Example

1. Farmers are advised to include bean plants in the crop rotation system. What purpose

does it serve?

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2. When molten sulphur (above $195^{\circ}C$) is poured in water, an amorphous variety of sulphur is formed. Give the reason.

Watch Video Solution

3. The viscosity of sulphur increases from $160^{\circ}C$ to $195^{\circ}C$ and subsequently decreases

above this range. Explain with appropriate reasons.

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4. When not used for a long time, bleaching powder loses its bleaching quality. Justify.

View Text Solution

5. Why is common salt sprinkled over pots during the heating process while making

pots?

Watch Video Solution

6. Why are plastic containers preferred for storing chemicals?

Watch Video Solution

7. Why are the materials made of plastic more in use rather than other substances?

Watch Video Solution

8. Why are handles of screw drivers used for electrical works made of plastics?

Watch Video Solution

9. Mention two examples of plastics in the medical field.

Watch Video Solution

10. Name the special plastic used for non-stick coating pans.

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Test Your Concepts Very Short Answer Type Questions

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Test Your Concepts Short Answer Type Questions

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addition of concentrated HNO_3 to copper

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6. Explain the reaction of chlorine gas with turpentine.

Watch Video Solution

7. Name the products formed in the following reactions:

reaction of sodium nitrate with ammonium sulphate

Watch Video Solution

8. Name the products formed in the following reactions:

reaction of potassium iodide with nitric acid

Watch Video Solution

9. Name the products formed in the following reactions:

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Watch Video Solution

Test Your Concepts Essay Type Questions

1. Write in detail about the compounds formed by phosphorous and their uses.

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2. Discuss the method of preparation of bleaching powder.

Watch Video Solution

Concept Application Level 1 True Or False

1. The ignition temperature of red phosphorous is less than that of white phosphorous.

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2. The chemical formula of nitre is $NaNO_3$.

Watch Video Solution

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4. Sodium is deposited at the cathode during the electrolysis of brine solution.

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Watch Video Solution

3. In Castner-Kellner cell, sodium ions react with mercury to form _____

Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

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Watch Video Solution

Concept Application Level 1

1. Match the entries in column A with the appropriate ones in Column B.

Column A		Column B
A. Phosgene	( )	a. Heating metallic chlorides with conc. H_2SO_4
B. $CaOCl_2$	( )	b. Reaction of HCl with NaOH
C. NaOCl	( )	c. $COCl_2$
D. HOCl	( )	d. Reaction of phosphorus with chlorine
E. Cl_2	( )	e. $CCl_3.NO_2$
F. Tear gas	( )	f. Reaction of Cl_2 on slaked lime
G. PCl_5	( )	g. Nascent oxygen
H. HCl	( )	h. Oxidation of HCl by $K_2Cr_2O_7$

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Concept Application Level 1 Select The Correct Alternative

1. Which of following statements regarding glass is false?

A. Glass has high viscosity, and hence, exists in a solid state.

B. Glass has no definite melting point.

C. Arrangement of silicate units in glass is similar to that in liquid state.

D. Glass has regular crystalline arrangement, and hence, exists as a

solid.

Answer: D

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2. Phosphor bronze is an alloy of

A. P, Cu and Sn

B. P, Cu and Sb

C. P, Zn and Sn

D. P, Cu and As

Answer: A

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3. Which of the following loses its activity on storing for a long time ?

A. chlorine

B. hydrogen chloride

C. bleaching powder

D. sodium hydroxide

Answer: C

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A. hydrated magnesium sulphate

B. anhydrous magnesium sulphate

C. hydrated calcium sulphate

D. anhydrous calcium sulphate

Answer: C

Watch Video Solution

5. Clay shows plasticity when

A. right proportion of water is added to it

B. it is fired (strongly heated)

C. it is dried at room temperature after kneading

D. it is glazed

Answer: A

Watch Video Solution

6. Which of the following is false regarding epoxy resin?

A. It is a thermosetting polymer.

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C. It has relatively weak bonds.

D. It has cross-linking among polymeric chains.

Answer: D

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7. When Mg is burnt in the atmosphere of an element X white powder is obtained.When this is dissolved in water it gives a compoundY with pungent smell.What are X and Y?

A. C, CH_4

B. N_2, NH_3

C. P, PH_3

D. S, H_2S

Answer: B

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8. The reducing property of SO_2 is shown in which of the following reactions

A. $SO_2 + H_2O + Cl_2 \rightarrow 2HCl + H_2SO_4$

B. $2H_2S + SO_2 \rightarrow 2H_2O + 3S$

C. $KOH + SO_2 \rightarrow K_2SO_3 + H_2O$

D. none of the above

Answer: A

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9. The transparency of glass is attributed to which of the following properties of glass?

A. high viscosity

B. regular pattern of arrangement of silicate units

C. irregular pattern of arrangement of silicate units

D. high coefficient of thermal expansion

Answer: C

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10. A soil is supplied with ammonium phosphate fertilizer. Which of the following types of bacteria is not involved in the process ofthc absorption of this fertilizer by plants

A. ammonifying bacteria

B. nitrosifying bacteria

C. nitrifying bacteria

D. none of these

Answer: A

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11. The gas liberated when concentrated sulphuric acid is reated with copper

A. H_2

B. SO_3

C. H_2S

D. SO_2

Answer: D

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12. A soil is highly deficienty in nitrigen . The crop requires nitrogen for immediate requirement as well as long term requirement

. Which among the following is the most suitble fertilizer for the soil ?

A. urea

B. ammonium sulphate

C. ammonium nitrate

D. calcium ammonium nitrate

Answer: D

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13. The process of glazing of ceramic article does not

A. make it impervious

B. impart glossy appearance

C. make it impact resistant

D. all of these

Answer: C

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14. Sulphur, on heating follows Which of the following sequence?

A. solid $\rightarrow$ thick viscous liquid $\rightarrow$ thin liquid $\rightarrow$ gas

B. solid $\rightarrow$ semisolid $\rightarrow$ liquid $\rightarrow$ gas

C. solid $\rightarrow$ thin liquid $\rightarrow$ thick viscous $\rightarrow$ thin liquid $\rightarrow$ gas

D. solid $\rightarrow$ powdery solid $\rightarrow$ thick viscous liquid $\rightarrow$ gas

Answer: C

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15. Which among the following is true with regard to thermoplastics and thermosetting?

A. Thermosettings are permanent setting resins but thermoplastics are not since they can be softened on cooling.

B. Thermoplastics are less brittle when compared to thermosettings due to the absence of long chain polymers.

C. Thermosettings are more brittle when compared to thermoplastics due to the presence of strong bonds.

D. The chemical nature of thermoplastics can be altered by repeated heating and cooling.

Answer: C

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16. Steps involved in the Frasch process are given below. Arrange them in the correct sequence.

(1) This melts the sulphur below melting point.

(2) The sulphur foam formed rises in the middle pipe and is collected.

(3) Superheated steam under pressure is sent through the outermost pipe.

(4) Hot compressed air is sent through the innermost pipe, which froths up the molten sulphur below.

(5) Three concentric pipes are drilled through the ground to the sulphur deposits.

A. 5 3 1 4 2

B. 5 1 4 3 2

C. 5 1 4 2 3

D. 5 4 1 3 2

Answer:

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17. Different steps involved in the manufacture of sulphuric acid in contact process are given below. Arrange them in the correct sequence

Formation of oleum

Oxidation of SO_2 ,

Hydrolysis of oleum

Combustion of sulphur

A. 4 1 3 2

B. 1 4 2 3

C. 4 2 1 3

D. 1 4 3 2

Answer:

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18. Arrange the different forms ofsulphur formed during heating fouowed by cooling

Meu sulphur

Flower of sulphur

Rhombic sulphur

sulphur vapoar

Lambda sulphur

Monoclinic sulphur

A. 5 3 6 1 4 2

B. 3 6 5 1 4 2

C. 3 6 1 5 4 2

D. 3 6 5 1 2 4

Answer:

19. Slaked lime on reaction with ammonium chloride gives

A. calcium hydroxide and ammonia

B. calcium hydroxide and nitrogen

C. calcium chloride and nitrogen dioxide

D. calcium chloride and ammonia

Answer:

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20. Different steps involved ind the mechanism of preparation of sodium hydoxide by Castner process are given bleow .Arrange them in correct sequence .

(i)$2Cl^- \rightarrow Cl_2 + 2e^-$

(b) $Na_aHg - 2e^- \rightarrow 2Na^+ + Hg$

(c) $2H_2O + 2e^- \rightarrow H_2 + 2OH$

(d) $Hg + 2Na^+ 2\bar{e} \rightarrow Na_2HG$

(e)$2NaCl \rightarrow 2Na^+ 2Cl$

(f) $2Na^+ + 2OH^- \rightarrow 2NaOH$

A. 5 4 3 2 1 6

B. 5 2 3 1 4 6

C. 4 2 1 5 3 6

D. 5 1 4 2 3 6

Answer:

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21. The steps involved in the manufacture of glass are given below. Arrahge them in the correct sequence

Moderate colling

Addition of cullet

Formation of respective silicates

Preparation of fine powder of raw materials

Heating of cullet at about 1600K to 1700K

A. 4 2 5 3 1

B. 4 5 2 1 3

C. 4 5 3 2 1

D. 4 2 3 5 1

Answer:

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22. Different processes involved in the manufacture of pottery or ceramic materials are given below. Arrange them in a proper sequence.

(1) change in the physical and chemical properties of the substances

(2) heating to a suitable high temperature

(3) drying of the mixture

(4) preparation of mixture by adding water to raw materials

A. 2 1 4 3

B. 4 3 2 1

C. 4 3 1 2

D. 3 4 2 1

Answer:

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23. The compounds formed when ammonia reacts with excess of chlorine are

A. NH_4Cl, HCl

B. NCl_3, HCl

C. N_2, HCl

D. NH_4Cl, NCl_3

Answer:

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24. In elcctrothcrmic reduction, calcium phosphate is mixed with

A. sand, sulphur

B. coke, sand

C. sulphur, coke

D. sulphur, phosphorus

Answer:

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25. HNO_3 on reaction with phosphorus gives

A. phosphorus acid

B. phosphoric acid

C. metaphosphoric acid

D. hypophosphoric acid

Answer:

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26. Sulphur on reaction with HNO_3 gives _____

A. H_2SO_4, NO_2, H_2O

B. H_2SO_3, NO_2, H_2O

C. H_2SO_4, NO, H_2O

D. H_2SO_3, NO, H_2O

Answer:

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27. Which of the following metal liberates hydrogen when treated with dilute H_2SO_4 ?

A. Cu

B. Zn

C. Mg

D. Fe

Answer:

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28. The bleaching action of bleaching powder is due to the formation of

A. chlorate ion

B. chloride ion

C. chlorite ion

D. hypochlorite ion

Answer:

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29. Which among the following types of glass is used in the manufacture of doors and windows 0f automobiles?

A. laminated glass

B. fibre glass

C. foam glass

D. opaque glass

Answer:

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30. Which of the following plastics can be recycled?

A. melamine

B. polyethylene

C. bakelite

D. Both (a) and (b)

Answer:

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Concept Application Level 2

1. Two moist red roses are taken in two containers A and B into which anhydride of

sulphurous acid and a greenish yellow coloured gas are passed, respectively. What changes are observed with respect to two roses in A and B? How do you account for these changes?

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2. Among white phosphorous and red phosphorous which is more preferable for use in match sticks? Give a reason in support of your answer.

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3. When a burning paraffin candle is introduced into two jars containing oxygen and chlorine gases separately, what observations can be made? Explain with appropriate reasons.

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4. When chlorine reacts with hot and concentrated caustic alkali XOH, one of the

products, Y is formed by this reaction is used as an oxidizer in the match industry. Identify the compound Y and the element X.

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5. Two samples of sulphur are heated separately starting at $60^{\circ}C$. One sample is found to melt at $114^{\circ}C$ and the other one melts at $119^{\circ}C$. How do you account for this?

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6. Bone ash contains both micro- and macronutrients in it. However, it is not used as a fertilizer. It is converted to superphosphate of lime which is an important fertilizer. Justify.

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7. An iron rod is dipped in conc. HNO_3. Then it is made to react with copper sulphate solution. What observations are made in this process? Give reasons in support of your answer.

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8. Noble metals, like, gold and platinum are insoluble both in HCl and in HNO_3. But they are soluble in aquaregia. Justify.

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9. Farmers are advised to grow beans or pea plants in crop rotation. Give reasons in support of your answer.

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10. When copper metal is subjected to treatment with nitric acid, different oxides of nitrogen are liberated with different concentrations of nitric acid. Explain the reason.

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11. Ammonium chloride on reaction with quick lime gives a gas X which turns red litmus blue.

Excess of X and greenish yellow gas are taken in container A and excess of greenish yellow gas and X are taken in container B which on reaction gives different sets of products. When moist litmus paper is introduced into the jars, it turned to red in jar B. Identify the reactions involved and give equations.

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12. Hydrogen chloride gas can be subjected to drying only with conc. H_2SO_4 but not with

quick lime or phosphorus pentoxide. Explain.

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13. Why are soaps ineffective during usage with hard water which contains soluble salts of calcium and magnesium?

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14. When a binary salt of iron reacts with hydrochloric acid, it gives out a gas which can

be used for identification of many metal ions. Identify the salt, the gas and explain how it is useful in detecting metal ions.

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15. Nitric acid is colourless when freshly prepared. But, on long standing, it turns to yellow. How do you account for this?

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16. Two research scholars Rony and Jony, needed red phosphorus and white phosphorus, respectively, for a research programme. Both of them went to a chemical store to purchase red phosphorus and white phosphorus. The storekeeper gave a normal glass bottle containing red phosphorus and a glass bottle containing white phosphorus which was kept in water. Justify the above observations.

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17. A solid non-metal A on exposure to air forms a compound B which on dissolution in water forms the highest oxyacid C. Identify different type of salts which can be formed when C reacts with caustic potash.

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18. Though P_2O_5 is a very good desiccant, its utility for drying is limited. Give reasons

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19. In an industry, H_2S gas is mixed with chlorine gas before releasing it into the atmosphere. Give the appropriate reason.

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20. A solid non-metal X on burning gives a compound Y which under high temperature and pressure conditions in presence of catalyst gets oxidized to Z. Z can give the .ic. acid of the non-metal on dissolution in water.

However, it is not a preferred reaction for the preparation of the acid. Give reason and explain the method employed for the preparation of the ic-acid from Z and mention the precautions required during dilution of the acid.

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21. Concentrated HNO_3 and concentrated H_2SO_4 can.t be used for the preparation of H_2S. Give a reason.

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22. Rekha and Lekha took two fresh red roses and kept them in two containers A and B into which anhydride of sulphurous acid and a greenish yellow coloured gas are passed, respectively. After a few minutes these two roses lose their colour but on being exposed to the atmosphere, it was observed that Rekha.s rose regained its colour but Lekha.s rose did not. How do you account for the above changes?

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23. During the summer vacation, a chemistry laboratory assistant stored the chemicals in their respective bottles. After a few months it was observed that the lids of the bottles in which sodium hydroxide was stored was struck tight. He went to a lecturer for finding the solution for this problem. What solution could be suggested by the lecturer?

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24. Ranchu.s father is working in a fertilizer industry. One day at home he heard his father making a suggestion to his colleague that between nitrate salts and ammonium salts, nitrate salts are preferable for use as a fertilizer. The next day Ranchu asked his brother the reason for their father.s suggestion. What answer did his brother give?

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25. Thermoplastics can be moulded again and again, whereas thermosettings cannot be moulded. Give a reason.

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Concept Application Level 3

1. Two non-metallic gaseous elements react in 1 : 3 ratio to give another gas X. A mixture of X and oxygen is taken in a jar and a burning

match stick is introduced into it. Another sample of the same mixture containing large excess of O_2 is passed over heated platinum. The mixture of gaseous products is dissolved in water to give Y and Z which are colourless. Z on long standing turns to yellow. Identify X, Y and Z by giving reasons wherever necessary. Also identify the exothermic reaction in the above sequence.

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2. Both slow cooling and rapid cooling of glass are avoided. How do you account for this?

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3. Phosphorite rock when treated with phosphoric acid gives a fertilizer which is preferred to a fertilizer obtained from the same mineral on treatment with conc. sulphuric acid. Justify

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4. Why is the compound AgCl used in photogrey lenses?

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5. Bleaching powder in cold water is an excellent bleaching agent. But it cannot act as a good bleaching agent when dissolved in hot water.Why?

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6. Hydrofiuoric acid cannot be stored in glass bottles like all other acids. Give reason.

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7. Certain phosphates are helpful in making hard water soft.Which phosphates are used and how do they help in making water soft?

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8. Both H_2SO_4 and HNO_3 cause damage to skin when the skin comes in contact with them. Compare and contrast the reasons

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9. Nitric acid attacks all the metals except noble metals but the nature of products of same metal along with corresponding nitrates depends upon the concentration of HNO_3. Explain.

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