

CHEMISTRY

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COMPOUNDS OF NON-METALS

Example

1. Take a little ammonium chloride (NH_4CI) in a watch glass and add a little calcium hydroxide $\left(Ca(OH)_2\right)$ to it. Stir well. Can you sense any smell?



2. Show wet blue and red litmus papers over the watch glass containing soap solution one by one. Which litmus paper shows a colour change ?



3. Take a little ammonium chloride (NH_4Cl) in watch glass and a little calcium hydroxide($Ca(OH)_2$ to it. Stir well. Is the gas acidic or basic?



4. Why ammonia gas is passed over quick lime (CaO)?



5. Ammonia gas is passed over quick lime(CaO).

What may be the reason for collecting ammonia in this manner?



6. Ammonia gas is passed over quick lime (CaO).

What is your inference about the density of ammonia from this?



7. What inference can be made about solubility of Ammonia in water?



8. What inference can be made about solubility of Ammonia in water?



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9. Complete the chemical equation given below and find the product obtained when ammonia is dissovled in water.



10. Tick $\sqrt{\ }$ which is applicable to am-monia.

Colour	Yes/No colour
Smell	Pungent smell /No smell
Property	Basic /Acidic
Solubility in water	More soluble /Less soluble
Density	Less than air /More than air



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11. When an Ammonia tanker leaks, water is sprayed to reduce its inten-sity. What is the reason for this?



12. Write some uses of ammonia.



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13. Take some ammonium chloride (NH_4CI) in a boiling tube and heat it. Don't you sense a peculiar smell?



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14.

Take some ammonium chloride (NH₄Cl) in a boiling tube and heat it. Don't you sense a peculiar smell?

Which is the gas evolved here?



Take some ammonium chloride (NH₄Cl) in a boiling tube and heat it. Don't you sense a peculiar smell?

Show a wet red litmus paper on the mouth of the boiling tube. What change can you observe?



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16.

Take some ammonium chloride (NH₄Cl) in a boiling tube and heat it. Don't you sense a peculiar smell?

Keep the litmus paper for some more time at the mouth of the boil-ing tube and then observe its colour change. What is the change occurred? **17.**

Take some ammonium chloride (NH₄Cl) in a boiling tube and heat it. Don't you sense a peculiar smell?

Write the chemical equation of this reaction.



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18. A glass rod dipped in conc. HCI is shown in to the jar which is filled with ammonia. What do you observe?



A glass rod dipped in conc. HCl is shown into the jar which is filled with ammonia. What do you observe?

Complete the equation and find out the product?



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20.

A glass rod dipped in conc. HCl is shown into the jar which is filled with ammonia. What do you observe?

What happens to the white powder on heating?



21. Examine the chemical equation given below and write the forward and backward reaction $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)$



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22. Examine the chemical equation given below and write the forward and backward reaction :

 $2SO_2(q) + O_2(q) \leftrightarrow 2SO_3(q)$

23. Examine the chemical equation given below and write the forward and backward reactions : $H_2(g)+I_2(g)\leftrightarrow 2HI(g)$



24. What happens to the rates of forward and backward reactions as time progresses?



25. Identify the point at which the rates of both forward and backward reactions become equal?



26. The rate of which reaction increases when the concentration of nitrogen is increased in the manufacture of Ammonia? Forward reaction/Back ward reaction.



27. What happens if the concentration of ammonia is increased in the manufacture of Ammonia?



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28. What will be the effect of removing ammonia continuosly from the system in the manufacture of Ammonia?



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29. Complete the table writing the effect of change in concentration in the system at equilibrium.

Action	Change of concentration	Change in rate
More hydrogen is added		
• More ammonia is added		
Ammonia is removed	.*	
More nitrogen is added		



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30. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)$ in this equation what is the total number of moles of the reactant molecules.



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31.

$$N_2(g)+3H_2(g) \rightleftharpoons 2NH_3(g)$$

In this equation what is the total number of moles of the reactant molecules? What about the products? **Watch Video Solution 32.** In the manufacture of ammonia, the reaction in which direction result in the decrease in the number of molecules? **Watch Video Solution 33.** What happens when the pressure of system is decreased? **Watch Video Solution** 34. In manufacturing of ammonia, What if the pressure of the system is decreased?

35. In the manufacture of ammonia, why is a pressure of 150-300 atm used?



36. $H_2(g) + I_2(g) \leftrightarrow 2HI(g)$ What is the total number of moles of reactants?



37.

H₂(g)+I₂(g) ⇒ 2HI(g)
What is the total number of moles of reactants?

What about the products?



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38. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)+Heat$ Which is the endothermic reaction in this? Forward reaction/Bakward reaction.

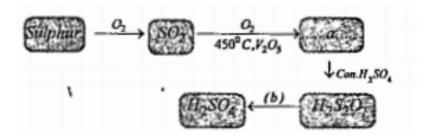


39. Sulphuric acid is formed also by the direct dissolution of sulphur trioxide in water. Still, sulphur trioxid is not directly dissolved in water. Why?



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40. Complete the flow chart.





41. Take 5mL water in a test tube and slowly add concentrated sulphuric acid to it. Touch the bottom of the test tube. What

do you feel? Is the reaction exothermic or endothermic?
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42. What are the constituent elements of sugar?
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43. In constituent of sugar, Which is the black substance in
the product formed?
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44. What is the ratio of hydrogen and oxy-gen is sugar?
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45. Which is the substance that absorbed hydrogen and oxygen from sugar in the ratio as in water?



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46. Complete the table by involving the activites given below.

No.	Activity	Observation
1.	Dropping Con. H ₂ SO ₄ on a cotton cloth.	
2.	Adding Con. H ₂ SO ₄ to glucose taken in a small beaker.	
3.	Adding Con. H ₂ SO ₄ to a watch glass in which CuSO ₄ crystals are taken.	



47. Why is concentrated sulphuric acid not used as a drying agent in the preparation of ammonia?



48. Add concentrated sulphuric acid to a test tube containing a small quan-tity of carbon. Heat it. What do you observe?



your observation.

49. Analyse the chemcial equation and find the reason for

$$C^{\,\circ} + 2 H_2^{\,+1}{}_2 S^{\,+6} O_4^{\,-2} o C^{\,+4} O_2^{\,-2} + 2 H_2^{\,+1} O^{\,-2} + 2 S^{\,+4} O_2^{\,-2}$$

What is the oxidation state of elemental carbon?



50.

Analyse the chemical equation and find the reason for your observation.

$$C^{0}+2H_{2}^{+1}{}_{2}S^{+6}O_{4}^{-2} \rightarrow C^{+4}O_{2}^{-2}+2H_{2}^{+1}O^{-2}+2S^{+4}O_{2}^{-2}$$

What is the oxidation state of the carbon in carbon dioxide?



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51.

Analyse the chemical equation and find the reason for your observation.

$$C^0+2H_2^{+1}S^{+6}O_4^{-2} \rightarrow C^{+4}O_2^{-2}+2H_2^{+1}O^{-2}+2S^{+4}O_2^{-2}$$

Was carbon oxidized or reduced in this reaction?

52. What is oxidising agent?



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53. See the reaction between concentrated sulphuric acid and copper.

 $Cu^{\,\circ}\,+2H_2^{\,+1}S^{\,+6}O_4^{\,-2}$

 $^{+6}O_4^{-2}$

Is copper oxidized or reduce in this case?

 $Cu^{+2}S^{+6}O_4^{-2} + S^{+4}O_2^{-2} + 2H_2^{+1}O^{-2}$



54. See the reaction between concentrated sulphuric acid and copper.

$$Cu^{\circ} + 2H_2^{+1}S^{+6}O_4^{-2}$$
 \rightarrow

$$Cu^{+2}S^{+6}O_4^{-2} + S^{+4}O_2^{-2} + 2H_2^{+1}O^{-2}$$

Which is the oxidizing agent in this reaction? Which is the reducing agent?



55. Analyse the given chemcal equation.

 $Na_2SO_4 + BaCI_2
ightarrow BaSO_4 + 2NaCI$ Which substance is soluble in water among the products?

56. When 1 ml Barium Chloride solution is added to the solution given below:

No.	Solution	By adding BaCl ₂ solution	When dilute HCl is added to this
1.	MgSO ₄		
2.	ZnSO ₄		

Which substance is the white pre-cipitate?



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57. When 1 ml Barium Chloride solution is added to the solution given below:

No.	Solution	By adding BaCl ₂ solution	When dilute HCl is added to this
1.	MgSO ₄		
2.	ZnSO ₄	-	

Does the white precipitate dis-solve when dilute hydrochloric acid is added to it?

58. Write down the observation in the table given below, when 1mL Barium chlo-ride solution is added to the solutions given in the table.

. No.	Solution	By adding BaCl ₂ solution	When dilute HCl is added to this
1.	MgSO ₄		
<u> </u>			
2.	ZnSO ₄		



59. In which of the following rever-sible reactions does change in pressure not influence equilibrium? What is the reason?

$$H_2(g) + I_2(g) \leftrightarrow 2HI, N_{23}H_2(g) \leftrightarrow 2NH_3$$

60. What is the use of appliying high pressure during the formation of ammonia from nitrogen and hydrogen?



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61. $C(s) + H_2O(g) \underset{\longleftrightarrow}{heat} CO(g) + H_2(g)$ Indentify the reactants and products.



- **62.** $C(s) + H_2O(g) \Leftrightarrow CO(g) + H_2(g)$
- a) Identify the reactants and products.
- b) Products are frequently removed from the system. What happen to the system? Explain the reason.

63. $2NO(g)+O_2(g)\leftrightarrow 2NO_2(g)+heat$ In this reaction how do the following changes influence the amount of the product: Decrease in temperature



64. $2NO(g)+O_2(g)\leftrightarrow 2NO_2(g)+heat$ In this reaction how do the following changes influence the amount of the product: Increase in pressure



65. $2NO(g) + O_2(g) \leftrightarrow 2NO_2(g) + heat$ In this reaction how do the following changes influence the amount of the product: Increase in concentration of oxygen.



66. $N_2(g) + 3H_2(g) \leftrightarrow 2NH_3(g) + heat$: What change in pressure is required for the maximum yield of the product?



67. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)+heat$: What is the change in conce-natration required for increasing the rate of the forward reaction?



68. The chemcial equation of one of the different stages of manufacturing sulphuric acid by contact process is given below. Find out the influence of the following factors in the reac-tion given below. $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g) + heat$: Increase the amount of oxygen.



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69. The chemcial equation of one of the different stages of manufacturing sulphuric acid by contact process is given below. Find out the influence of the following factors in the reac-tion given below. $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g) + heat$: Pressure in increased



70. The chemcial equation of one of the different stages of manufacturing sulphuric acid by contact process is given below. Find out the influence of the following factors in the reac-tion given below. $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g) + heat$: Catalyst vanadium pentoxide (V_2O_5) is added.



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71. The chemcial equation of one of the different stages of manufacturing sulphuric acid by contact process is given below. Find out the influence of the following factors in the reac-tion given below. $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g) + heat$: SO_3 is removed.



72. Calcium oxide (CaO) is used as dry- ing agent in the preparation of Am- monia in laboratory. Can concentrated H_2SO_4 be used as drying agent instead of CaO? Justify your answer.



- **73.** Which property of sulphuric acid is shown in the following situation.
- a) During the preparation of chlorine the gas is passed through concentrated H_2SO_4
- b) Wooden cupboards appeared to be burnt, when concentrated sulphuric acid happened to fall on it.

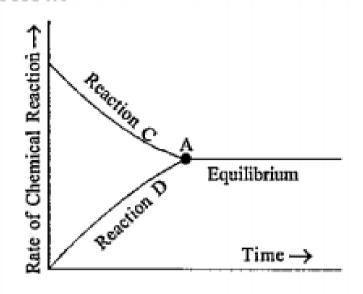


74. Which property of sulphuric acid is shown in the following situation.

- a) During the preparation of chlorine the gas is passed through concentrated ${\cal H}_2SO_4$
- b) Wooden cupboards appeared to be burnt, when concentrated sulphuric acid happened to fall on it.



75. The graph for the reaction $N_2(g) + 3H_2(g) \leftrightarrow 2NH_3(g) + heat$ is given below.



Indentify

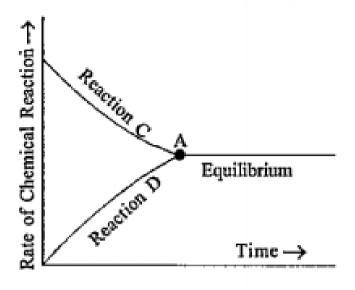
and write the reactions C and D



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76. The graph for the reaction

 $N_2(g) + 3H_2(g) \leftrightarrow 2NH_3(g) + heat$ is given below.



What

happens to the position of point A in the graph when a catalyst is used? Redraw the graph.



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77. It is often said that the production of sulphuric acid is a bench mark of the industrial development of country. Prepare a note based on the various uses of sulphuric acid.



78. Fill half of a beaker of capacity 50 mL with sugar. Add concentrated sulphuric acid so that the sugar is immersed in it. Observe the changes. shat are the products formed? Which property of sulphuric acid is revealed here?



79. What will be the effect of temperature on a rate of a reaction?



80. Why rate of a reaction increase when temperature increases?

81. Some chemical reactions are given below.

$$Zn+2HCI
ightarrow ZnCl_2+H_2 \hspace{1.5cm} 2Mg+02
ightarrow 2MgO$$
,

 $NH4Cl \leftrightarrow NH3 + HCl$: What are the peculiarities of first two reactions.



82. Some chemical reactions are given below.

- 1. $Zn + 2HCl \rightarrow ZnCl_2 + H_2$
- 2. $2Mg + O_2 \rightarrow 2MgO$
- 3. $NH_4Cl \rightleftharpoons NH_3 + HCl$

Conduct an experiment for viewing the dissociation and association taking place in the third equation.

83. Some chemical reactions are given below.

$$Zn+2HCl
ightarrow ZnCl_2+H_2 \hspace{1.5cm} 2Mg+02
ightarrow 2MgO$$
,

 $NH4Cl \leftrightarrow NH3 + HCl$: In the three reactions reactants turned into product and products are converted into reactents, is it true?



84. Some chemical reactions are given below.

$$Zn+2HCI
ightarrow ZnCl_2+H_2 \hspace{1cm} 2Mg+02
ightarrow 2MgO,$$

 $NH4Cl \leftrightarrow NH3 + HC1$: What type of reactions are they all represent?



85. Some chemical reactions are given below.

$$Zn+2HCI
ightarrow ZnCl_2+H_2 \hspace{1.5cm} 2Mg+02
ightarrow 2MgO$$
 ,

 $NH4Cl \leftrightarrow NH3 + HCl$: What are the peculiarities of first two reactions.



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86. $Fe(NO_3)_3 + 3KCNS \rightarrow Fe(CNS)3 + 3KNO_3$, This balanced chemical equation is wrote on the black board,when the teacher is going to conduct an experiment on chemical equilibrium: In the above reaction, which chemical has red colour.



87. $Fe(NO_3)_3 + 3KCNS \rightarrow Fe(CNS)3 + 3KNO_3$, This balanced chemical equation is wrote on the black board,when the teacher is going to conduct an experiment on chemical equilibrium: In the above reaction, which chemical has red colour.



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88. $Fe(NO_3)_3 + 3KCNS \rightarrow Fe(CNS)3 + 3KNO_3$, This balanced chemical equation is wrote on the black board,when the teacher is going to conduct an experiment on chemical equilibrium: In the above reaction, which chemical has red colour.



Fe(NO₃)₃+3KCNS \rightarrow Fe (CNS)+3KNO₃ This balanced chemical equation is wrote on the black board, when the teacher is going to conduct an experiment on chemical equilibrium

Point out the characteristics of equilibrium based on the experiment done.



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90.

Fe(NO₃)₃ + 3KCNS \rightarrow Fe (CNS) + 3KNO₃ This balanced chemical equation is wrote on the black board, when the teacher is going to conduct an experiment on chemical equilibrium

e. In minute level chemical equilibrium is Kinetic energy why?



91.

Fe(NO₃)₃ + 3KCNS \rightarrow Fe (CNS) + 3KNO₃ This balanced chemical equation is wrote on the black board, when the teacher is going to conduct an experiment on chemical equilibrium

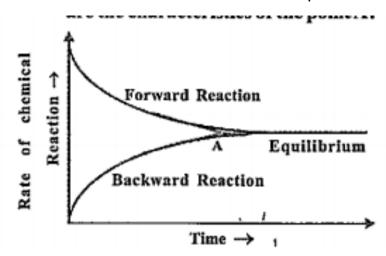
f. How and when a reversible reaction attain chemical equilibrium



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92. Convert the solution reared into four be: In the graph given below, when the react-ent and product attain the level

A? What are the characteristics of the point A?





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93.
$$N_2+3H_2\leftrightarrow 2NH_3$$

$$H_2 + I_2 \leftrightarrow 2HI$$

$$N_2O_2(g)\leftrightarrow 2NO$$

$$2SO_2 + O_2 \leftrightarrow 2SO_3$$

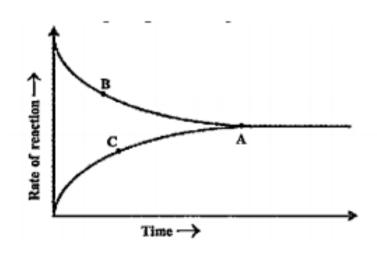
How amount of the products increases in the above reactions (based on Le chateliers principle) Hints: reference must be

given on each of the following: concentration, pressure, temperature and catalyst



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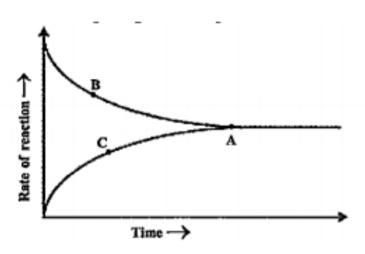
94. Thegraph showing the progress ofthe re-action $N_2 + 3H_2 \leftrightarrow 2NH_3$, is given



Identify

the reactions represented by B and C?

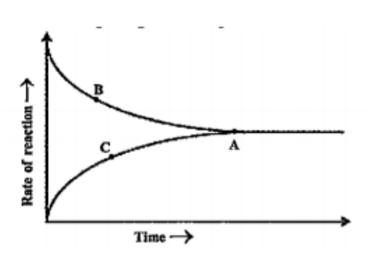
95. The graph showing the progress of the reaction $N_2 + 3H_2 \leftrightarrow 2NH_3$, is given



What is the significance of the state A?



96. The graph showing the progress of the reaction $N_2 + 3H_2 \leftrightarrow 2NH_3$, is given



Is there any change in the concentration, as time passes after attaining the stage A? Explain.



97. Cold water is taken in one test tube and hot water in another one. Mg ribbon with same size is dropped in each of the test tube: In which test tube, hydrogen is formed with greater speed?



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98. Cold water is taken in one test tube and hot water in another one. Mg ribbon with same size is dropped in each of the test tube: In which test tube, hydrogen is formed with greater speed?



99. The chemical equation of the industrial pre-paration of ammonia is given below. $N_2+3H_2\leftrightarrow 2NH_3+Heat$ Suggest the methods to get more NH_3



100. $H_2(g)+I_2(g)\leftrightarrow 2HI(g)+Heat$ How do the following circumstances influence the reaction: Increase the concentration of H_2 .



101. $H_2(g)+I_2\Leftrightarrow 2HI(g)$ Which of the following has no effect on the given system at equlibrium. (Temperature, Pressure, Concentration).

102. $H_2(g)+I_2(g)\leftrightarrow 2HI(g)+Heat$ How do the following circumstances influence the reaction: Increase the temperature.



103. The formation of SO_3 in the industrial pre-paration of sulphuric acid is given below. $2SO_2+O_2\leftrightarrow 2SO_3+Heat$: Explain the effect of concentration of O_2 to get maximum yield of SO_3 ? State rea son.



104. $H_2(g)+I_2(g)\leftrightarrow 2HI(g)+Heat$ How certain circumstances like P,T,V,C influence the reaction: Identify the law related to it. State it.



105. The chemical equation of a stage in the industrial preparation of sulphuricadd is given below. $2SO_2+O_2\leftrightarrow 2SO_3+Heat$: Which is the catalyst used in this react-ion?



106. The chemical equation of a stage in the industrial preparation of sulphuric acid is given below.

 $2SO_2 + O_2 \leftrightarrow 2SO_3 + Heat$: What is the influence of the catalyst in equilibrium?



107. The chemcial equation of the industrial preparation of ammonia is given below. $N_2+3H_2\leftrightarrow 2NH_3+Heat$: Temperature is to decreased to get ma-ximum yield of ammonia, according to the Le Chatelier principle. Why?



108. The chemical equation of the industrial preparation of ammonia is given below. $N_2+3H_2\leftrightarrow 2NH_3+Heat$: What is the reason for taking an optimum temperature in this reaction?

109. Analyse the following equations and answer the $NH_4Cl_s \leftrightarrow NH_{3(a)} + HCl_a$ questions

$$H_{2\hspace{.05cm}(\hspace{.05cm}g\hspace{.05cm})} + I_{2\hspace{.05cm}(\hspace{.05cm}g\hspace{.05cm})} \, \leftrightarrow 2HI_g, \qquad N_{2\hspace{.05cm}(\hspace{.05cm}g\hspace{.05cm})} + 3H_{2\hspace{.05cm}(\hspace{.05cm}g\hspace{.05cm})} \, \leftrightarrow 2NH_{3\hspace{.05cm}(\hspace{.05cm}g\hspace{.05cm})} :$$

Which of these reactions are affected by change in pressure? What are the reasons?



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110. Analyse the following equations and answer the $NH_4Cl_s\leftrightarrow NH_{3(q)}+HCl_g$, questions

 $H_{2(g)} + I_{2(g)} \leftrightarrow 2HI_g, \qquad N_{2(g)} + 3H_{2(g)} \leftrightarrow 2NH_{3(g)}$:

Which of these reactions are affected by change in pressure?

What are the reasons?

111. Catalysts are substances which influence the rate of chemical reactions. Explain howthecatalysts influence therate of reversible reaction?



112. Some features of a reversible reaction are given below:

Product formation increase when the temperature is

increased.

Explain the reason for above inference.



113. Some features of a reversible reaction are given below: There is no effect, when the pressure is increased. Explain the reason for above inferences.



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114. $A+B+Heat\leftrightarrow 2C+D$ This reversible reaction is in equlibrium. What happens to the amount of products under the following conditions: C is removed from the system.



115. $A+B+Heat\leftrightarrow 2C+D$ This reversible reaction is in equlibrium. What happens to the amount of products under the following conditions: B is added in excess



116. $A+B+Heat\leftrightarrow 2C+D$ This reversible reaction is in equlibrium. What happens to the amount of products under the following conditions: Temperature is increased



117. $A+B+Heat\leftrightarrow 2C+D$ This reversible reaction is in equlibrium. What happens to the amount of products under the following conditions: A suitable catalyst is added.



118. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: Forward reaction takesplace when a catalyst is used in a reversible reaction.



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119. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: Attains equilibrim faster.



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120. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: Does not help to produce more product.

121. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: The catalyst increases the rates of both the forward and the backward reactions to the same extent.



122. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: Increases the speed of bakcward reaction.



123. Select the correct statements which are re-lated to the influence of catalystin a revers- ible reaction: Does not help to produce more product.



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124. $2X(g) + hear \leftrightarrow y(g) + Z(g)$ Explain the influence of pressure and temperature in this reaction.



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125. Observe the equation of thechemical react-ions given below. $NaOH(aq)+HCI(aq)\leftrightarrow 2NaCI(aq)+H_2O(I),$ $N_2(g)+O_2(g)\leftrightarrow 2NO(g),$

 $Zn(s) + 2HCI
ightarrow ZnCI_2(aq) + H_2(g)$,

 $2SO_2(g) + O_2(g) \leftrightarrow 2SO_3(g)$: In which chemical reaction pressure can influence its speed?



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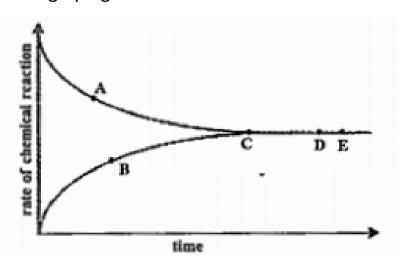
126. Observe the equation of thechemical reactions given below. $NaOH(aq)+HCI(aq)\leftrightarrow 2NaCI(aq)+H_2O(I),$ $N_2(g)+O_2(g)\leftrightarrow 2NO(g),$

 $Zn(s)+2HCI o ZnCI_2(aq)+H_2(g)$, $2SO_2(g)+O_2(g)\leftrightarrow 2SO_3(g)$: In this reaction what changes will be made in pressure for increasing forward reaction?

Why?



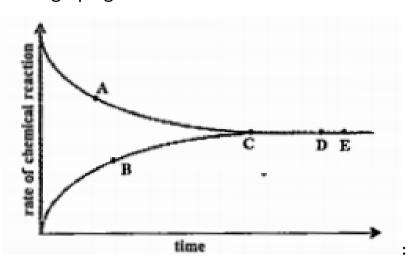
127. A graph given below deals with the reversible reaction.



What does A,B,C indicate?



128. A graph given below deals with the reversible reaction.



What inference can be drawn about the concentration of the reactants and products at the point D and E?



129. Some chemicals are given below.Sodium chloride,Ammonium hydroxide, Nitric acid, cone.Sulphuric acid,Sodium hydroxide: Which are the substances nee ded to produce hydrogen chloride?



130. Some chemicals are given below.Sodium chloride,Ammonium hydroxide, Nitric acid, cone.Sulphuric acid,Sodium hydroxide: Which are the substances nee ded to produce hydrogen chloride?



131. When ammonia was leaked to solutions were arised: Spray water, Spray HCI Which method you adopt? Justify your answer.



132. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)+heat$ How do the following factors influence the foward reaction: One of the products is removed



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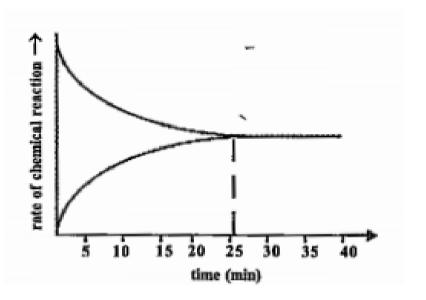
133. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)+heat$ How do the following factors influence the foward reaction: Increase in pressure



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134. $N_2(g)+3H_2(g)\leftrightarrow 2NH_3(g)+heat$ How do the following factors influence the foward reaction: More N_2 is added.

135. A graph given below deals with the revers-ible reaction.

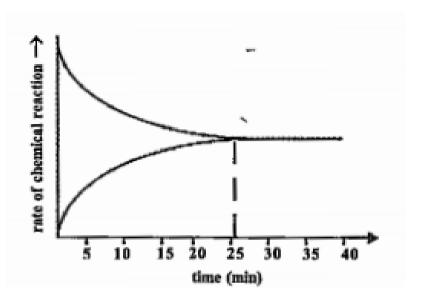


What

happened to the forward and back-ward reactions as time passes?



136. A graph given below deals with the revers-ible reaction.

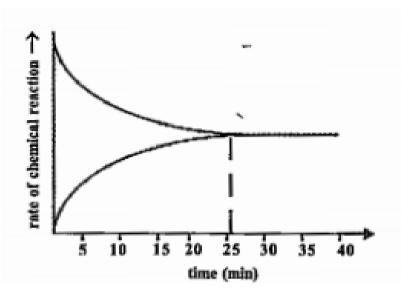


In which

minute does the system attain equilibrium?



137. A graph given below deals with the revers-ible reaction.



What

change occurs to the equilibrium, when a catalyst is used?



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138. Ammonia is an industrially useful compound of nitrogen:

Name the industrial production of ammmonia.



139. Ammonia is an industrially useful compound of nitrogen: Write the equation of the reaction.



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140. Ammonia is an industrially useful compound of nitrogen: Write any two uses of ammonia.



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141. Ammonia is a pungent smelling gas: How does ammonia convert into: liquour ammonia.



142. Ammonia is a pungent smelling gas: How does ammonia convert into: liquid ammonia



143. Ammonia is a pungent smelling gas: Write the colour, smell, solubility in water and density of ammonia.



144. Sulphuric acid isindustrially manu factured by using contact process. Write the equation of this process.



145. Write equations for the following chemcials to propare from suphuric acid: Hydrogen chloride



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146. Write equations for the following chemcials to propare from suphuric acid: Oleum



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147. Write equations for the following chemcials to propare from suphuric acid: Sodium sulphate



Observe the following chemcial equation $Cu + 2H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$: Which one has oxidation state as 0?



149.

148.

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 $Cu + 2H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$: What is its oxidation state after the chemi-cal reaction?

Observe the following chemcial equation



Observe the following chemcial equation 150. $Cu + 2H_2SO_4 \rightarrow CuSO_4 + SO_2 + 2H_2O$: Is the change oxidation or reduction?



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151. Observe the following chemcial equation $Cu+2H_2SO_4 o CuSO_4+SO_2+2H_2O$: Which chemical nature of sulphuric acid is found here?



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152. Litmus has coloured in the solution. When $BaCI_2$ solution was added to his. Solution, a white precipitate insoluble in HCI is produced: Write the chemical name and chemical formula of the white precipitate produced when it was added with $BaCI_2$.



153. Litmus has coloured in the solution. When $BaCI_2$ solution was added to his. Solution, a white precipitate insoluble in HCI is produced: Write the chemical name and chemical formula of the white precipitate produced when it was added with $BaCI_2$.



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154. Litmus has coloured in the solution. When $BaCI_2$ solution was added to his. Solution, a white precipitate insoluble in HCI is produced: Write the chemical name and chemical formula of the white precipitate produced when it was added with $BaCI_2$.



155. Sulphuric acid isa drying agent as well as,a dehydrating agent: Find out the difference between these two activities.



156. Sulphuric acid isa drying agent as well as,a dehydrating agent: Write one exampel each for these nature of sulphuric acid.



: Complete the equations.

157. Someincompleteequationsaregiven below: $MgSO_4 + BaCI_2
ightarrow - - - - - - - + MgCI_2$

, $MgSO_4+BaCI_2
ightarrow -----+MgCI_2$, $K_2CO_3+BaCI_2
ightarrow ----+2KCI$,

 $KCI + AgNO_3
ightarrow - - - - - - - - - + KNO_3$



$$MgSO_4 + BaCI_2
ightarrow - - - - - - - + MgCI_2$$

below:

, $K_2CO_3+BaCI_2
ightarrow-----+2KCI$, $KCI+AgNO_3
ightarrow------+KNO_3$

1. Fill in the blanks: Liquor ammonia: concentrated aquous

: Find out the white precipitate in each of the reactions.

Someincompleteequationsaregiven



Exercies

158.

solution of ammonia; Liquid ammonia:.....

2. Sulphuric acid is not prepared by dissolving SO_3 in water. Why?



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3. Ammonium chloride is used in the laboratory for the manufacture of ammonia: Which chemical is reacted with ammonium chloride to produce ammonia?



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4. Ammonium chloride is used in the laboratory for the manufacture of ammonia: Write the equation for the reaction.



5. Ammonium chloride is used in the laboratory for the manufacture of ammonia: Which substance is used to remove the water content in ammonia. Which property is utilized here?



6. State the Le-Chatelier's principle.



7. On the basis of Le-Chatelier's Principle explain what will be the effect of removing the product from the system.

