

7.3 Reversible reactions

01. 0620_m21_qp_22 Q: 17

P is a hydrated metal salt with a blue colour. When P is heated, water is given off, leaving solid Q.

R is a hydrated metal salt with a pink colour. When R is heated, water is given off, leaving solid S.

Which row gives the name of P and the colour of S?

| | name of P | colour of S |
|----------|------------------------------|-------------|
| A | hydrated cobalt(II) chloride | blue |
| B | hydrated cobalt(II) chloride | white |
| C | hydrated copper(II) sulfate | blue |
| D | hydrated copper(II) sulfate | white |

02. 0620_s21_qp_21 Q: 17

Which statement about a reaction in equilibrium is correct?

- A** Both the forward and the backward reactions are proceeding at the same rate.
- B** Neither the forward nor the backward reaction is proceeding.
- C** The amount of product present is no longer affected by changes in temperature or pressure.
- D** The amount of product present is only affected by a change in pressure.

7.3. REVERSIBLE REACTIONS

03.0620_s21_qp_22 Q: 17

When bismuth(III) chloride, BiCl_3 , reacts with water, a white precipitate of bismuth(III) oxychloride, BiOCl , is formed. The equation for the reaction is shown.



The reaction is in equilibrium.

Which changes cause the white precipitate to dissolve?

- 1 adding acid
- 2 adding water
- 3 adding sodium chloride solution

A 1 and 2 only **B** 1 and 3 only **C** 2 and 3 only **D** 1, 2 and 3

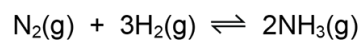


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04. 0620_w21_qp_21 Q: 14

Ammonia is made by reacting nitrogen with hydrogen.

The equation for the reaction is shown.



The forward reaction is exothermic.

Which changes in temperature and pressure decrease the yield of ammonia?

| | temperature | pressure |
|----------|-------------|----------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |



7.3. REVERSIBLE REACTIONS

05. 0620_w21_qp_21 Q: 15

X is a pink solid.

Y is a blue solid.

When X is heated, water is produced and the solid turns blue.

When water is added to Y, the solid turns pink.

What are X and Y?

| | X | Y |
|----------|-------------------------------|-------------------------------|
| A | anhydrous cobalt(II) chloride | hydrated cobalt(II) chloride |
| B | hydrated cobalt(II) chloride | anhydrous cobalt(II) chloride |
| C | anhydrous copper(II) sulfate | hydrated copper(II) sulfate |
| D | hydrated copper(II) sulfate | anhydrous copper(II) sulfate |

06. 0620_w21_qp_22 Q: 15

Solid X is heated strongly.

The colour of the solid changes from blue to white.

What is solid X?

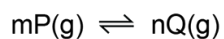
- A** anhydrous cobalt(II) chloride
- B** calcium carbonate
- C** hydrated copper(II) sulfate
- D** lead(II) bromide

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07. 0620_w21_qp_22 Q: 20

The equation shown represents a reaction at equilibrium.

m and n represent the balancing numbers for the reactant and product respectively.



A high temperature increases the concentration of Q.

A high pressure increases the concentration of Q.

Which statement about the reaction is correct?

- A The forward reaction is exothermic and m is greater than n.
- B The forward reaction is exothermic and m is less than n.
- C The forward reaction is endothermic and m is greater than n.
- D The forward reaction is endothermic and m is less than n.

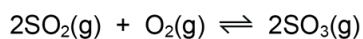


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7.3. REVERSIBLE REACTIONS

08. 0620_w21_qp_23 Q: 15

Sulfuric acid is manufactured using the Contact process. One of the reactions is shown.



The forward reaction is exothermic.

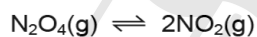
- statement 1 The equation has more molecules on the left-hand side than on the right-hand side.
- statement 2 Using a higher pressure shifts the equilibrium to the left.
- statement 3 Higher temperatures increase the rate of reaction.
- statement 4 Increasing the temperature shifts the equilibrium to the right.

Which alternative is correct?

- A Statement 1 is correct and explains statement 2.
 - B Statement 1 and statement 3 are correct.
 - C Statement 2 and statement 4 are correct.
 - D Statement 3 is correct and explains statement 4.
-

09. 0620_m20_qp_22 Q: 16

An equilibrium reaction is shown.

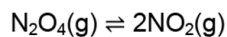


The forward reaction is endothermic.

What is the effect of changing the temperature and pressure on the equilibrium position?

| | increasing temperature | increasing pressure |
|---|------------------------|---------------------|
| A | moves to the left | moves to the left |
| B | moves to the left | moves to the right |
| C | moves to the right | moves to the left |
| D | moves to the right | moves to the right |

10. 0620_p20_qp_20 Q: 17

Dinitrogen tetroxide, N_2O_4 , breaks down into nitrogen dioxide, NO_2 .

The reaction is reversible and endothermic.

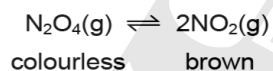
Which conditions will give the largest yield of nitrogen dioxide, NO_2 ?

| | temperature | pressure |
|----------|-------------|----------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

11. 0620_s20_qp_21 Q: 16

The equation shows the equilibrium between dinitrogen tetroxide, N_2O_4 , and nitrogen dioxide, NO_2 .

The colours of the reactant and product are also shown.



The forward reaction is endothermic.

Which statement is **not** correct?

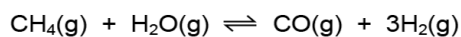
- A** At equilibrium the concentrations of the reactant and the product are constant.
- B** At equilibrium the rate of the forward reaction is equal to the rate of the reverse reaction.
- C** When the pressure is increased a darker brown colour is seen.
- D** When the temperature is increased a darker brown colour is seen.

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7.3. REVERSIBLE REACTIONS

12. 0620_s20_qp_22 Q: 16

Methane reacts with steam and an equilibrium is reached.



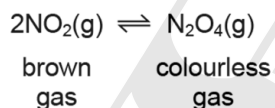
The forward reaction is endothermic.

Which row shows how the amount of hydrogen at equilibrium changes when the pressure or temperature is changed as indicated?

| | change in temperature | change in pressure | amount of hydrogen |
|----------|-----------------------|--------------------|--------------------|
| A | decrease | no change | increase |
| B | increase | no change | decrease |
| C | no change | increase | decrease |
| D | no change | decrease | decrease |

13. 0620_s20_qp_23 Q: 16

At room temperature, the conversion of nitrogen dioxide, NO_2 , into dinitrogen tetroxide, N_2O_4 , is reversible.



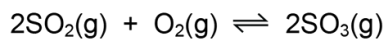
The forward reaction is exothermic.

Which changes cause the equilibrium to shift to the left?

| | pressure | temperature |
|----------|----------|-------------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

14. 0620_w20_qp_21 Q: 20

The reaction between sulfur dioxide and oxygen is shown.



The reaction is exothermic.

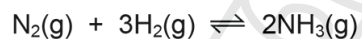
Which of the changes shifts the position of equilibrium to the right?

- 1 Increase the concentration of oxygen.
- 2 Increase the pressure.
- 3 Increase the temperature.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 only

15. 0620_w20_qp_22 Q: 18

Ammonia is produced by the Haber process. The equation is shown.



The forward reaction is exothermic.

Which statement is correct?

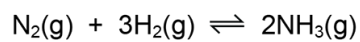
- A** Increasing pressure decreases the yield of ammonia, but speeds up the reaction.
- B** Increasing temperature decreases the yield of ammonia, but speeds up the reaction.
- C** Increasing the concentration of hydrogen and nitrogen results in a lower yield of ammonia.
- D** Increasing the temperature increases the yield of ammonia and speeds up the reaction.

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7.3. REVERSIBLE REACTIONS

16. 0620_w20_qp_23 Q: 32

Ammonia is manufactured in an exothermic reaction.



What is the effect of lowering the pressure on the rate of formation of ammonia and percentage yield of ammonia at equilibrium?

| | rate of formation | percentage yield |
|----------|-------------------|------------------|
| A | decreases | decreases |
| B | decreases | increases |
| C | increases | decreases |
| D | increases | increases |

17. 0620_m19_qp_22 Q: 16

Which reaction is reversible?

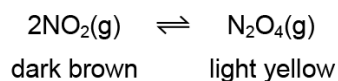
- A** $\text{Cu} + \text{ZnSO}_4 \rightarrow \text{CuSO}_4 + \text{Zn}$
- B** $\text{CuO} + \text{H}_2\text{SO}_4 \rightarrow \text{CuSO}_4 + \text{H}_2\text{O}$
- C** $\text{CuO} + \text{H}_2 \rightarrow \text{Cu} + \text{H}_2\text{O}$
- D** $\text{CuSO}_4 \cdot 5\text{H}_2\text{O} \rightarrow \text{CuSO}_4 + 5\text{H}_2\text{O}$

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18. 0620_m19_qp_22 Q: 17

Some nitrogen dioxide gas was put in a gas syringe. The end of the gas syringe is sealed.

A reversible reaction occurs. The reaction reaches equilibrium.



The forward reaction is exothermic.

Which statement about the reaction is correct?

- A If the gas syringe is placed in a cold water bath, the colour becomes darker.
 - B If the gas syringe is placed in a hot water bath, the colour becomes lighter.
 - C If the volume in the gas syringe is increased, the colour becomes lighter.
 - D If the volume in the gas syringe is decreased, the colour becomes lighter.
-

19. 0620_s19_qp_21 Q: 14

When blue-green crystals of nickel(II) sulfate are heated, water is produced and a yellow solid remains. When water is added to the yellow solid, the blue-green colour returns.

Which process describes these changes?

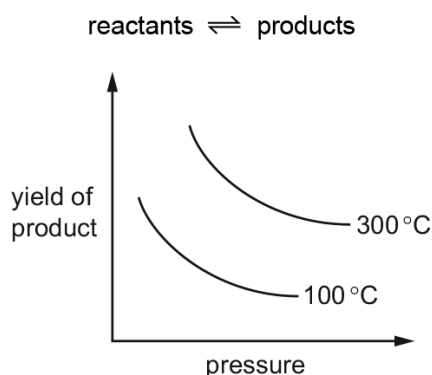
- A combustion
 - B corrosion
 - C neutralisation
 - D reversible reaction
-

7.3. REVERSIBLE REACTIONS

20. 0620_s19_qp_21 Q: 15

The graph shows how the yield of product in a reversible reaction changes as the temperature and pressure are changed.

All reactants and products are gases.

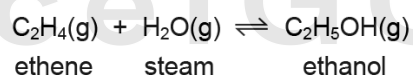


Which row is correct for this reversible reaction?

| | side of reaction with fewer moles | forward reaction |
|----------|-----------------------------------|------------------|
| A | reactant | exothermic |
| B | reactant | endothermic |
| C | product | endothermic |
| D | product | exothermic |

21. 0620_s19_qp_22 Q: 15

The equation for the manufacture of ethanol is shown.

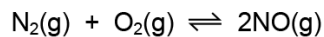


What is the effect of doubling the pressure on this reaction?

- A** decreases the rate of formation of ethanol
- B** increases the yield of ethene
- C** decreases the rate of formation of ethene
- D** increases the yield of ethanol

22. 0620_s19_qp_23 Q: 15

A reaction between nitrogen and oxygen is shown. The forward reaction is endothermic.

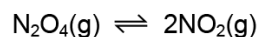


Which change increases the equilibrium yield of nitrogen monoxide, NO?

- A decreasing the pressure
- B decreasing the temperature
- C increasing the pressure
- D increasing the temperature

23. 0620_w19_qp_21 Q: 17

Dinitrogen tetroxide, N_2O_4 , is converted into nitrogen dioxide, NO_2 , in a reversible reaction.



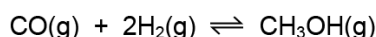
The forward reaction is endothermic.

Which conditions give the highest equilibrium yield of nitrogen dioxide?

| | pressure / atmospheres | temperature |
|----------|------------------------|-------------|
| A | 2 | high |
| B | 2 | low |
| C | 50 | high |
| D | 50 | low |

24. 0620_w19_qp_22 Q: 17

When carbon monoxide reacts with hydrogen, methanol is formed.



The forward reaction is exothermic.

Which statements are correct?

- 1 There are more moles of gas on the left-hand side of the reaction.
- 2 Increasing the temperature increases the amount of methanol at equilibrium.
- 3 Increasing the pressure increases the amount of methanol at equilibrium.
- 4 Increasing the initial amount of hydrogen decreases the amount of methanol at equilibrium.

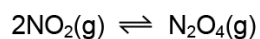
- A** 1 and 2 only **B** 1 and 3 only **C** 2 and 4 only **D** 3 and 4 only

7.3. REVERSIBLE REACTIONS

25. 0620_w19_qp_23 Q: 17

Two molecules of nitrogen dioxide combine in a reversible reaction to form dinitrogen tetroxide.

The forward reaction is exothermic.

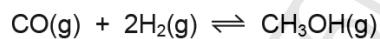


Which changes in reaction conditions would **both** increase the amount of dinitrogen tetroxide at equilibrium?

- A decreasing the temperature and decreasing the pressure
 - B decreasing the temperature and increasing the pressure
 - C increasing the temperature and decreasing the pressure
 - D increasing the temperature and increasing the pressure
-

26. 0620_m18_qp_22 Q: 13

Methanol is made by reacting carbon monoxide with hydrogen. The reaction is reversible.



The forward reaction is exothermic.

Which combination of temperature and pressure gives the highest equilibrium yield of methanol?

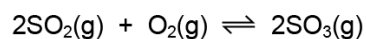
| | temperature / °C | pressure / atmospheres |
|---|------------------|------------------------|
| A | 200 | 10 |
| B | 200 | 200 |
| C | 600 | 10 |
| D | 600 | 200 |

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27. 0620_s18_qp_21 Q: 15

The formation of sulfur trioxide is a reversible reaction.

The equation is shown.



The forward reaction is exothermic.

Which conditions produce the highest equilibrium yield of sulfur trioxide?

| | pressure | temperature |
|----------|----------|-------------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

28. 0620_s18_qp_22 Q: 15

Sulfur dioxide reacts with oxygen at 2 atmospheres pressure. The forward reaction is exothermic.

The equation for the reaction is shown.



The reaction reaches equilibrium. The pressure is then doubled.

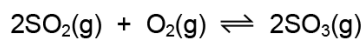
How and why does the amount of sulfur trioxide formed change?

| | amount of sulfur trioxide | reason |
|----------|---------------------------|--|
| A | decreases | the forward reaction is exothermic |
| B | decreases | there are fewer molecules on the right |
| C | increases | the forward reaction is exothermic |
| D | increases | there are fewer molecules on the right |

7.3. REVERSIBLE REACTIONS

29. 0620_s18_qp_23 Q: 15

In the Contact process, sulfur dioxide is converted into sulfur trioxide in a reversible reaction.



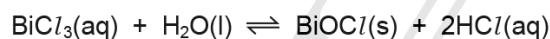
The forward reaction is exothermic.

Which conditions give the highest yield of sulfur trioxide at equilibrium?

| | pressure / atmospheres | temperature |
|----------|------------------------|-------------|
| A | 0.5 | high |
| B | 0.5 | low |
| C | 1.5 | high |
| D | 1.5 | low |

30. 0620_w18_qp_21 Q: 15

When BiCl_3 reacts with water, a white precipitate of BiOCl is formed. The equation for the reaction is shown.



Which statements are correct?

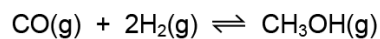
- 1 The reaction is reversible.
- 2 When dilute hydrochloric acid is added to the reaction mixture, more of the white precipitate forms.
- 3 When aqueous sodium hydroxide is added to the reaction mixture, more of the white precipitate forms.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

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31. 0620_w18_qp_22 Q: 15

Methanol is prepared by the reversible reaction shown.



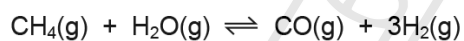
The forward reaction is exothermic.

Which conditions produce the highest equilibrium yield of methanol?

| | temperature | pressure |
|----------|-------------|----------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

32. 0620_w18_qp_23 Q: 15

The reversible reaction between methane and steam is shown.



The forward reaction is endothermic.

Which changes in pressure and temperature move the equilibrium to the right?

| | pressure | temperature |
|----------|----------|-------------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

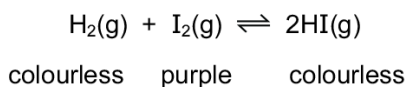
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7.3. REVERSIBLE REACTIONS

33. 0620_m17_qp_22 Q: 16

The equation for the reversible reaction between hydrogen and iodine to form hydrogen iodide is shown.

The colours of the reactants and products are shown.



The forward reaction is exothermic.

Which statement is correct?

- A** An increase in pressure has no effect on the equilibrium position.
 - B** The purple colour fades when the reaction mixture is heated.
 - C** When equilibrium is reached, both forward and reverse reactions stop.
 - D** When more hydrogen gas is added, the purple colour increases.
-

34. 0620_s17_qp_21 Q: 16

Nitrogen, hydrogen and ammonia gases are placed inside a container. The container is then sealed. After some time, an equilibrium forms.



Which statement describes the equilibrium in this container?

- A** The amount of ammonia remains constant from the moment the container is sealed.
 - B** The amounts of ammonia, nitrogen and hydrogen in the container are always equal.
 - C** The rate of formation of ammonia is equal to the rate of decomposition of ammonia.
 - D** The rate of formation of ammonia is faster than the rate of decomposition of ammonia.
-

35. 0620_s17_qp_22 Q: 16

The reaction used to manufacture ammonia from nitrogen and hydrogen is reversible.

An equilibrium can be established between ammonia, nitrogen and hydrogen.

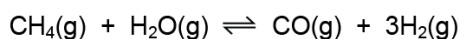
Which statement describes the equilibrium?

- A** Both the forward reaction and the backward reaction have the same rate.
 - B** The rate of the backward reaction is greater than the rate of the forward reaction.
 - C** The rate of the forward reaction is greater than the rate of the backward reaction.
 - D** The forward and backward reactions have both stopped.
-

36. 0620_s17_qp_23 Q: 16

Hydrogen is produced when methane reacts with steam.

The equation for the reaction is shown.



The forward reaction is endothermic.

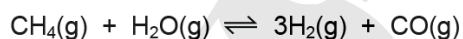
Which conditions produce the highest yield of hydrogen?

| | pressure | temperature |
|----------|----------|-------------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

37. 0620_w17_qp_21 Q: 16

Methane reacts with steam to produce hydrogen and carbon monoxide.

The equation for the reaction is shown.



The reaction is reversible. The forward reaction is endothermic.

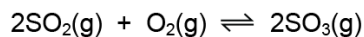
Which changes in temperature and pressure increase the equilibrium yield of carbon monoxide?

| | temperature | pressure |
|----------|-------------|----------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

7.3. REVERSIBLE REACTIONS

38. 0620_w17_qp_22 Q: 16

The formation of sulfur trioxide from sulfur dioxide is a reversible reaction.



The forward reaction is exothermic.

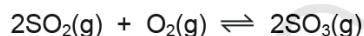
Which changes would increase the equilibrium yield of SO_3 ?

- 1 increasing the pressure
- 2 lowering the temperature
- 3 decreasing the concentration of oxygen

A 1, 2 and 3 **B** 1 and 2 only **C** 1 only **D** 2 and 3 only

39. 0620_w17_qp_23 Q: 16

The following reaction has reached equilibrium in a closed system.



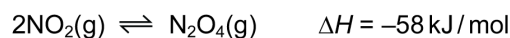
The forward reaction is exothermic.

Which row shows the effect of increasing the pressure on the equilibrium mixture?

| | reaction rate | amount of SO_2 | amount of SO_3 |
|----------|---------------|-------------------------|-------------------------|
| A | increases | decreases | increases |
| B | increases | increases | decreases |
| C | unchanged | decreases | increases |
| D | unchanged | increases | decreases |

40. 0620_m16_qp_22 Q: 14

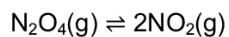
A reversible reaction is shown.



Which statement about an equilibrium mixture of NO_2 and N_2O_4 is correct?

- A** If the pressure is decreased the amount of N_2O_4 increases.
 - B** If the temperature is increased the amount of N_2O_4 increases.
 - C** The rates of formation and decomposition of N_2O_4 are not the same.
 - D** The decomposition of N_2O_4 is an endothermic reaction.
-

41. 0620_p16_qp_20 Q: 17

Dinitrogen tetroxide, N_2O_4 , breaks down into nitrogen dioxide, NO_2 .

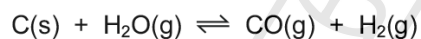
The reaction is reversible and endothermic.

Which conditions will give the largest yield of nitrogen dioxide, NO_2 ?

| | temperature | pressure |
|----------|-------------|----------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

42. 0620_s16_qp_21 Q: 16

Steam reacts with carbon in an endothermic reaction.



Which conditions of temperature and pressure would give the largest yield of hydrogen?

| | temperature | pressure |
|----------|-------------|----------|
| A | high | high |
| B | high | low |
| C | low | high |
| D | low | low |

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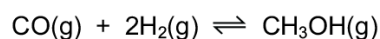
7.3. REVERSIBLE REACTIONS

43. 0620_s16_qp_22 Q: 16

Methanol is made by reacting carbon monoxide with hydrogen.

The reaction is exothermic and is a chemical equilibrium.

The equation for the reaction is shown.



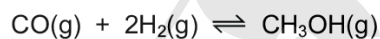
Which changes in temperature and pressure increase the yield of methanol?

| | temperature | pressure |
|----------|-------------|----------|
| A | decrease | decrease |
| B | decrease | increase |
| C | increase | decrease |
| D | increase | increase |

44. 0620_s16_qp_23 Q: 16

Methanol is manufactured by reacting carbon monoxide and hydrogen together in the presence of an aluminium oxide catalyst.

The equation for the reaction is shown.



The reaction is a reversible reaction.

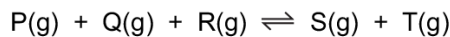
The forward reaction is exothermic.

Which change in conditions increases the yield of methanol?

- A** decreasing the concentration of the carbon monoxide
 - B** increasing the pressure
 - C** increasing the rate of the reaction
 - D** increasing the temperature
-

45. 0620_w16_qp_21 Q: 16

The following reversible reaction takes place in a closed vessel at constant temperature.



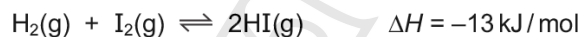
When the system has reached equilibrium, more T is added.

After the addition of T, which substances increase in concentration?

- A P, Q, R and S
 - B P and Q only
 - C P, Q and R only
 - D S only
-

46. 0620_w16_qp_22 Q: 16

At 400 °C the reaction between hydrogen and iodine reaches an equilibrium. The reaction is exothermic.



Which change in conditions would increase the percentage of hydrogen iodide in the equilibrium mixture?

- A a decrease in pressure
 - B a decrease in temperature
 - C an increase in pressure
 - D an increase in temperature
-

47. 0620_w16_qp_23 Q: 16

Chlorine can be manufactured by the following reaction. The reaction is exothermic.



Which change increases the yield of chlorine at equilibrium?

- A adding more HCl(g)
 - B adding more H₂O(g)
 - C decreasing the pressure
 - D increasing the temperature
-

| SN | Paper | Q. No. | Answer |
|----|----------------|--------|--------|
| 01 | 0620_m21_qp_22 | 17 | C |
| 02 | 0620_s21_qp_21 | 17 | A |
| 03 | 0620_s21_qp_22 | 17 | B |
| 04 | 0620_w21_qp_21 | 14 | C |
| 05 | 0620_w21_qp_21 | 15 | B |
| 06 | 0620_w21_qp_22 | 15 | C |
| 07 | 0620_w21_qp_22 | 20 | C |
| 08 | 0620_w21_qp_23 | 15 | B |
| 09 | 0620_m20_qp_22 | 16 | C |
| 10 | 0620_p20_qp_20 | 17 | B |
| 11 | 0620_s20_qp_21 | 16 | C |
| 12 | 0620_s20_qp_22 | 16 | C |
| 13 | 0620_s20_qp_23 | 16 | B |
| 14 | 0620_w20_qp_21 | 20 | B |
| 15 | 0620_w20_qp_22 | 18 | B |
| 16 | 0620_w20_qp_23 | 32 | A |
| 17 | 0620_m19_qp_22 | 16 | D |
| 18 | 0620_m19_qp_22 | 17 | D |
| 19 | 0620_s19_qp_21 | 14 | D |
| 20 | 0620_s19_qp_21 | 15 | B |
| 21 | 0620_s19_qp_22 | 15 | D |
| 22 | 0620_s19_qp_23 | 15 | D |
| 23 | 0620_w19_qp_21 | 17 | A |
| 24 | 0620_w19_qp_22 | 17 | B |
| 25 | 0620_w19_qp_23 | 17 | B |
| 26 | 0620_m18_qp_22 | 13 | B |
| 27 | 0620_s18_qp_21 | 15 | B |
| 28 | 0620_s18_qp_22 | 15 | D |
| 29 | 0620_s18_qp_23 | 15 | D |
| 30 | 0620_w18_qp_21 | 15 | C |
| 31 | 0620_w18_qp_22 | 15 | C |
| 32 | 0620_w18_qp_23 | 15 | B |
| 33 | 0620_m17_qp_22 | 16 | A |
| 34 | 0620_s17_qp_21 | 16 | C |
| 35 | 0620_s17_qp_22 | 16 | A |
| 36 | 0620_s17_qp_23 | 16 | C |
| 37 | 0620_w17_qp_21 | 16 | C |
| 38 | 0620_w17_qp_22 | 16 | B |
| 39 | 0620_w17_qp_23 | 16 | A |
| 40 | 0620_m16_qp_22 | 14 | D |
| 41 | 0620_p16_qp_20 | 17 | B |
| 42 | 0620_s16_qp_21 | 16 | B |
| 43 | 0620_s16_qp_22 | 16 | B |
| 44 | 0620_s16_qp_23 | 16 | B |
| 45 | 0620_w16_qp_21 | 16 | C |
| 46 | 0620_w16_qp_22 | 16 | B |
| 47 | 0620_w16_qp_23 | 16 | A |