

CHEMISTRY

UNIT 2(IAL)
2019 — 2023

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ANSWERS

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1 - (WCH11/2(IAL)_Summer_2019_Q1) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Calcium carbonate reacts with hydrochloric acid.



Which factor does **not** affect the rate of this reaction?

- A concentration
- B pressure
- C surface area
- D temperature

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2 - (WCH11/2(IAL)_Summer_2019_Q2) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

The rate of a reaction doubles for each 10K increase in temperature.
If the temperature of this reaction is increased from 298K to 358K the rate of the reaction increases by a factor of

- A 6
- B 12
- C 36
- D 64

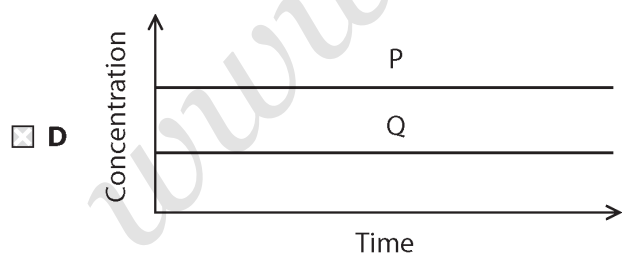
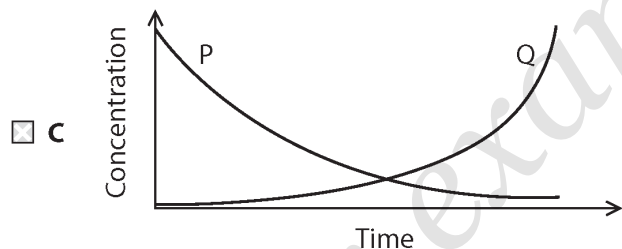
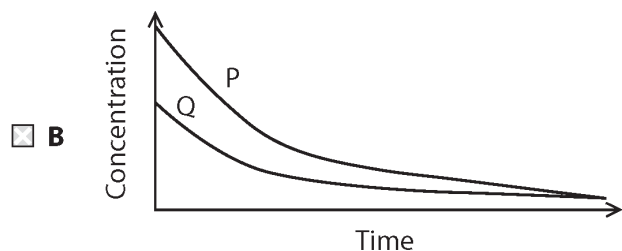
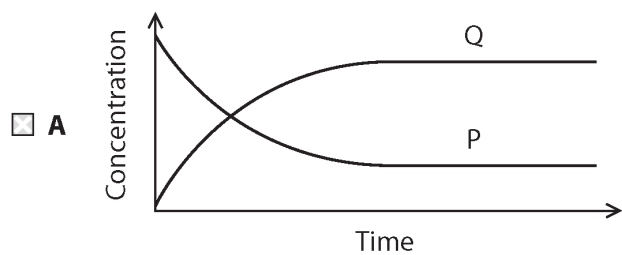
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3 - (WCH11/2(IAL)_Summer_2019_Q3) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

A large amount of P is added to a small amount of Q. A reversible reaction occurs in which P reacts to form Q.



Which graph shows how the concentrations of P and Q change as the reaction reaches equilibrium?



4 - (WCH11/2(IAL)_Summer_2019_Q4) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Which equilibrium shifts to the right-hand side when the pressure in the system **decreases** at constant temperature?

- A $\text{N}_2(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons 2\text{NH}_3(\text{g})$
- B $\text{F}_2(\text{g}) + \text{H}_2(\text{g}) \rightleftharpoons 2\text{HF}(\text{g})$
- C $\text{C}_6\text{H}_6(\text{g}) + 3\text{H}_2(\text{g}) \rightleftharpoons \text{C}_6\text{H}_{12}(\text{g})$
- D $2\text{NOCl}(\text{g}) \rightleftharpoons 2\text{NO}(\text{g}) + \text{Cl}_2(\text{g})$

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5 - (WCH11/2(IAL)_Summer_2019_Q5) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Potassium chloride reacts with concentrated sulfuric acid, producing misty fumes.
It can be deduced that

- A** sulfuric acid is acting as an oxidising agent
- B** chloride ions are acting as an oxidising agent
- C** hydrogen chloride is formed in the reaction
- D** chlorine is formed in the reaction

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6 - (WCH11/2(IAL)_Summer_2019_Q6) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

The oxidation number of sulfur in the sulfate ion, SO_4^{2-} , is

- A -2
- B +4
- C +6
- D +8

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7 - (WCH11/2(IAL)_Summer_2019_Q7) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Which of these is a disproportionation reaction?

- A** $2\text{NaOH} + \text{H}_2\text{SO}_4 \rightarrow \text{Na}_2\text{SO}_4 + 2\text{H}_2\text{O}$
- B** $6\text{NaOH} + 3\text{Br}_2 \rightarrow 5\text{NaBr} + \text{NaBrO}_3 + 3\text{H}_2\text{O}$
- C** $2\text{NaOH} + 2\text{Al} + 2\text{H}_2\text{O} \rightarrow 2\text{NaAlO}_2 + 3\text{H}_2$
- D** $\text{NaOH} + \text{CO}_2 \rightarrow \text{NaHCO}_3$

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8 - (WCH11/2(IAL)_Summer_2019_Q8) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

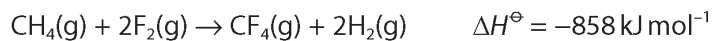
Which of these sulfates is the **least** soluble in water?

- A CaSO_4
- B BaSO_4
- C K_2SO_4
- D Rb_2SO_4

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9 - (WCH11/2(IAL)_Summer_2019_Q9) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Use the data shown.



What is the standard enthalpy change of formation of methane (CH_4) in kJ mol^{-1} ?

- A -1791
- B -75
- C +75
- D +1791

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10 - (WCH11/2(IAL)_Summer_2019_Q10) - Energetics, Group Chemistry, Halogenoalkanes And Alcohols

Which equation represents the standard enthalpy change of atomisation of bromine?

- A $\text{Br}_2(\text{g}) \rightarrow 2\text{Br}(\text{g})$
- B $\text{Br}_2(\text{l}) \rightarrow 2\text{Br}(\text{g})$
- C $\frac{1}{2}\text{Br}_2(\text{l}) \rightarrow \text{Br}(\text{g})$
- D $\frac{1}{2}\text{Br}_2(\text{g}) \rightarrow \text{Br}(\text{g})$

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ANSWERS

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1 - (WCH11/2(IAL)_Summer_2019_Q1) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

B

2 - (WCH11/2(IAL)_Summer_2019_Q2) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

D

3 - (WCH11/2(IAL)_Summer_2019_Q3) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

A

4 - (WCH11/2(IAL)_Summer_2019_Q4) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

D

5 - (WCH11/2(IAL)_Summer_2019_Q5) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

C

6 - (WCH11/2(IAL)_Summer_2019_Q6) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

C

7 - (WCH11/2(IAL)_Summer_2019_Q7) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

B

8 - (WCH11/2(IAL)_Summer_2019_Q8) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

B

9 - (WCH11/2(IAL)_Summer_2019_Q9) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

B

10 - (WCH11/2(IAL)_Summer_2019_Q10) - *Energetics, Group Chemistry, Halogenoalkanes And Alcohols*

B