O Level Combined Chemistry MCQs

Energy from Chemicals Test 1.0

Q1

When solid potassium chloride is dissolved in water, the temperature of the solution drops. Which conclusion can be made from this observation?

A All solids dissolve with a temperature decrease.

B The process is endothermic.

C The process is exothermic.

D Very little potassium chloride dissolves in water.

Q2

The scheme shows four stages, I to IV, in the conversion of solid candlewax, $C_{30}H_{62}$, into carbon dioxide and water.

I $C_{30}H_{62}\,(s) \rightarrow C_{30}H_{62}\,(l)$

II $C_{30}H_{62}\,(l) \rightarrow C_{30}H_{62}\,(g)$

III $C_{30}H_{62}\,(g) + 45.5\,O_2\,(g) \rightarrow 30\,CO_2\,(g) + 31\,H_2O\,(g)$

IV $30\,CO_2\,(g) + 31\,H_2O\,(g) \rightarrow 30\,CO_2\,(g) + 31\,H_2O\,(l)$

Which stages are exothermic?

A I and II

B II and III

C III and IV

D I and IV

Q3

Solutions of two chemicals are mixed.

A reaction occurs and the temperature change is measured.

Which statement is correct?

A If the reaction is endothermic, energy is taken in and the temperature of the mixture decreases.

B If the reaction is endothermic, energy is given out and the temperature of the mixture increases.

C If the reaction is exothermic, energy is given out and the temperature of the mixture decreases.

D If the reaction is exothermic, energy is taken in and the temperature of the mixture increases.

Q4

Which change describes what happens when ice is melted?

	arrangement of particles	energy change
A	moving closer together	endothermic
B	moving closer together	exothermic
C	moving further apart	endothermic
D	moving further apart	exothermic

Q5

Naphthol, $C_{10}H_7OH$, is used for making bright-coloured dyes. The following steps shows the conversion of naphthol to carbon dioxide and water.

step 1: $C_{10}H_7OH(s) \rightarrow C_{10}H_7OH(l)$
step 2: $C_{10}H_7OH(l) \rightarrow C_{10}H_7OH(g)$
step 3: $C_{10}H_7OH(g) + O_2(g) \rightarrow CO_2(g) + H_2O(g)$
step 4: $CO_2(g) + H_2O(g) \rightarrow CO_2(g) + H_2O(l)$

Which steps are endothermic processes?

A 1 and 2
B 1 and 3
C 2 and 3
D 3 and 4

Q6

In which reaction is the sign of energy change, ΔH, incorrect?

A	$2H_2 + O_2 \rightarrow 2H_2O$	ΔH = -ve
B	$2AgCl \rightarrow 2Ag + Cl_2$	ΔH = +ve
C	$CH_4 + 2O_2 \rightarrow CO_2 + 2H_2O$	ΔH = -ve
D	$HCl + NaOH \rightarrow NaCl + H_2O$	ΔH = +ve

Q7

Which of the following is an endothermic reaction?

A burning of petrol
B photosynthesis in plants
C reaction between aqueous sodium hydroxide and dilute nitric acid
D respiration in humans

Q8

Which process is **not** exothermic?

A obtaining lime from limestone
B condensation of water vapour
C reacting hydrogen with oxygen
D burning a fossil fuel

Q9

Which of the following is an endothermic process?

A combustion of methane
B adding potassium to water
C thermal decomposition of calcium nitrate
D reaction between sodium hydroxide and sulfuric acid

Q10

Which changes describe what happens when hot water is cooled to room temperature?

	arrangement of particles	energy change
A	moving further apart	endothermic
B	moving further apart	exothermic
C	moving closer together	endothermic
D	moving closer together	exothermic

Answers

Energy from Chemicals Test 1.0

Q1 B

Q2 C

Q3 A

Q4 C

Q5 A

Q6 D

Q7 B

Q8 A

Q9 C

Q10 D