

**A Level Chemistry B (Salters)**  
**H433/01** Fundamentals of chemistry

The Chemical Industry

**Question Set 6**

Multiple Choice Questions

1 Which statement about testing for nitrate(V) ions is correct?

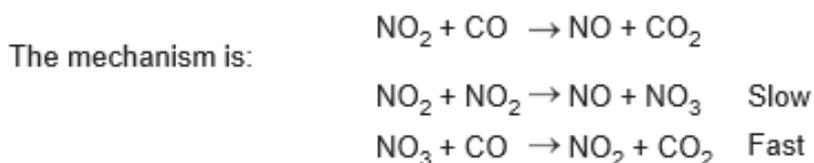
- A They give off ammonia gas when warmed with sodium hydroxide solution.
- B Ammonia is detected because it turns blue litmus paper red.
- C Aluminium is used to reduce nitrate(V).
- D Nitrate(V) ions are oxidised.

Your answer

[1]

2

Nitrogen dioxide reacts with carbon monoxide as in the equation below.



Which expression is the correct rate equation?

- A Rate =  $k [\text{NO}_2] [\text{CO}]$
- B Rate =  $k [\text{NO}_2]^2 [\text{CO}]$
- C Rate =  $k [\text{CO}]$
- D Rate =  $k [\text{NO}_2]^2$

Your answer

[1]

3 Which statement about a by-product of an industrial reaction is correct?

- A It is formed in the same reaction as the product.
- B It is formed when the reactants react in a different way.
- C It is in the equation for the reaction.
- D It is a minor reactant in the reaction.

Your answer

[1]

4 Which statement about the rate determining step of a reaction is correct?

- A It is the fast step.
- B It cannot involve a catalyst.
- C It does not involve zero order reagents.
- D It is always between two first-order reagents.

Your answer

[1]

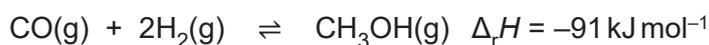
5 Which statement about the Arrhenius equation is correct?

- A A plot of  $\ln k$  against  $T$  gives a straight line.
- B When  $T$  is very large  $\ln k$  almost equals  $\ln A$ .
- C  $E_a$  is the gradient of a plot of  $\ln k$  against  $1/T$ .
- D A plot of  $k$  against  $1/T$  gives a straight line.

Your answer

[1]

6 Which statement about the manufacture of methanol is correct?



- A The best yield of methanol is obtained at high temperature.
- B A catalyst increases the yield of methanol.
- C The pressure used is limited by the cost of energy and machinery.
- D The best yield of methanol is obtained at low pressure.

Your answer

[1]

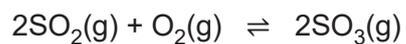
7 Which statement about enzyme catalysed reactions is correct?

- A The rate determining step is always the formation of an enzyme substrate complex.
- B They always speed up at higher temperatures.
- C The rate equation can vary depending on the substrate concentration.
- D They are zero order with respect to enzyme concentration.

Your answer

[1]

- 8 The reaction for the formation of sulfur trioxide is shown below.



60 cm<sup>3</sup> of sulfur dioxide are mixed with 60 cm<sup>3</sup> of oxygen and allowed to reach equilibrium.

What is a possible equilibrium mixture from this reaction?

	Volume SO <sub>2</sub> /cm <sup>3</sup>	Volume O <sub>2</sub> /cm <sup>3</sup>	Volume SO <sub>3</sub> /cm <sup>3</sup>
<b>A</b>	0	0	120
<b>B</b>	50	55	10
<b>C</b>	48	54	18
<b>D</b>	20	30	40

Your answer

[1]

**Total Marks for Question Set 6: 8**

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