Practice Question Set For A-Level
Subject : Chemistry
Paper-2 Topic: Alkanes

Merit Minds
www.merit-minds.com
Exam Preparation and Free Resources

Name of the Student:_____
Max. Marks : 15 Marks **Time : 15 Minutes**

Q1.

Which of the following mechanisms does **not** occur in reactions of bromoethane?

A Electrophilic addition ⬭

B Elimination ⬭

C Nucleophilic substitution ⬭

D Radical substitution ⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q2.

The table shows possible conditions and products for the cracking of alkanes.

Which row is correct?

	Type of cracking	Conditions	Products	
A	Thermal	High pressure High temperature	Mainly alkanes	⬭
B	Thermal	Slight pressure High temperature	Mainly alkenes	⬭
C	Catalytic	Slight pressure High temperature	Mainly branched alkanes and aromatics	⬭
D	Catalytic	High pressure High temperature	Mainly branched alkanes and aromatics	⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q3.

Which catalyst is used in the catalytic cracking of alkanes?

A Concentrated phosphoric acid ⬭

B Iron ⬭

C Nickel ⬭

D Zeolite ⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q4.

Which correctly represents an incomplete combustion of pentane?

A $C_5H_{12} + 8O_2 \longrightarrow 5CO_2 + 6H_2O$ ○

B $C_5H_{12} + 8O_2 \longrightarrow 4CO + CO_2 + 6H_2O$ ○

C $C_5H_{12} + 6O_2 \longrightarrow 4CO + CO_2 + 6H_2O$ ○

D $C_5H_{12} + 5O_2 \longrightarrow 4CO + CO_2 + 4H_2O + 2H_2$ ○

(Total 1 mark)

Downloaded from www.merit-minds.com

Q5.

Which species is produced in a propagation step during the reaction of propane with an excess of chlorine in the presence of UV light?

A H•

B C_3H_5Cl

C $C_3H_6CL_2$

D C_6H_{14}

(Total 1 mark)

Downloaded from www.merit-minds.com

Q6.

Which molecule is **not** produced when ethane reacts with bromine in the presence of ultraviolet light?

A $C_2H_4Br_2$ ⬭

B HBr ⬭

C H_2 ⬭

D C_4H_{10} ⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q7.

Which of these substances does **not** contribute to the greenhouse effect?

A Unburned hydrocarbons. ⬭

B Carbon dioxide. ⬭

C Water vapour. ⬭

D Nitrogen. ⬭

(Total 1 mark)

Q8.

The percentage by mass of carbon is 83.3% in

A propane.

B butane.

C pentane.

D hexane.

(Total 1 mark)

Downloaded from www.merit-minds.com

Q9.

Tetradecane ($C_{14}H_{30}$) is an alkane found in crude oil. When tetradecane is heated to a high temperature, one molecule of tetradecane decomposes to form one molecule of hexane and three more molecules.

Which of the following could represent this reaction?

A $C_{14}H_{30} \longrightarrow C_6H_{14} + C_4H_8 + 2C_2H_4$ ⬭

B $C_{14}H_{30} \longrightarrow C_6H_{14} + C_6H_{12} + C_2H_4$ ⬭

C $C_{14}H_{30} \longrightarrow C_5H_{12} + 3C_3H_6$ ⬭

D $C_{14}H_{30} \longrightarrow C_6H_{14} + C_2H_6 + 2C_3H_6$ ⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q10.

Sulfur dioxide (SO_2) is produced when some fossil fuels are burned.

Which of the following statements is true?

A Sulfur dioxide can be removed from waste gases in a power station by an acid-base reaction with calcium oxide. ⬭

B Sulfur dioxide is insoluble in water. ⬭

C Sulfur dioxide is a basic oxide. ⬭

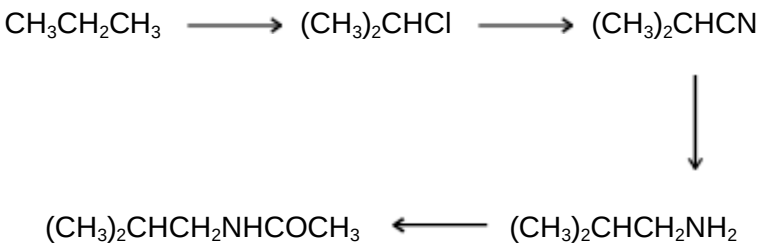
D Sulfur dioxide is an ionic compound. ⬭

(Total 1 mark)

Downloaded from www.merit-minds.com

Q11.

Which one of the following types of reaction mechanism is **not** involved in the above sequence?



A free-radical substitution

B nucleophilic substitution

C elimination

D nucleophilic addition-elimination

(Total 1 mark)

Downloaded from www.merit-minds.com

Q12.

Which one of the following mechanisms is **not** involved in the reaction sequence below?

$CH_3CH_3 \rightarrow CH_3CH_2Cl \rightarrow CH_3CH_2OH \rightarrow CH_2{=}CH_2 \rightarrow CH_3CH_2Br$

A electrophilic addition

B electrophilic substitution

C nucleophilic substitution

D free-radical substitution

(Total 1 mark)

Downloaded from www.merit-minds.com

Q13.

An alkane contains 30 hydrogen atoms per molecule. Its empirical formula is

A C_6H_{15}

B C_7H_{15}

C $C_{14}H_{30}$

D $C_{15}H_{30}$

(Total 1 mark)

Downloaded from www.merit-minds.com

Q14.

Which one of the following is least likely to occur in the reaction between methane and chlorine?

A $CH_4 + Cl\bullet \rightarrow CH_3\bullet + HCl$

B $CH_3\bullet + HCl \rightarrow CH_3Cl + H\bullet$

C $CH_3\bullet + Cl_2 \rightarrow CH_3Cl + Cl\bullet$

D $CH_3Cl + Cl\bullet \rightarrow CH_2Cl\bullet + HCl$

(Total 1 mark)

Downloaded from www.merit-minds.com

Q15.

Which one of the following reactions involves nucleophilic addition?

A $CH_3CH = CH_2 + HBr \rightarrow CH_3CHBrCH_3$

B $CH_3CH_2CH_3 + Cl_2 \rightarrow CH_3CHClCH_3 + HCl$

C $CH_3CH_2CH_2Br + NaOH \rightarrow CH_3CH_2CH_2OH + NaBr$

D $CH_3CH_2CHO + HCN \rightarrow CH_3CH_2CH(OH)CN$

(Total 1 mark)

Downloaded from www.merit-minds.com