ALKANOLS – TEST 1

QUESTION 1
Which of the following is untrue of the alkanols?

A Most alkanols have the general formula $C_nH_{2n+1}OH$
B Alkanols are slightly acidic
C Alkanols are saturated molecules
D Alkanols can be oxidised but not reduced.

QUESTION 2
Compared to the alkanes, straight chain alkanols have

A lower melting and boiling points
B lower viscosities
C lower volatility
D lower polarity

QUESTION 3
As straight chain alkanols get larger

A the melting and boiling points decrease
B the density increases
C the viscosity decreases
D the volatility increases

QUESTION 4
The strongest intermolecular bonding found between alkanols is

A dispersion forces
B dipole-dipole bonding
C hydrogen bonding
D ionic bonding

QUESTION 5
Which of the following reaction types can alkanols undergo?

i. Substitution
ii. Addition
iii. Oxidation
iv. Combustion

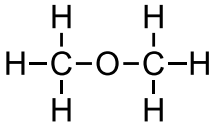
A i and ii
B i and iv
C ii and iii
D i, iii and iv

QUESTION 6
Write equations for

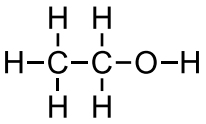
(a) The reaction of ethanol and sodium hydroxide.

(b) The combustion of propanol.

QUESTION 2
Methoxy methane and ethanol are isomers of each other. Explain why ethanol has a higher boiling point then methoxy methane.



Methyoxymethane
b.p. =-25ºC



Ethanol
b.p.=78ºC

Solution

SOLUTIONS

QUESTION 1 Answer is D

QUESTION 2 Answer is C

QUESTION 3 Answer is B

QUESTION 4 Answer is C

QUESTION 5 Answer is D

QUESTION 6

(a) $CH_3CH_2OH_{(aq)} + NaOH_{(aq)} \rightarrow CH_3CH_2ONa_{(aq)} + H_2O_{(l)}$

(b) $2CH_3CH_2CH_2OH_{(l)} + 9O_{2(aq)} \rightarrow 6CO_{2(aq)} + 8H_2O_{(l)}$

QUESTION 7

The boiling points of the molecules depend on the strength of the intermolecular bonding between the molecules. Ethanol molecules are attracted via hydrogen bonding and dispersion forces. Methoxymethane molecules are only attracted via dispersion forces. Since hydrogen bonding is stronger than dispersion forces, the ethanol has the higher boiling point.