**MCQ A**

1 The formula of ammonium sulfate is (NH4)2SO4.

What is the empirical formula of ammonium sulfate?  
A NHSO  
B NH2SO2  
C NH4SO4  
D N2H8SO4

Your answer

2 Which of the following metals is found uncombined in the Earth’s crust?  
A aluminium B gold  
C sodium D zinc

Your answer

3 Which of these is a mixture?  
A chlorine  
B sodium  
C sodium chloride  
D sodium chloride solution

Your answer

4 From the position of beryllium, Be, in the periodic table, beryllium is most likely to be

A a metal

B a halogen

C a compound

D a gas at room temperature

Your answer

5 Which product is formed when there is incomplete combustion of propane?  
A sulfur dioxide  
B oxygen  
C hydrogen  
D carbon monoxide

Your answer

6 Which of the following is the formula of a hydrocarbon?  
A C6H5OH  
B CH2OHCH2OH  
C H2C=CHCH2CH3  
D C6H12Cl2

Your answer

7 The atomic number of lithium is 3.  
The mass number of a lithium atom is 7.

Which row of the table shows the number of protons, neutrons and electrons in  
an atom of lithium-7?

|  |  |  |  |
| --- | --- | --- | --- |
|  | number of protons | number of neutrons | number of electrons |
| A | 3 | 3 | 4 |
| B | 3 | 4 | 3 |
| C | 4 | 3 | 7 |
| D | 7 | 4 | 3 |

Your answer

8 Which of these mixtures shows formulae of substances that could be in the gaseous fraction of crude oil?

A C2H4, C3H8, C4H10O  
B C2H4, C3H7Br, C4H10  
C C2H6, C3H8, C4H10  
D C2H6, C3H7Br, C4H10O

Your answer

9 One molecule of decane produced two molecules of propene, C3H6, and one molecule of product Z.

C10H22 → 2C3H6 + product Z

What is the formula of product Z?

A C4H8

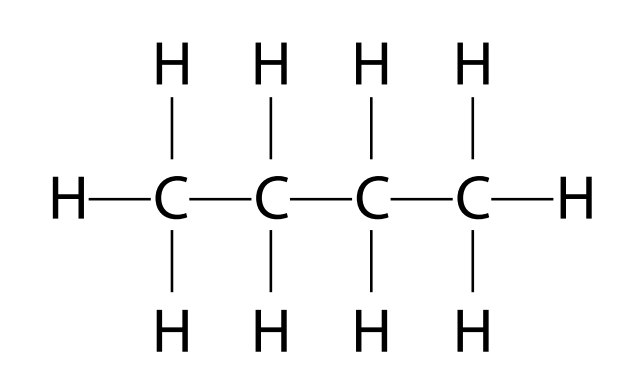
B C4H10

C C7H14

D C7H16

Your answer

10 Alkanes and alkenes are hydrocarbons. The structure of a molecule of butane is shown.



Which of the following is the empirical formula for butane?  
A CH  
B CH2  
C C2H5  
D C4H10

Your answer

11 What type of reaction takes place between butene and steam?  
A addition  
B dehydration  
C neutralisation  
D substitution

Your answer

12 When iron reacts with dilute hydrochloric acid, a gas is given off and iron(II) chloride  
is formed.

a Which gas is given off?

A carbon dioxide

B chlorine

C hydrogen

D oxygen

Your answer

b What is the formula of iron(II) chloride?  
A FeCl B Fe2Cl  
C FeCl2 D Fe2Cl2

Your answer

13 Sulfur trioxide is produced by reacting sulfur dioxide with oxygen.

2SO2(g)+ O2(g)qe 2SO3(g)

What volume of oxygen, in cm3, would react completely with 500 cm3 sulfur dioxide?  
A 500 ÷ 2  
B 500  
C 500 × 2  
D 500 × 32

Your answer

14 Why does potassium iodide solution conduct electricity?

A It contains a metal

B It contains electrons which can move

C It contains ions which can move

D It contains water

Your answer

15 What are the products of electrolysing potassium iodide solution?

**Product at cathode Product at anode**

A hydrogen iodine

B hydrogen oxygen

C potassium iodine

D potassium oxygen

Your answer

16 Which product of the reaction shown is an alkane?

A C2H4

B C3H6

C C4H8

D C6H14

Your answer

17 The hydrocarbon C4H8 was burnt in air. Incomplete combustion occurred.

Which equation, A, B, C or D, correctly represents the incomplete combustion reaction?

A C4H8 + 4O → 4CO + 4H2

B C4H8 + 4O2 → 4CO + 4H2O

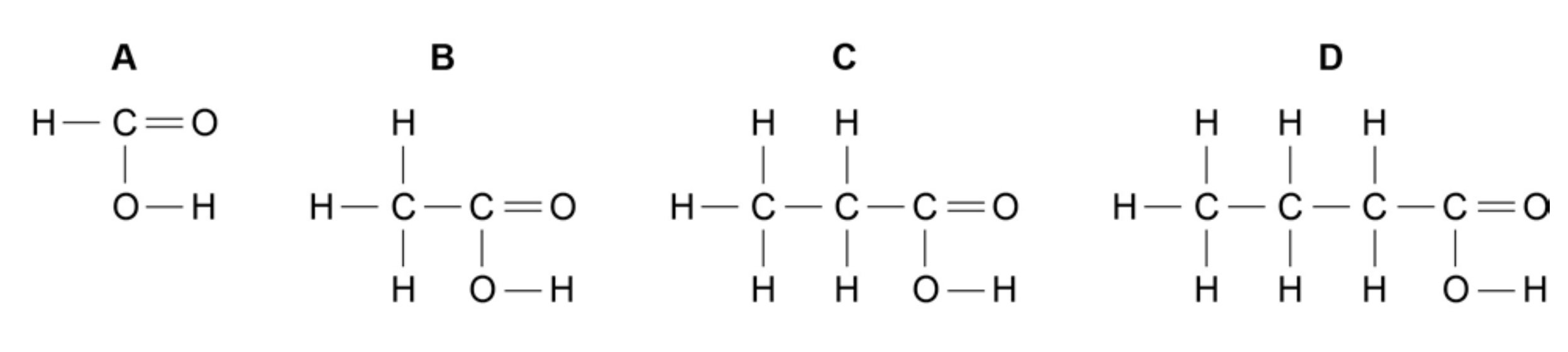
C C4H8 + 6O2 → 4CO2 + 4H2O

D C4H8 + 8O → 4CO2 + 4H2

Your answer

18 Propanoic acid is a carboxylic acid.

Which structure, A, B, C or D, shows propanoic acid?



Your answer

19 A student tested a solution by adding aqueous sodium hydroxide. A precipitate was not seen because the reagent was added too quickly.  
What could not have been present in the solution?

A Al3+

B Ca2+

C NH4+

D Zn2+

Your answer

20 Which substance has a giant molecular structure at room temperature?

A methane

B sand

C sodium chloride

D water

Your answer

21 When a covalent liquid boils its molecules become more widely spaced.  
Which property of the molecules has the most influence on the energy required to boil a covalent liquid?

A the forces of attraction between the molecules

B the reactivity of the molecules

C the shape of the molecules

D the strength of the covalent bonds in the molecules

Your answer

22 The atoms and  have the same

A nucleon number.

B number of electrons.

C number of neutrons.

D proton number.

Your answer

23 One mole of a sample of hydrated sodium sulphide contains 162g of water of crystallisation.  
What is the correct formula of this compound?

A Na2S.3H2O

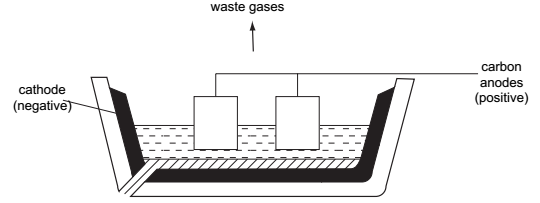
B Na2S.5H2O

C Na2S.7H2O

D Na2S.9H2O

Your answer

24 The diagram shows the electrolytic production of aluminium.



What are the products at the electrodes?

**Negative electrode Positive electrode**

A solid aluminium hydrogen

B solid aluminium oxygen

C liquid aluminium hydrogen

D liquid aluminium oxygen

Your answer

25 When dilute sulfuric acid is electrolysed between platinum electrodes, which statements are correct?  
1 Hydrogen is released at the cathode.  
2 Oxygen is released at the anode.  
3 Sulfur is released at the anode.  
4 The acid becomes more dilute.

A 1 and 2

B 1 and 3

C 2 and 4

D 4 only

Your answer

26 At 400°C the reaction between hydrogen and iodine reaches an equilibrium.

H2(g) + I2(g) qe 2HI(g) ∆H = –13kJ

Which change in conditions would increase the percentage of hydrogen iodide in the

equilibrium mixture?  
A a decrease in pressure  
B a decrease in temperature  
C an increase in pressure  
D an increase in temperature

Your answer

27 Sulfur dioxide reacts with aqueous bromine according to the following equation.

SO2(g) + Br2(aq) + 2H2O(l) → H2SO4(aq) + 2HBr(aq)

Which element has been oxidised?  
A bromine B hydrogen  
C oxygen D sulfur

Your answer

28 When 20 cm3 of a 2 mol/dm3 solution of potassium hydroxide is mixed with 20 cm3 of a 1 mol/dm3 solution of sulfuric acid, the temperature of the mixture rises.  
What best explains this?

A Sulfuric acid is a strong acid.

B The potassium hydroxide solution is more concentrated than the sulfuric acid solution.

C The reactants have a higher energy content than the products.

D Potassium hydroxide is a very strong alkali.

Your answer

29 Which observation is typical of a solid non-metal element?

A It reacts vigorously with chlorine.

B It conducts electricity.

C It has more than one oxidation state.

D It forms an acidic oxide.

Your answer

30 Which equation represents the reaction between hydrochloric acid and sodium hydroxide?

A Cl- + Na+ → NaCl

B 2H+ + O2– → H2O

C ½O2 + H2 → H2O

D H+ + OH- → H2O

Your answer