

Questions

Q1.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Diesel oil contains alkanes.
These alkanes are part of an homologous series.

Which statement about compounds in this homologous series is true?

(1)

- A they have the same chemical formula
- B they have the same empirical formula
- C they have the same general formula
- D they have the same molecular formula

(Total for question = 1 mark)

Q2.

Crude oil is found in the Earth's crust.

Which of the statements about crude oil is correct?

(1)

- A crude oil is a finite resource
- B crude oil is a mixture of the elements hydrogen and carbon
- C all of the molecules in crude oil contain rings of carbon atoms
- D crude oil is used in cars as a fuel

(Total for question = 1 mark)

Q3.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

When crude oil is fractionally distilled, the demand for some fractions is more than the amount produced.

Figure 11 shows the relative amounts of each fraction in a crude oil and the relative demand for each of these fractions.

fraction	relative amount	relative demand
gases	2	6
petrol	12	29
kerosene	16	11
diesel oil	24	29
fuel oil	37	21
bitumen	9	4

Figure 11

Which of the following shows the fractions where the relative demand is greater than the relative amount in the crude oil?

- A kerosene, diesel oil, bitumen
- B gases, petrol, diesel oil
- C gases, petrol, kerosene
- D petrol, diesel oil, fuel oil

(1)

(Total for question = 1 mark)

Q4.

Most of the fuels used today are obtained from crude oil.

Which statement about crude oil is correct?

(1)

- A** crude oil is a compound of different hydrocarbons
- B** crude oil is a mixture of hydrocarbons
- C** crude oil contains different hydrocarbons, all with the same molecular formula
- D** crude oil is an unlimited supply of hydrocarbons

(Total for question = 1 mark)**Q5.**

Which of the following is the formula of a hydrocarbon?

(1)

- A** C_6H_5OH
- B** CH_2OHCH_2OH
- C** $H_2C=CHCH_2CH_3$
- D** $C_6H_{12}Cl_2$

(Total for question = 1 mark)

Q6.

Plants release oxygen into the atmosphere.

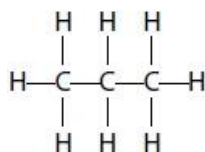
What is the name of the process that releases oxygen into the atmosphere?

(1)

- A** combustion
- B** oxidation
- C** photosynthesis
- D** polymerisation

(Total for question = 1 mark)**Q7.**

The structure of a molecule of propane is shown as



Which product is formed when there is incomplete combustion of propane?

(1)

- A** sulfur dioxide
- B** oxygen
- C** hydrogen
- D** carbon monoxide

(Total for question = 1 mark)

Q8.

Which test shows a gas is oxygen?

(1)

- A** a few drops of limewater will turn cloudy when shaken with the gas
- B** a glowing splint will relight when placed in the gas
- C** a lighted splint placed in the gas will cause a pop
- D** a piece of damp red litmus paper will turn blue when placed in the gas

(Total for question = 1 mark)**Q9.**

Answer the questions with a cross in the boxes you think are correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

The two most common gases in today's atmosphere are nitrogen and oxygen.

(i) What is the third most common gas in today's atmosphere?

(1)

- A** argon
- B** butane
- C** chlorine
- D** hydrogen

(ii) What is the percentage of oxygen in today's atmosphere?

(1)

- A** 0.04
- B** 1
- C** 21
- D** 78

(Total for question = 2 marks)

Q10.

Answer the question with a cross in the box you think is correct . If you change your mind about an answer, put a line through the box and then mark your new answer with a cross .

Air contains several gaseous elements.

Which of these shows the three most common gaseous elements in air, listed in order from the most common to the least common?

(1)

- A oxygen, chlorine, nitrogen
- B nitrogen, oxygen, hydrogen
- C oxygen, nitrogen, helium
- D nitrogen, oxygen, argon

(Total for question = 1 mark)

Q11.

Crude oil is found in the Earth's crust.

The substances ethane, C_2H_6 , octane, C_8H_{18} , and pentadecane, $C_{15}H_{32}$, are all found in crude oil.

These substances

(1)

- A have the same formula
- B have the same boiling point
- C are in the same homologous series
- D form different products when completely combusted in air

(Total for question = 1 mark)

Q12.

Crude oil is a complex mixture of substances.

Crude oil can be separated into useful fractions by fractional distillation.

Figure 7 shows a fractional distillation column and the fractions produced when a sample of crude oil is distilled.

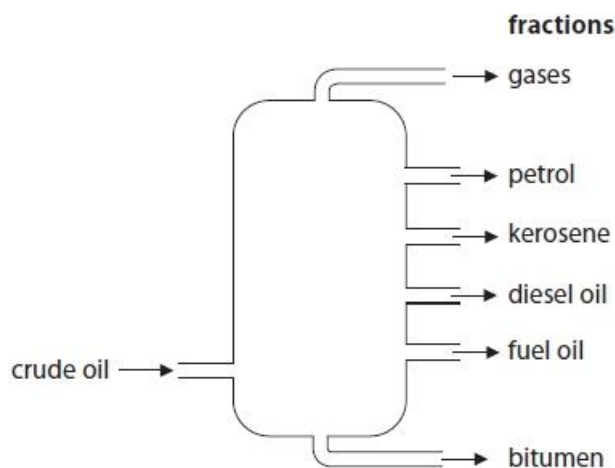


Figure 7

The properties of these fractions vary from the top of the column to the bottom of the column.

Which of the following is a trend in a property of the fractions obtained from the top of the column to those obtained from the bottom?

- (1)
- A the average number of carbon atoms in molecules present decreases
 - B the ease of ignition increases
 - C the boiling points decrease
 - D the viscosities increase

(Total for question = 1 mark)

Mark Scheme

Q1.

Question number	Answer	Mark
	C they have the same general formula	(1)
	A, B and D not correct as compounds in homologous series have different chemical, empirical and molecular formulae.	AO1

Q2.

Question Number	Answer	Mark
	A crude oil is a finite resource The only correct answer is A <i>B is not correct because crude oil is a mixture of compounds</i> <i>C is not correct because most molecules are chains</i> <i>D is not correct because crude oil must be fractionated first</i>	(1) AO 1 1

Q3.

Question number	Answer	Mark
	B gases, petrol, diesel oil This is the only correct answer. A is incorrect because only diesel oil has a relative demand greater than the relative amount obtained C is incorrect only gases and petrol have a relative demand greater than the relative amount obtained D is incorrect only petrol and diesel oil have a relative demand greater than the relative amount obtained	(1)

Q4.

Question number	Answer	Mark
	B Crude oil is a mixture of hydrocarbons is the only correct answer Answer A , C and D are factually incorrect	(1)

Q5.

Question number	Answer	Mark
	C	(1)

Q6.

Question number	Answer	Mark
	C photosynthesis is the only correct answer A and B are processes that required oxygen D is a process that does not involve oxygen	1

Q7.

Question number	Answer	Mark
	D	(1)

Q8.

Question number	Answer	Mark
	B a glowing splint will relight when placed in the gas is the only correct answer A describes the test for carbon dioxide C describes the test for hydrogen D describes the test for an alkaline gas such as ammonia	(1)

Q9.

Question number	Answer	Mark
(i)	<p>A argon This is the only correct answer.</p> <p>B is incorrect because butane is not found in the air C is incorrect because chlorine is not found in the air D is incorrect because hydrogen is only found in the air in extremely small amounts</p>	(1)

Question number	Answer	Mark
(ii)	<p>C 21 This is the only correct answer.</p> <p>A, B and D are incorrect</p>	(1)

Q10.

Question number	Answer	Mark
	<p>D nitrogen, oxygen, argon is the only correct answer</p> <p>A is not correct because nitrogen is the most common gas B is not correct because hydrogen is not the third most common gas C is not correct because nitrogen is the most common gas</p>	(1)

Q11.

Question Number	Answer	Mark
	<p>C are in the same homologous series</p> <p>The only correct answer is C</p> <p><i>A is not correct because they have different formulae</i></p> <p><i>B is not correct because they have different bpts</i></p> <p><i>D is not correct because they all form carbon dioxide and water</i></p>	(1) AO 2 1

Q12.

Question Number	Answer	Mark
	<p>D the viscosities increase</p> <p>The only correct answer is D</p> <p><i>A is not correct because average number of carbon atoms increases</i></p> <p><i>B is not correct because ease of ignition decreases</i></p> <p><i>C is not correct because boiling points increase</i></p>	<p>(1) AO 1 1</p>