CAMBRIDGE IGCSE BIOLOGY · 0610

BIOLOGY



EXAM QUESTION PACK

TOPIC 15: DRUGS

SCORE	PERCENTAGE
/	%

STEMUP

These questions belong to CIE, not to us.

The examination questions, mark schemes and examiner comments in this pack were written and published by Cambridge International (CIE). They are past assessment materials, reproduced here so that students can revise from them.

What we do not own

STEMUP is not affiliated with CIE and does not own, and makes no claim to own, any of the question, mark scheme or examiner report material in this pack. CIE has not endorsed, approved or been involved in the production of it. CIE and the qualification titles used here belong to their respective owners and appear for identification only.

Where to find the originals

CIE publishes its past papers, mark schemes and examiner reports. Always check the current specification at cambridgeinternational.org before you revise, because content and wording can change between series.

If you hold the rights to any material in this pack and would like it amended or removed, contact admin@stemup.co.uk and we will act on it.

Drugs – 2023 November IGCSE 0610

1. Nov/2023 /Paper_ 0610/13/No.29

Which statement about antibiotics is correct?

A Antibiotics are drugs.

B Antibiotics are produced by white blood cells.

C Antibiotics can become resistant to bacteria.

D Antibiotics kill viruses.

2. Nov/2023 /Paper_ 0610/22/No.28

What is defined as a substance that is taken into the body and modifies or affects chemical reactions in the body?

A antibody

B drug

C hormone

D pathogen

3. Nov/2023 /Paper_ 0610/23/No.28

Which statement about antibiotics is correct?

A Antibiotics are drugs.

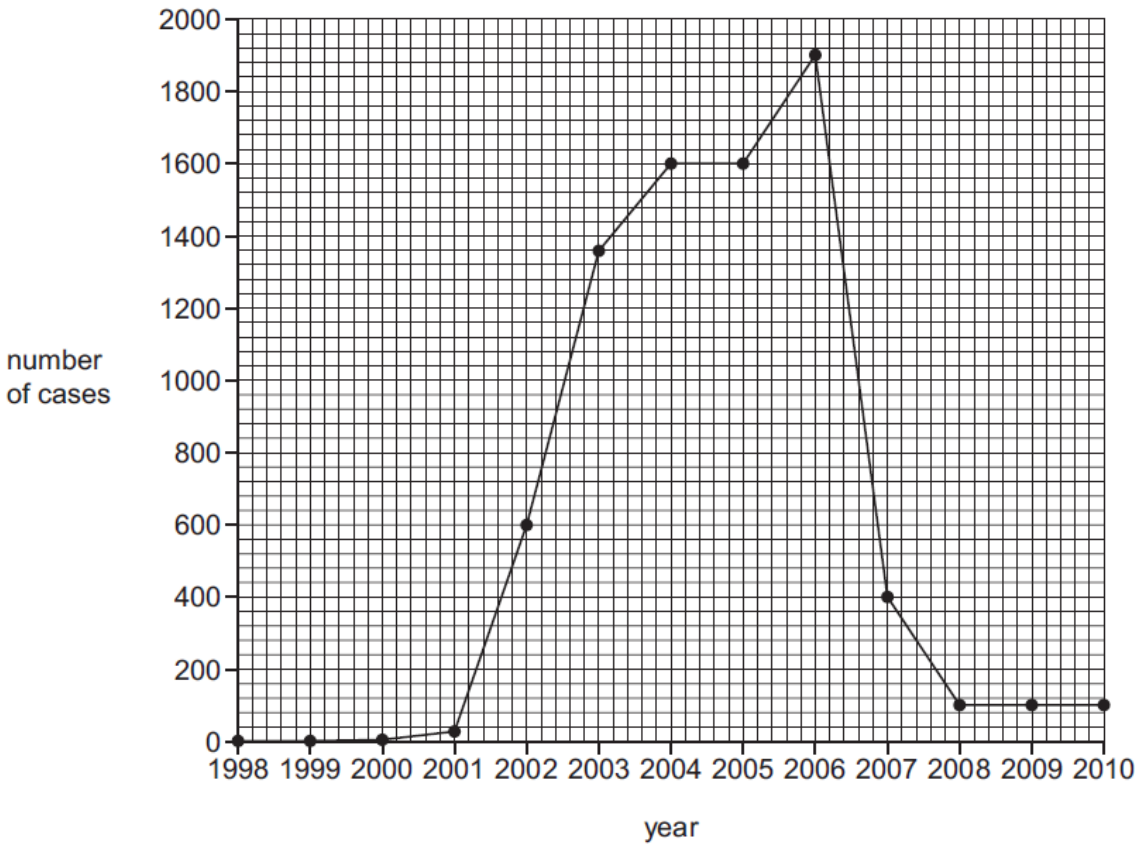
B Antibiotics are produced by white blood cells.

C Antibiotics can become resistant to bacteria.

D Antibiotics kill viruses.

4. Nov/2023 /Paper_ 0610/23/No.29

The graph shows the number of cases of disease caused by MRSA bacteria in hospitals in one city between 1998 and 2010.



What was the percentage change in the number of cases between 2002 and 2003?

A 44% **B** 56% **C** 127% **D** 227%

STEMUP.CO.UK

5. Nov/2023 /Paper_ 0610/32/No.5

(a) Antibiotics are a type of drug.

The box on the left contains the beginning of a sentence.

The boxes on the right show some sentence endings.

Draw lines to link the phrase 'Antibiotic drugs' on the left to **three** boxes on the right to make **three** correct sentences.

	affect chemical reactions in the body.
	are less effective against organisms that show resistance.
	are used to cure coronary heart disease.
Antibiotic drugs	
	are the main cause of rickets.
	kill bacteria.
	kill viruses.

[3]

STEMUP.CO.UK

(b) Fig. 5.1 shows the number of antibiotic doses given per 1000 people per day in six different countries.

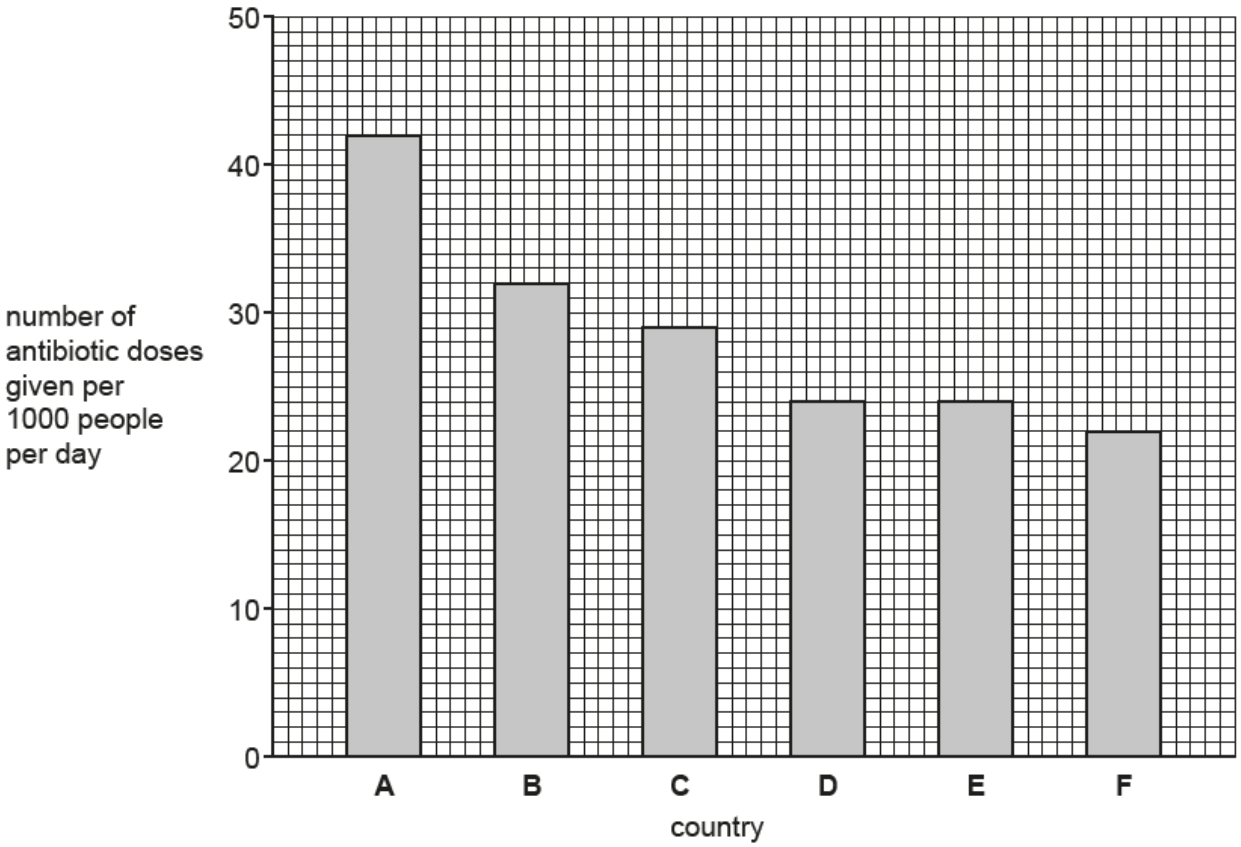


Fig. 5.1

(i) Calculate the difference in the number of antibiotic doses given per 1000 people per day between country **A** and country **F** in Fig. 5.1.

number of antibiotic doses given per 1000 people per day in country **A**

..... doses

number of antibiotic doses given per 1000 people per day in country **F**

..... doses

difference ..... doses
[2]

(ii) Using the information in Fig. 5.1, state the **two** countries that gave the same number of antibiotic doses per 1000 people per day.

..... and ..... [1]

[Total: 6]

STEMUP.CO.UK

Drugs – 2022 November IGCSE 0610 Biology

1. Nov/2022/Paper_11/No.30

Which statement explains the increased risk of having an accident after consuming excessive alcohol?

A Alcohol can be addictive.

B Alcohol increases self-control.

C Alcohol increases reaction time.

D Alcohol decreases reaction time.

2. Nov/2022/Paper_12/No.29

What is the definition of a drug?

A a substance produced by a gland that is carried in the blood and alters the activity of target organs

B a substance produced by white blood cells that is carried in the blood and destroys bacteria and viruses

C a substance taken into the body that modifies or affects chemical reactions carried out in the body

D a substance that increases the rate of chemical reactions in the body and is not changed by the reaction

3. Nov/2022/Paper_22/No.27

What is the definition of a drug?

A a substance produced by a gland that is carried in the blood and alters the activity of target organs

B a substance produced by white blood cells that is carried in the blood and destroys bacteria and viruses

C a substance taken into the body that modifies or affects chemical reactions carried out in the body

D a substance that increases the rate of chemical reactions in the body and is not changed by the reaction

Drugs – 2022 June IGCSE 0610

1. June/2022/Paper_ 11/No.29

Why is excessive consumption of alcohol discouraged before someone operates machinery or drives a vehicle?

A Alcohol decreases reaction times.

B Alcohol increases reaction times.

C Alcohol is a stimulant drug.

D Alcohol is an addictive drug.

STEMUP.CO.UK

Drugs – 2021 IGCSE 0610

1. Nov/2021/Paper_11/No.29

Which definition of a drug is correct?

A a substance that increases the rate of a chemical reaction and is not changed by the reaction

B a protein that functions as a biological catalyst

C a substance taken into the body that modifies or affects chemical reactions in the body

D a chemical substance, produced by a gland and carried by the blood, which alters the activity of one or more specific target organs

2. Nov/2021/Paper_12/No.29

Which substance can be used to treat a bacterial infection?

A adrenaline

B antibiotics

C antigens

D insulin

3. Nov/2021/Paper_13/No.29

Which statement is the definition of the term drug?

A a substance produced in the body to stimulate hormonal reactions

B a substance produced by white blood cells to kill bacteria

C a substance taken into the body that modifies or affects chemical reactions

D a substance produced in the body which alters the activity of one or more specific target organs

4. Nov/2021/Paper_21/No.27

Which definition of a drug is correct?

A a substance that increases the rate of a chemical reaction and is not changed by the reaction

B a protein that functions as a biological catalyst

C a substance taken into the body that modifies or affects chemical reactions in the body

D a chemical substance, produced by a gland and carried by the blood, which alters the activity of one or more specific target organs

5. Nov/2021/Paper_31/No.3

Enzymes help to digest food in humans and are produced by different parts of the alimentary canal.

(a) The box on the left contains a sentence beginning.

The boxes on the right contain some sentence endings.

Draw **two** lines to make two correct sentences about enzymes.

Enzymes	are carbohydrates.
	are catalysts that slow down reactions and remain unchanged.
	are catalysts that speed up reactions and are changed.
	are catalysts that speed up reactions and remain unchanged.
	are lipids.
	are proteins.

[2]

(b) Fig. 3.1 is a diagram showing an enzyme and several different substrate molecules.

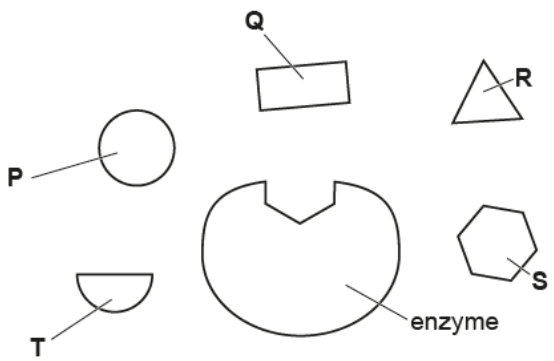


Fig. 3.1

State the letter of the molecule that is most likely to be the substrate for this enzyme.

.....

[1]

STEMUP.CO.UK

(c) Enzymes are involved in chemical digestion in humans.

Define the term chemical digestion.

.....

.....

.....

.....

..... [2]

STEMUP.CO.UK

(d) Fig. 3.2 is a graph showing the effect of changes in pH on the activity of four different enzymes, **U** to **X**.

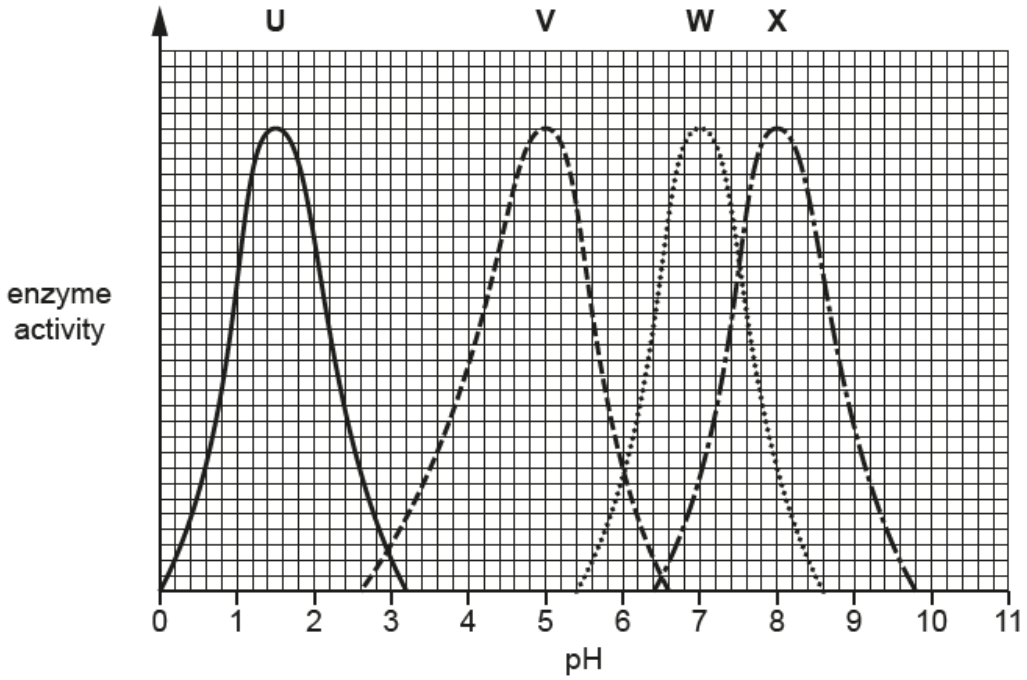


Fig. 3.2

The pH values in different parts of the alimentary canal were measured.

Table 3.1 shows the pH values found in the different parts of the alimentary canal.

(i) Use the information in Fig. 3.2 to state the letter of the enzyme that would be **most** active in each part of the alimentary canal.

Table 3.1

part of the alimentary canal	pH values	enzyme letter
duodenum	5.5	
ileum	8.0	
mouth	6.7	
stomach	1.5	

[2]

(ii) The duodenum and ileum are part of the small intestine.

State the name of **one** part of the large intestine.

..... [1]

STEMUP.CO.UK

(e) The acid in gastric juice provides an acid pH for enzymes.

(i) State **one** other function of the acid in gastric juice.

.....

..... [1]

(ii) State the name of the acid that is found in gastric juice.

..... [1]

(f) Table 3.2 shows the names of some enzymes, the substrate they act on and the products of the reaction they are involved in. It also shows the organ that secretes the enzyme.

Complete Table 3.2.

Table 3.2

enzyme	substrate	products	organ that secretes the enzyme
amylase	starch	.....	.....
.....	.....	fatty acids and glycerol	pancreas
protease	.....	amino acids	.....

[6]

[Total: 16]

STEMUP.CO.UK

1. March/2021/Paper_32/No.2

(a) Different age groups of people, in one area, were asked about their tobacco smoking habits.

Fig. 2.1 is a graph that shows the percentage of people that currently smoke tobacco and the percentage of people that used to smoke tobacco but have now stopped.

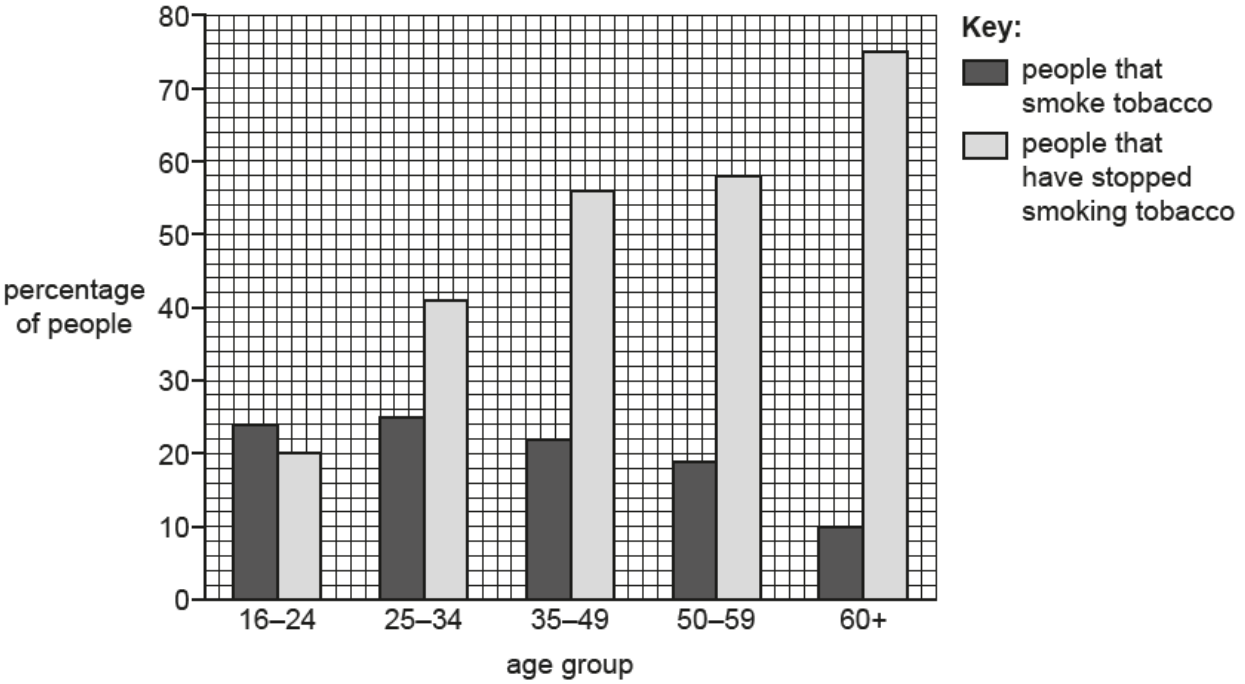


Fig. 2.1

Describe how the data for the 60+ age group are different from the 16–24-year-old age group.

.....

.....

.....

.....

.....

.....

..... [3]

STEMUP.CO.UK

(b) Lung cancer and other cancers are caused by smoking tobacco.

State the names of **two other** diseases caused by smoking tobacco.

1 .....

2 .....

[2]

(c) State the name of the component of tobacco smoke that causes cancer.

..... [1]

(d) Describe the effects of carbon monoxide on the gas exchange system.

.....

.....

.....

.....

.....

.....

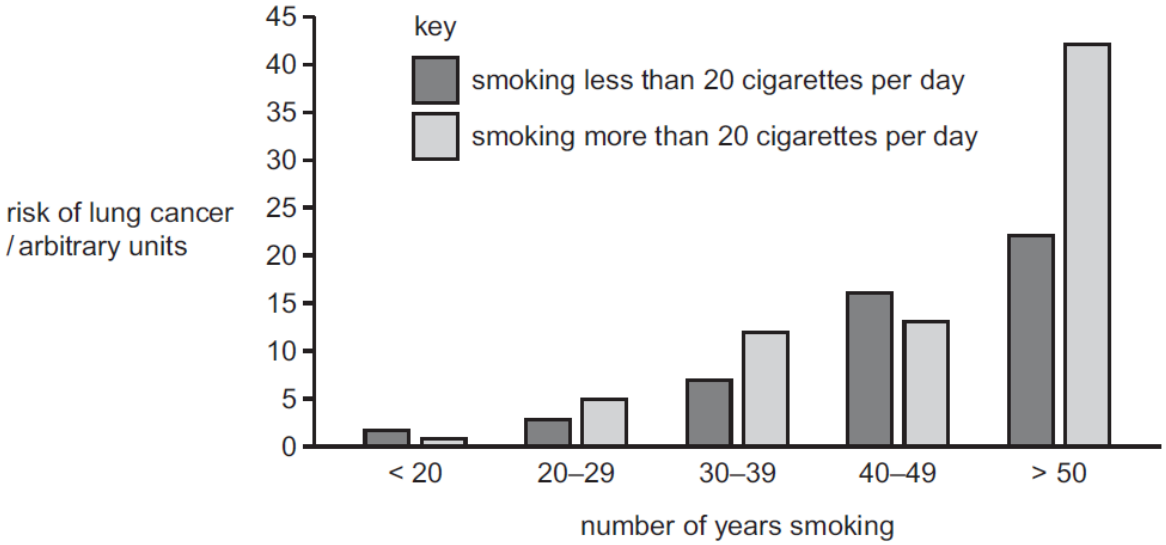
..... [3]

[Total: 9]

STEMUP.CO.UK

2. June/2021/Paper_12/No.29

The graph shows how smoking different numbers of cigarettes for different lengths of time affects the risk of lung cancer.



Which conclusions are supported by the data in the graph?

1 Smoking more than 20 cigarettes per day always increases the risk of lung cancer more than smoking less than 20 cigarettes per day.

2 Smoking cigarettes for more years increases the risk of lung cancer.

3 Smoking more than 20 cigarettes per day for more than 50 years has the highest risk of lung cancer.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

3. June/2021/Paper_13/No.29

Why are people advised **not** to drive a car after drinking an excessive quantity of alcohol?

A Alcohol is a depressant.

B Alcohol is a stimulant.

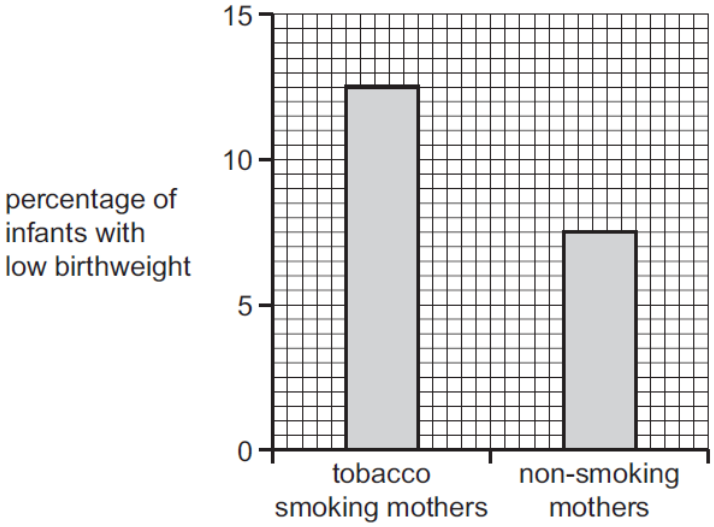
C Alcohol decreases reaction time.

D Alcohol is addictive.

STEMUP.CO.UK

4. June/2021/Paper_13/No.31

Scientists studied the effect on infant birthweight of mothers smoking tobacco. They compared their findings with the birthweights of infants from non-smoking mothers. The results are shown in the bar chart.



Which statement describes what this bar chart shows?

A 15% of infants born to mothers who smoke have a low birthweight.

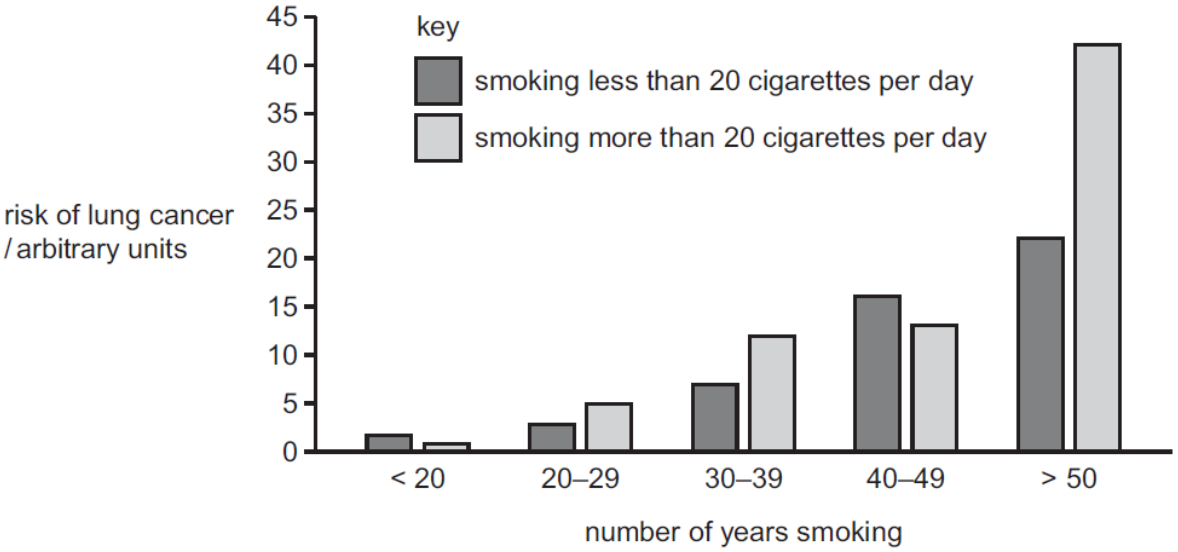
B Mothers who smoke have 5% more low birthweight infants than non-smoking mothers.

C Non-smoking mothers have 10% fewer low birthweight infants than smoking mothers.

D Tobacco smoking is the only factor that has an effect on birthweight.

5. June/2021/Paper_22/No.29

The graph shows how smoking different numbers of cigarettes for different lengths of time affects the risk of lung cancer.



Which conclusions are supported by the data in the graph?

1 Smoking more than 20 cigarettes per day always increases the risk of lung cancer more than smoking less than 20 cigarettes per day.

2 Smoking cigarettes for more years increases the risk of lung cancer.

3 Smoking more than 20 cigarettes per day for more than 50 years has the highest risk of lung cancer.

A 1, 2 and 3 **B** 1 and 2 only **C** 1 and 3 only **D** 2 and 3 only

STEMUP.CO.UK

6. June/2021/Paper_31/No.3

(a) Fig. 3.1 shows the number of deaths in one country that were due to excessive alcohol consumption.

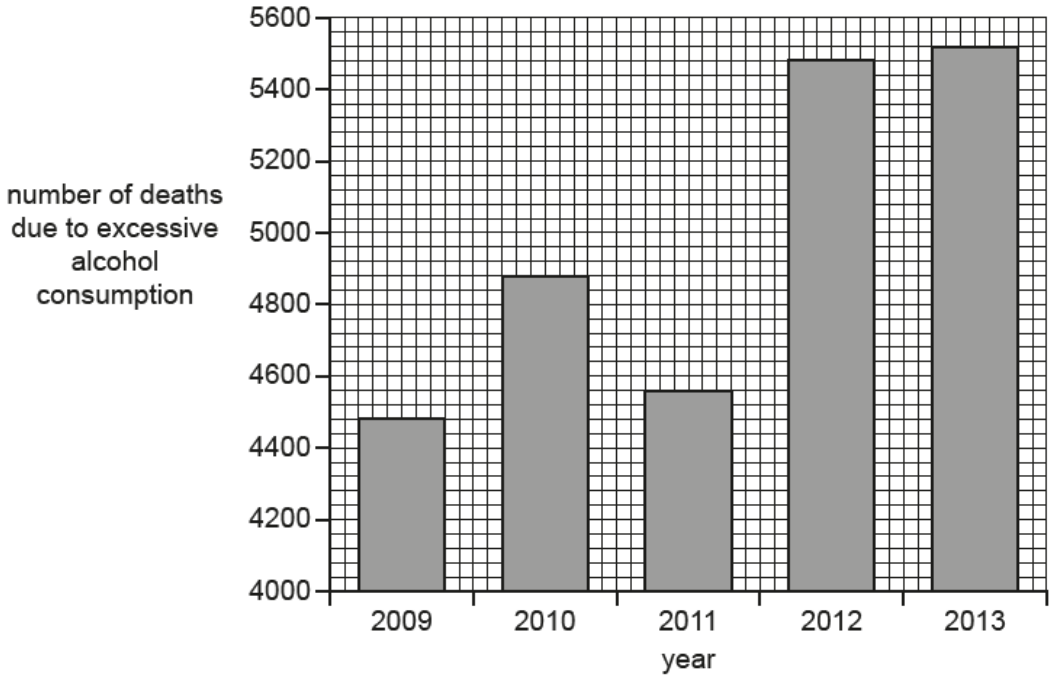


Fig. 3.1

Describe the results shown in Fig. 3.1.

Use the data to support your answer.

.....

.....

.....

.....

.....

.....

..... [3]

STEMUP.CO.UK

(b) Describe **two** short-term effects of excessive alcohol consumption on the nervous system.

1 .....

.....

2 .....

.....

[2]

(c) State the name of **one** organ damaged by long-term excessive alcohol consumption.

..... [1]

(d) Alcohol dehydrogenase is an enzyme that breaks down alcohol in the body.

Fig. 3.2 shows the activity of alcohol dehydrogenase at different pH values.

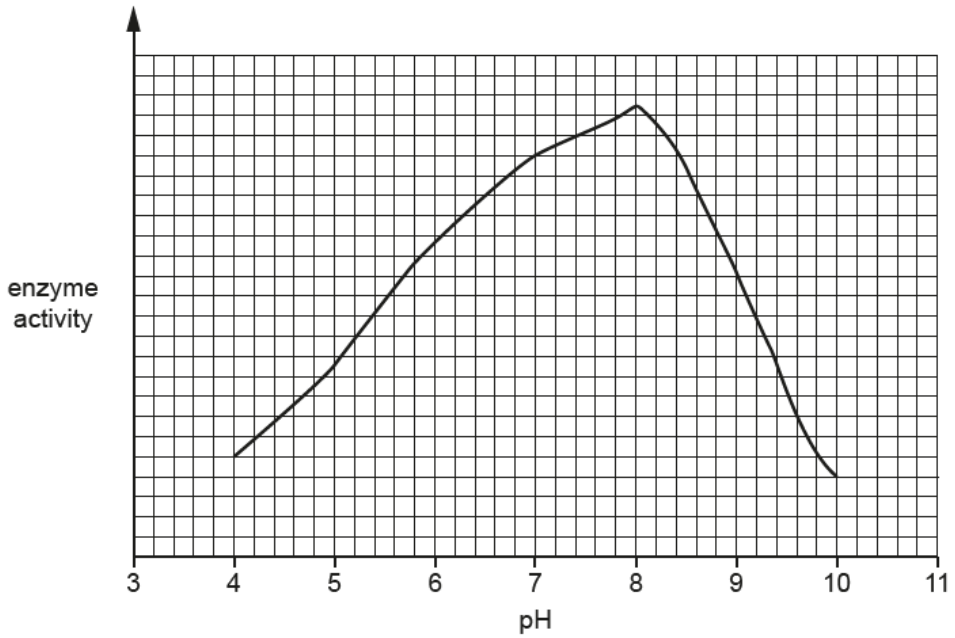


Fig. 3.2

(i) State the pH value with the highest enzyme activity in Fig. 3.2.

..... [1]

(ii) State the pH value with the lowest enzyme activity in Fig. 3.2.

..... [1]

(iii) Suggest **one other** factor that could affect the activity of the enzyme alcohol dehydrogenase.

..... [1]

STEMUP.CO.UK

(e) Enzymes are biological catalysts.

Define the term catalyst.

.....

.....

..... [2]

(f) Enzymes are proteins.

(Circle) the elements that all enzymes contain.

calcium	**carbon**	**hydrogen**	**iodine**
iron	**magnesium**	**nitrogen**	**oxygen**

[2]

[Total: 13]

STEMUP.CO.UK

Drugs – 2020 IGCSE 0610

1. Nov/2020/Paper_11/No.28

A drug is defined as a substance taken into the body that

A causes addiction.

B cures disease.

C kills bacteria.

D modifies or affects chemical reactions.

2. Nov/2020/Paper_12/No.28

Which is the correct definition of a drug?

A a substance that affects or modifies chemical reactions in the body

B a substance that can have negative social implications

C a substance that can affect reaction times and self-control

D a substance that can kill bacteria

3. Nov/2020/Paper_13/No.28

Which is a definition of all drugs?

A a substance taken into the body that acts as a depressant

B a substance taken into the body that affects chemical reactions in the body

C a substance taken into the body to cure illness

D a substance taken into the body to kill bacteria

4. Nov/2020/Paper_23/No.26

Which substances can be misused to improve athletic performance?

1 alcohol

2 anabolic steroids

3 testosterone

A 1, 2 and 3 **B** 1 and 2 only **C** 2 only **D** 2 and 3 only

5. Nov/2020/Paper_33/No.7

Tobacco smoke damages health and can cause many different diseases.

(a) Table 7.1 shows the number of deaths, caused by smoking, for three different diseases.

Table 7.1

disease	number of deaths caused by smoking
chronic obstructive pulmonary disease (COPD)	13200
coronary heart disease (CHD)	12000
lung cancer	22800

Calculate the percentage of deaths that were caused by COPD.

Space for working.

.....%
[2]

STEMUP.CO.UK

(b) Fig. 7.1 is a drawing of a cigarette showing some of the substances in tobacco smoke.

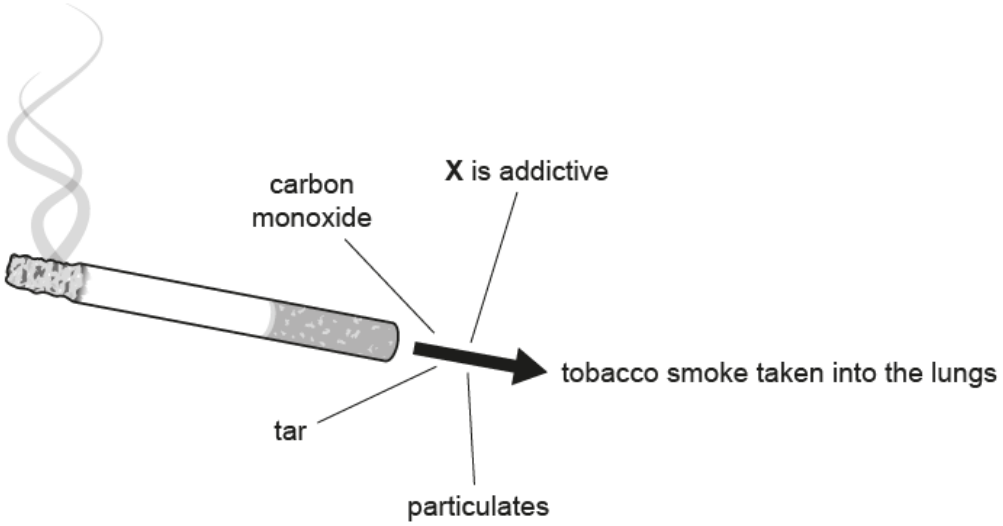


Fig. 7.1

(i) Describe the effect of carbon monoxide and tar on the gas exchange system.

carbon monoxide .....

.....

.....

tar .....

.....

.....

[4]

(ii) State the name of component **X** shown in Fig. 7.1.

..... [1]

(c) Pregnant women are advised not to smoke as the harmful substances in tobacco can be transferred from the woman to her fetus.

Describe how the harmful substances are transferred from the mother to the fetus.

.....

.....

.....

.....

..... [2]

STEMUP.CO.UK

(d) Smoking is a risk factor for coronary heart disease.

State **three other** risk factors for coronary heart disease.

1 .....

2 .....

3 .....

[3]

[Total: 12]

STEMUP.CO.UK

Drugs – 2020 IGCSE 0610

1. March/2020/Paper_12/No.28

The oxygen carrying capacity of the blood of smokers is less than that of non-smokers.

Which component of tobacco smoke causes this?

A carbon monoxide

B nicotine

C smoke particles

D tar

2. June/2020/Paper_13/No.26

Drugs are substances that are taken into the body.

Which statement also applies to the definition of a drug?

A always slow down chemical reactions

B always speed up chemical reactions

C are only used to destroy bacteria

D modify or affect chemical reactions

3. June/2020/Paper_13/No.27

What does the drug heroin act as?

A a stimulant

B a depressant

C an antibiotic

D a nutrient

4. June/2020/Paper_31/No.5

(a) Fig. 5.1 shows the average number of cigarettes smoked per day by male and female smokers between 1974 and 2014 in one country. Cigarettes contain tobacco.



Fig. 5.1

(i) State the average number of cigarettes smoked per day by female smokers in 1982.

..... [1]

(ii) State a year in which male smokers smoked an average of 19 cigarettes per day.

..... [1]

(iii) State **two** conclusions that can be made from the data shown in Fig. 5.1.

1 .....

.....

.....

1 Which organ is most often damaged by regularly drinking too much alcohol?

A heart

B liver

C pancreas

D stomach

2 Which organ breaks down heroin and alcohol?

A bladder

B brain

C kidney

D liver

3 What is a result of the excessive intake of alcohol?

A improved self-control

B liver damage

C reduced chance of HIV infection

D shorter reaction time

4 Which statement about antibiotics is **not** correct?

A Antibiotics are used to treat diseases caused by viruses.

B Some antibiotics are produced by fungi.

C Some bacteria are resistant to antibiotics.

D When taking antibiotics for an infection, the treatment should be completed.

5 Possible effects of drug abuse include

1 addiction,
2 reduced self-control,
3 severe withdrawal symptoms.

Which effects may occur as a result of drinking too much alcohol?

A 1, 2 and 3 **B** 1 and 2 only **C** 1 only **D** 2 and 3 only

6 What is **not** an effect of consumption of alcohol?

A liver damage

B loss of muscle coordination

C poor self control

D stimulation of the nervous system

7 A woman has been smoking heavily for many years.

Which statement could **not** be correct?

A Her arteries are blocked with tar.

B She is addicted to nicotine.

C The cilia in the trachea have been destroyed.

D The surface area of the lungs is reduced.

8 The oxygen carrying capacity of the blood of smokers is less than that of non-smokers.

Which component of cigarette smoke causes this?

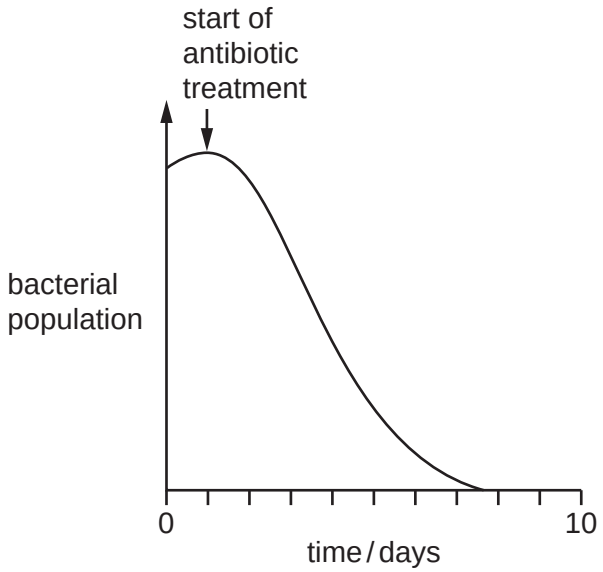
A carbon monoxide

B nicotine

C smoke particles

D tar

9 The graph shows the effect of an antibiotic treatment on bacterial populations in the blood.



What conclusion can be drawn from the graph?

A Antibiotics are effective against viral and bacterial infections.

B Antibiotics cause reduction division in bacteria.

C Antibiotics take ten days to kill all bacteria.

D Before the start of antibiotic treatment the bacterial population was rising.

10 Which two statements describe the effects of smoking cigarettes?

1 Cilia beat more quickly.

2 Cilia beat more slowly.

3 Goblet cells stop producing mucus.

4 Goblet cells produce more mucus.

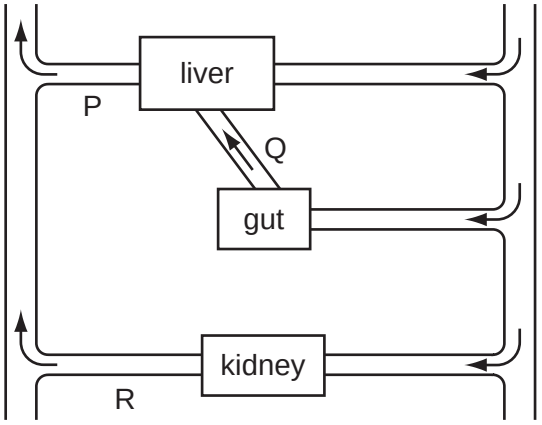
A 1 and 3 **B** 1 and 4 **C** 2 and 3 **D** 2 and 4

STEMUP.CO.UK

11 What are the effects of tobacco smoke on the gas exchange system?

	mucus in the airways	chance of lung infection
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

12 The diagram represents some human organs and their blood vessels.



Immediately after taking an alcoholic drink, how would the levels of alcohol compare in blood vessels P, Q and R?

	P	Q	R
A	high	medium	high
B	medium	high	low
C	low	low	medium
D	high	low	low

STEMUP.CO.UK

13 In which part of the body do drugs break down?

A brain

B heart

C kidneys

D liver

14 What are the effects of smoking on the gas exchange system?

	mucus in the airways	chance of lung infection
A	decreased	decreased
B	decreased	increased
C	increased	decreased
D	increased	increased

15 Where do the breakdown of drugs and the storage of urine occur?

	breakdown of drugs	storage of urine
A	kidney	muscles
B	liver	bladder
C	liver	kidney
D	muscles	liver

16 In which organ is alcohol broken down?

A brain

B kidney

C liver

D stomach

STEMUP.CO.UK

17 Capillaries near the surface of the skin become wider after drinking large amounts of alcohol.

Why does this cause the body temperature to drop?

A It allows heat to be lost rapidly from the skin.

B It causes vasoconstriction.

C It prevents vasodilation.

D It stops the person from sweating.

18 Cilia are present on the surface of the cells of the trachea. The cilia of a smoker work less effectively than those of a non-smoker.

How does this affect the smoker?

A Less carbon dioxide is released.

B Less oxygen is released.

C More bacteria enter the lungs.

D More mucus is removed from the lungs.

19 Which component of cigarette smoke is most likely to cause lung cancer?

A carbon dioxide

B carbon monoxide

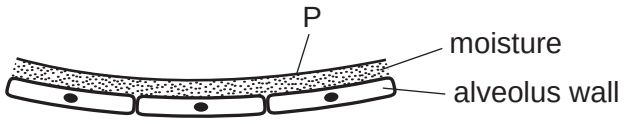
C nicotine

D tar

STEMUP.CO.UK

20 The diagram shows the gas exchange surface of a person who has just smoked a cigarette.

Substance P can cause cancer.



What is substance P?

A carbon dioxide

B carbon monoxide

C nicotine

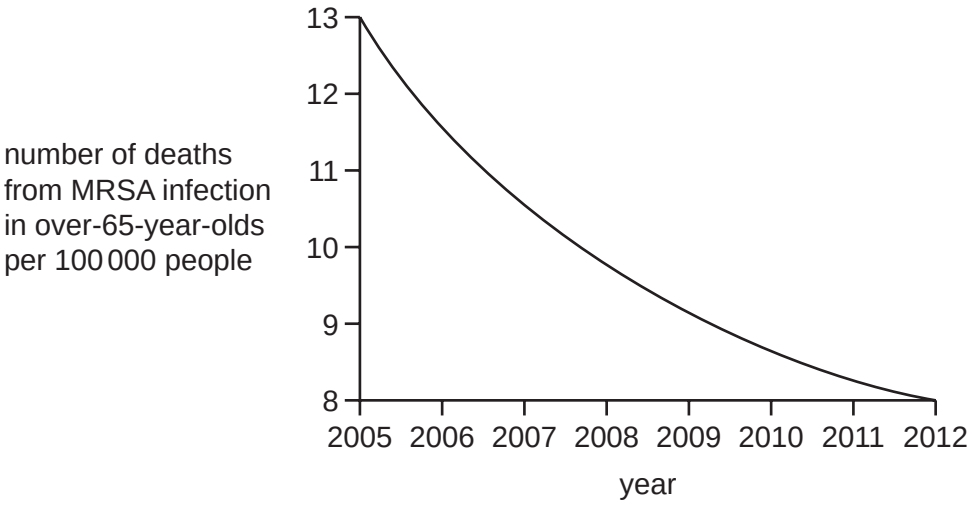
D tar

21 Which row states the possible harmful effects of tobacco smoke?

	cancer	liver damage	coronary heart disease
A	✓	✓	✗
B	✓	✗	✓
C	✗	✓	✗
D	✗	✗	✓

STEMUP.CO.UK

22 The graph shows the number of deaths from MRSA infection per 100 000 people in a population of over-65-year-olds from 2005 to 2012.



What is a possible explanation for the changes shown in the graph?

A a decrease in the size of the population of over-65-year-olds

B antibiotics do not affect viruses

C more effective antibiotics are being used to treat infected people

D over-65-year-olds are immune to MRSA infection

23 Which statement about microorganisms is correct?

A Bacteria are killed by hydrochloric acid in the duodenum.

B Bacteria can become resistant to antibiotics.

C Bacterial infection and viruses are treated with antibiotics.

D Bacteria produce sugars that cause tooth decay.

STEMUP.CO.UK

24 Which disease can be caused by smoking tobacco?

A cholera

B COPD

C HIV

D scurvy

25 Which row shows the effects of excessive alcohol consumption?

	reaction time	self-control	anti-social behaviour
A	quicker	increased	increased
B	quicker	reduced	increased
C	slower	increased	decreased
D	slower	reduced	increased

26 The number of bacteria resistant to antibiotics is increasing.

What has contributed to this situation?

A choosing the antibiotic carefully to match the strain of bacterium

B not completing the course of prescribed antibiotics

C tracing, testing and treating people who have been in contact with the infected person

D using antibiotics only when essential

STEMUP.CO.UK

27 Penicillin is an antibiotic that kills bacteria by preventing them from forming cell walls.

Why does penicillin **not** affect viruses?

A Viruses become resistant to penicillin.

B Viruses do not contain cytoplasm.

C Viruses do not have cell walls.

D Viruses reproduce very rapidly.

28 A patient is suffering from an infection. Her doctor prescribes an antibiotic.

One week later the infection is still present.

What could be the reason for this?

A It was the correct antibiotic for this infection.

B The pathogen was a virus.

C The pathogen was resistant to the antibodies.

D The patient was resistant to the antibiotic.

29. What results from the destruction of cilia in the trachea due to smoking?

A Cilia cannot filter bacteria.

B Cilia cannot trap dust.

C Mucus cannot be manufactured.

D Mucus cannot be carried towards the throat.

STEMUP.CO.UK

13. The use and abuse of drugs

Content

13.1 Antibiotics

13.2 Effects of heroin

13.3 Effects of alcohol

13.4 Effects of tobacco smoke

Learning outcomes

Candidates should be able to:

(a) **define a *drug* as any externally administered substance that modifies or affects chemical reactions in the body**

(b) **describe the medicinal use of antibiotics for the treatment of bacterial infection**

(c) **describe the effects of the abuse of heroin: a powerful depressant, problems of addiction, severe withdrawal symptoms and associated problems such as crime and infection, e.g. AIDS**

(d) **describe the effects of excessive consumption of alcohol: reduced self-control, depressant, effect on reaction times, damage to liver and social implications**

(e) **describe the effects of tobacco smoke and its major toxic components (nicotine, tar and carbon monoxide) on health: strong association with bronchitis, emphysema, lung cancer and heart disease, and the association between smoking during pregnancy and reduced birth weight of the baby**

(f) **recognise the fact that many people regard smoking as no longer socially acceptable.**

O/N16/22/Q3

Table 3.1 shows the percentage of smokers in a particular country and the number of deaths from lung cancer in that country during the years 1920 to 2010.

Table 3.1

year	percentage of the population that were smokers	deaths from lung cancer per 100,000 people
1920	30	100
1930	35	150
1940	45	200
1950	60	250
1960	40	550
1970	30	700
1980	25	800
1990	20	700
2000	20	525
2010	18	500

(a) (i) Name the drug in tobacco smoke responsible for addiction.

..... [1]

(ii) Name a substance in tobacco smoke known to cause cancer.

..... [1]

(iii) Name a substance in tobacco smoke that affects the carriage of respiratory gases.

..... [1]

(iv) Explain why a pregnant woman is advised not to smoke.

.....

.....

.....

.....

.....

.....

.....[3]

(b) Describe and explain the relationship between the number of smokers and the number of deaths from lung cancer shown in Table 3.1.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

[Total: 10]

M/J16/21/Q9

(a) Define the term *drug*.

.....

.....

.....

.....

.....

..... [3]

(b) (I) Describe the effects on health of smoking tobacco. In your answer, make reference to the effects of **named** toxic components of tobacco smoke.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... [5]

(II) Suggest why many people regard smoking tobacco as no longer socially acceptable.

.....

.....

.....

..... [2]

[Total: 10]

M/J16/22/Q2(b)

) Every day, babies are born suffering from severe withdrawal symptoms as a result of their mothers taking drugs during pregnancy.

(i) Name a drug which the mother may have taken during pregnancy that might cause these withdrawal symptoms.

..... [1]

(ii) Suggest how drugs taken by the mother have been able to affect her developing fetus.

.....

.....

.....

.....

.....

.....

.....

.....

.....[4]

[Total: 9]

M/J15/21/Q4

4 (a) Define the term *drug*.

.....

.....

.....

..... [2]

(b) Fig. 4.1 shows some of the organs of a person that can be affected by the use of drugs.

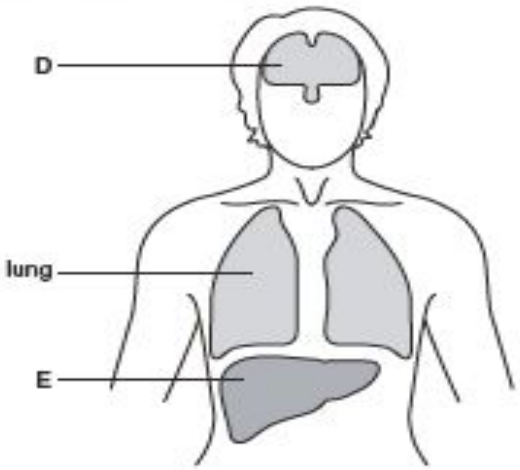


Fig. 4.1

Complete Table 4.1 by naming organs D and E and by giving one effect of each drug on the named organ.

Table 4.1

drug	organ label on Fig. 4.1	name of organ	one effect of drug
heroin	D		
alcohol	E		

[4]

(c) (i) Name two toxic components of tobacco smoke.

1 .....

2 ..... [2]

(ii) State the likely effect on her baby if a mother smokes tobacco throughout pregnancy.

.....

.....

..... [1]

[Total: 9]

O/N12/22/Q5

The graph in Fig. 5.1 shows the concentration of nicotine in the blood of a person before, during and after smoking a cigarette.

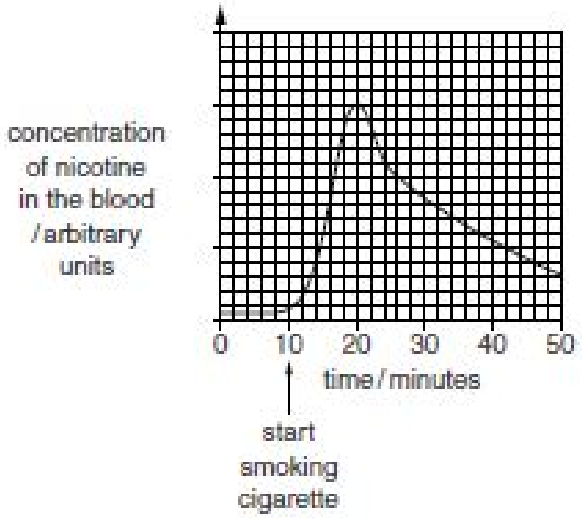


Fig. 5.1

(a) Use Fig. 5.1 to find the time taken for the person to smoke the cigarette.

.....[1]

(b) Suggest why the concentration of nicotine in the person's blood was not zero before starting to smoke the cigarette.

.....

.....[1]

(c) Name two components of the cigarette smoke, other than nicotine, that may be harmful to the person. For each component, state the harm that it may cause.

component 1 .....

harm it may cause .....

.....

component 2 .....

harm it may cause .....

.....[4]

(d) Fig. 5.2 shows the blood pressure of the same person over the same time period.

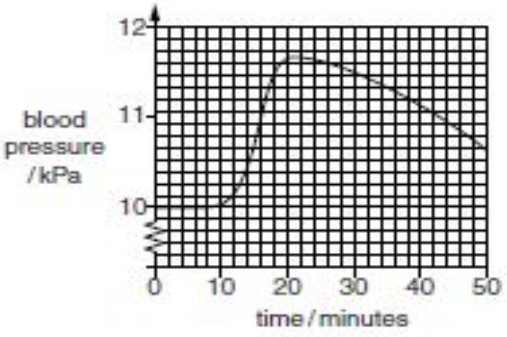


Fig. 5.2

(I) Use Fig. 5.2 to describe the effects of smoking the cigarette on this person's blood pressure.

.....

.....[2]

(II) Suggest how smoking a cigarette resulted in this effect on blood pressure.

.....

.....[1]

(III) Suggest possible harmful effects of this change in blood pressure.

.....

.....[2]

[Total: 11]

M/J11/22/Q8

(a) Define the term *drug*.

.....

.....[3]

(b) Describe the possible effects of the abuse of a named drug.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....[7]

[Total: 10]

M/J11/21/Q4

Fig. 4.1(a) and Fig. 4.1(b) each shows cells from the lining of the trachea. One is from a smoker and one is from a non-smoker.

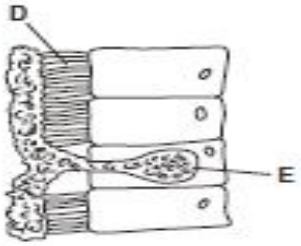


Fig. 4.1(a)

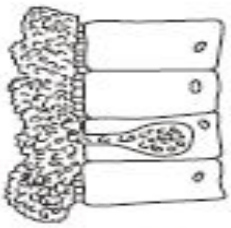


Fig. 4.1(b)

(a) (i) Identify **D** and **E** in Fig. 4.1(a).

D .....

E ..... [2]

(ii) Describe the function of **D**.

.....

..... [2]

Fig. 4.2(a) and Fig. 4.2(b) show cross-sections through the alveoli of a smoker and of a non-smoker.

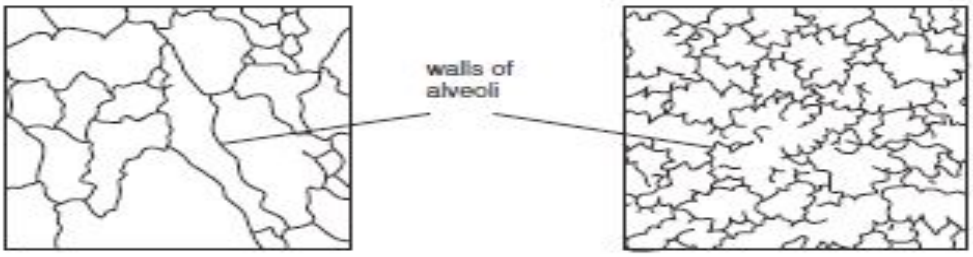


Fig. 4.2(a)

Fig. 4.2(b)

(b) (i) Identify the figures on this page that show the trachea and alveoli of the smoker.

Fig. ..... and Fig. ..... [1]

(ii) Explain how the effect of smoking on the alveoli could affect the general health of a smoker.

.....

.....

.....

.....

.....

.....

.....

..... [5]

[Total: 10]

M/J07/P2/Q8

8 **Either** **(a)** Define a *drug*. [2]

(b) Explain the effects of the abuse of:

(i) alcohol, and

(ii) heroin. [8]

[Total: 10]

8 **Or** Explain why smoking is no longer regarded as

(a) advisable for the maintenance of good health, [8]

(b) socially acceptable. [2]

[Total: 10]

Mark schemes will use these abbreviations:
; separates marking points
/ alternatives
() contents of brackets are not required but should be implied
R reject
A accept (for answers correctly cued by the question, or guidance for examiners)
Ig ignore (for incorrect but irrelevant responses)
AW alternative wording (where responses vary more than usual)
AVP alternative valid point (where a greater than usual variety of responses is expected)
ORA or reverse argument
underline actual word underlined must be used by candidate (grammatical variants excepted)
+ statements on both sides of the + are needed for that mark

O/N16/22/Q3

3(a)(i) nicotine **; 1**
3(a)(ii) tar / named carcinogen **; 1 A** any other named carcinogen in tobacco smoke
3(a)(iii) carbon monoxide / CO **; 1**
3(a)(iv) 1 carbon monoxide combining with haemoglobin / nicotine narrows blood vessels **;**
2 decreasing O_2 carriage / less O_2 absorption **;**
3 substances pass from mother's blood to fetus' blood / reference to substances across placenta **;**
4 impaired development / born underweight / stunted growth / damage to brain / stillbirth / premature birth **;**
3
3(b) 1 both rise **+** until 1950 **;**
2 people unaware of the link / education **AW ;**
3 1950 / 60 – 1980 **+** fall in smoking **+** continued rise in deaths **;**
4 cancer can take a long time to develop **AW ;**
5 due to passive smoking / cancer caused by other factors **;**
6 since 1980 **+** both falling **;**
7 better diagnosis / treatment / drugs **;**
8 low tar cigarettes / better filters / e-cigarettes **;**
Total 10

M/J16/21/Q9

9 (a) externally administered ;
substance / chemical ;
(that) modifies / affects / changes ;
(the) chemical reactions (in the body) ;
[max 3]

(b) (i) nicotine ;
addictive ;

carbon monoxide ;
reduced oxygen carrying
capacity of blood ;
reference to underweight babies
AW ;
tar ;
cough / emphysema / bronchitis ;
explanation of mechanism of
one of the above e.g. cilia
damaged / alveoli
damaged / mucous lining
blocked by tar ;
correctly named cancer (e.g.
lung / throat) ;
reference to cardiovascular
disease / increases blood
pressure ;
[max 5]
(ii) passive smoking or described
e.g. effect on
asthmatics / concerns around
smoking near children / pregnant
mothers ;
reference to unpleasant
odour / clothes smell ;
reference to high cost ;
[max 2]
[Total: 10]

M/J16/22/Q2(b)

(b) (i) heroin / alcohol / nicotine / named
addictive drug ;
[1]
(ii) Ig reference to named drug /
substance (e.g. CO, tar)
mother's blood ;
diffusion ;
across or through placenta ;
fetus / baby / embryo + blood ;
umbilical cord / umbilical vein ;
R umbilical artery
[max 4]
[Total 9]

M/J15/21/Q4

4 (a) externally administered ;
substance ;
modifies / affects chemical reactions in
body ;

[max 2]
(b)
brain ; depressant ;
liver ; ref. damage ;
A named parts of brain
A named, e.g. cirrhosis / liver
failure / fatty liver disease
[4]
(c) (i) nicotine ;
tar ;
carbon monoxide ;
[max 2]
(ii) reduced birth weight ; A premature birth / breathing
problems
[1]

O/N12/22/Q5

5 (a) 10/11 minutes; [1]
(b) smoker/has recently smoked/passive smoking; [1]
(c) Any 2 from:
carbon monoxide/CO;
affect on O_2 carriage/fatty deposits in walls of bvs;
carbon dixide/CO_2;
prevents loss of CO_2 from blood;
tar;
carcinogenic properties/lung cancer/inhibits gaseous diffusion/damages alveolar walls [4]
or cilia;
(d) (i) increase;
followed by decrease;
reading from graph with units; [Max 2]
(ii) arterial constriction, fat deposits or diameter reduction/heart rate increases/heart pumps
harder or faster AW; [1]
(iii) prolonged raised pressure/cumulative effect;
damage to capillaries/ref. thin walls of capillaries;
any relevant effect e.g. damage to kidneys/brain/heart/blood vessels; [Max 2]
[Total: 11]

M/J11/22/Q8

8 (a) externally administered or taken;
chemical / substance;
modifies or affects / alters;
metabolism / chemical reactions in the body; [max. 3]
(b) Apply a maximum of 3 marks if drug is un-named
*named drug;
*positive effect on person (i.e. reason for taking it);

tolerance / increased dosage for same effect;
dependence / addiction;
withdrawal symptoms;
crime (e.g. drink driving);
funding the habit / financial implications;
effects on addict's family / *society;
*adverse effects on health of addict from drug or means of taking it; [max. 7]
(R death)
(* These marks are available for answers relating to the misuse of antibiotics.)
[Total: 10]

M/J10/21/Q4

4 (a) (i) D cilia ;
E goblet (cell) / mucus (-producing cell) / gland (cell) ; [2]
(ii) ref. beating / AW ;
moving mucus + towards throat / upwards / away from lungs ;
containing germs / dirt ; [2]
(b) (i) Fig. 4.1(b) + Fig. 4.2(a) (A in either order) ; [1]
(ii) carcinogenic / AW ;
tar + impervious to gases ;
emphysema / break down of alveoli walls ;
reduced surface area ;
less O_2 absorption / to red blood cells / body cells ;
named affected organ (e.g. extremities / brain / heart) ;
effect on (named) organ ;
tiredness / shortness of breath ; [5 max]

M/J07/P2/Q8

The Use and Abuse of Drugs P2 questions

8E (a) externally administered substance AW / chemical
which modifies / changes / affects
metabolism / chemical reactions in the body AW
(could be of bacteria)

(b) (alcohol) reduces self-control / removes inhibitions
depressant / ref. nervous system
slower reaction times or any named effect
liver damage / cirrhosis / other named condition
*expense
*social implications / crime
(heroin) depressant / ref. nervous system
*addiction / greater quantities for same effect / habituation / tolerance
withdrawal symptoms AW
needle-sharing
AIDS / hepatitis
(Points marked * score *either* for alcohol *or* for heroin)

8O (a) nicotine
*craving / addiction / agglutination or clotting of RBCs / increased
blood pressure / increased heart rate / vasoconstriction / increased
blood fat / atheroma AW / arteriosclerosis / effect on fetus
(*All must be with ref. nicotine)

tar
decreased O_2 uptake (must be with ref. tar)
lung or any named correct form of cancer caused by tar

CO
decreased O_2 carriage (must be related to CO)

points not tied to any particular constituent:
emphysema / bronchitis / cough / destruction of cilia
heart disease / heart attack / stroke / atheroma (if not given above)
less O_2 to fetus
miscarriage / small / underweight babies (R underdeveloped)