

# The Use and Abuse of Drugs

## Question Paper

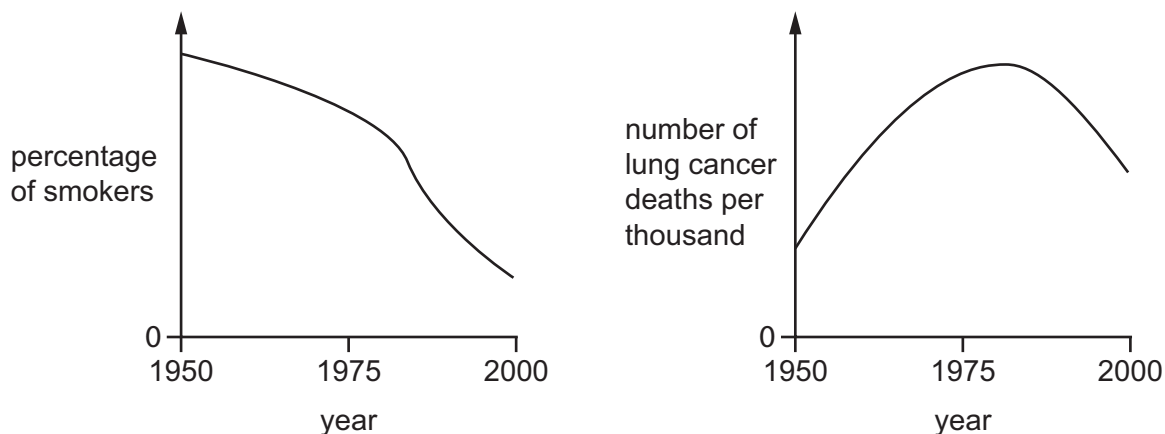
Level	O Level
Subject	Biology
Exam Board	Cambridge International Examinations
Topic	The Use and Abuse of Drugs
Sub Topic	
Booklet	Question Paper

**Time Allowed:** 41 minutes

**Score:** /34

**Percentage:** /100

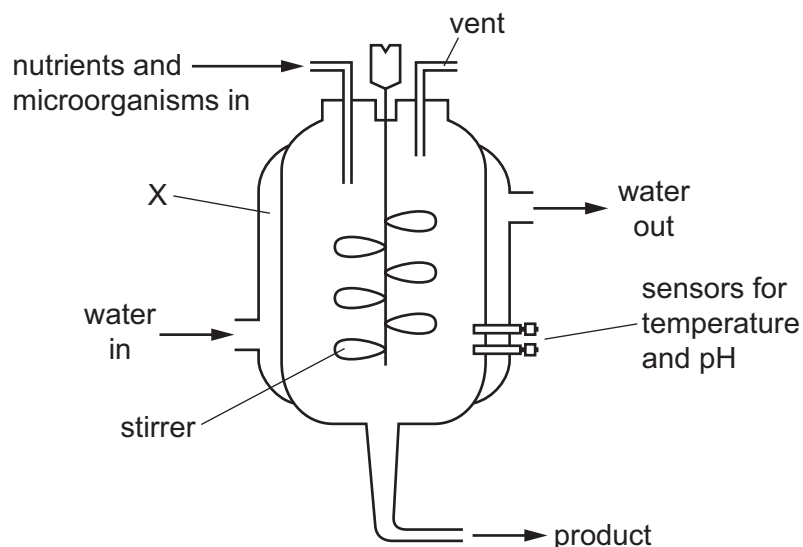
- 1 The graphs show changes in the percentage of smokers and number of lung cancer deaths in a country between 1950 and 2000.



What could have caused the change in the number of deaths from lung cancer between 1950 and 1975?

- A higher percentage of smokers after 1950
  - B higher percentage of smokers before 1950
  - C lower percentage of smokers after 1950
  - D lower percentage of smokers before 1950
- 2 Where is penicillin produced?
- A in a fungus
  - B in bacteria
  - C in the brain
  - D in the pancreas

3 The diagram shows the equipment used in the industrial production of penicillin.



What is the purpose of the structure labelled X?

- A to insulate the fermentation vessel
- B to maintain the pressure of the fermentation vessel
- C to monitor the temperature of the fermentation vessel
- D to remove the heat produced by the fermentation process

4 Which facts about alcohol are correct?

	acts as a depressant	broken down by the liver	increases self-control
<b>A</b>	✓	✓	✓
<b>B</b>	✓	✓	x
<b>C</b>	✓	x	✓
<b>D</b>	x	✓	x

key  
 ✓ correct  
 x not correct

- 5 The fungus *Penicillium* is grown in fermenters to make penicillin. The table shows the time taken for the mycelium of the fungus to double in size with different types of carbohydrate. All other conditions were kept constant.

type of carbohydrate	glucose	maltose	starch
time for mycelium of <i>Penicillium</i> to double in size / hours	15	20	30

What can be concluded from the data?

- A Glucose molecules are larger than maltose molecules.
  - B *Penicillium* does not produce amylase.
  - C *Penicillium* does not produce protease.
  - D *Penicillium* takes longer to use starch than to use sugars.
- 6 Which diseases can be cured with antibiotics?

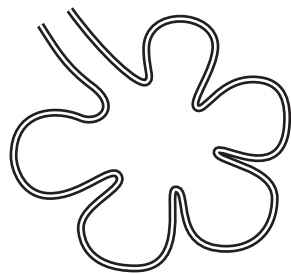
	lung cancer	HIV infection	syphilis
A	✓	✓	✓
B	✓	x	✓
C	x	✓	x
D	x	x	✓

key

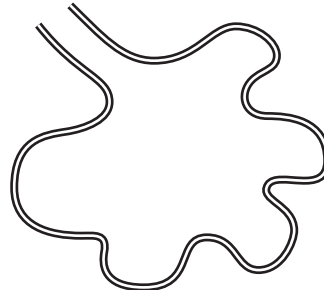
✓ = can be cured with antibiotics

x = cannot be cured with antibiotics

- 7 The diagrams show the structure of the alveoli in the lungs of a normal person and in a smoker with emphysema.



normal

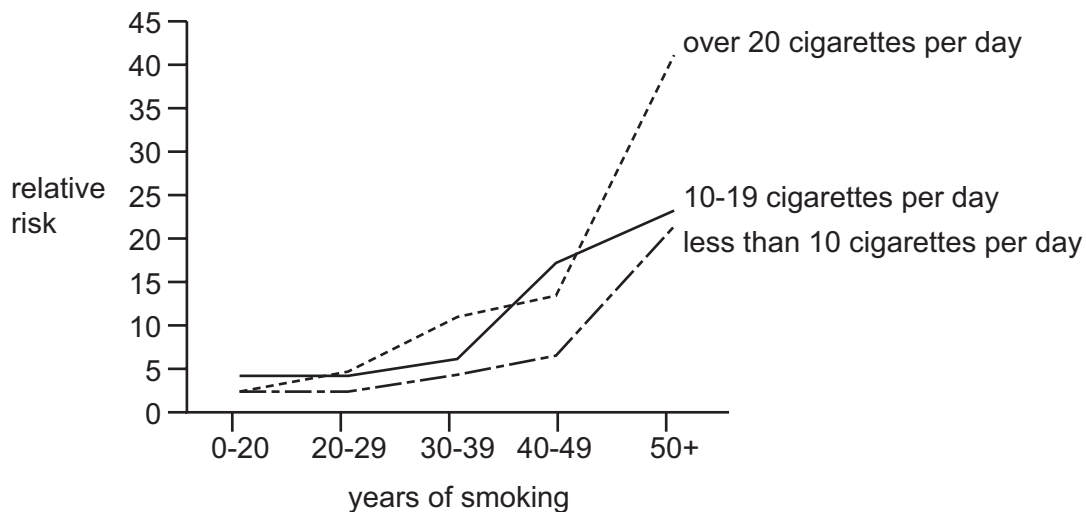


emphysema

What is the effect of emphysema?

- A** increased chance of lung cancer
- B** inflammation of the walls of the airways
- C** less difficulty in breathing in and out
- D** less efficient gaseous exchange

8 The graph shows the relative risk of lung cancer, according to the years of smoking and the number of cigarettes smoked each day.



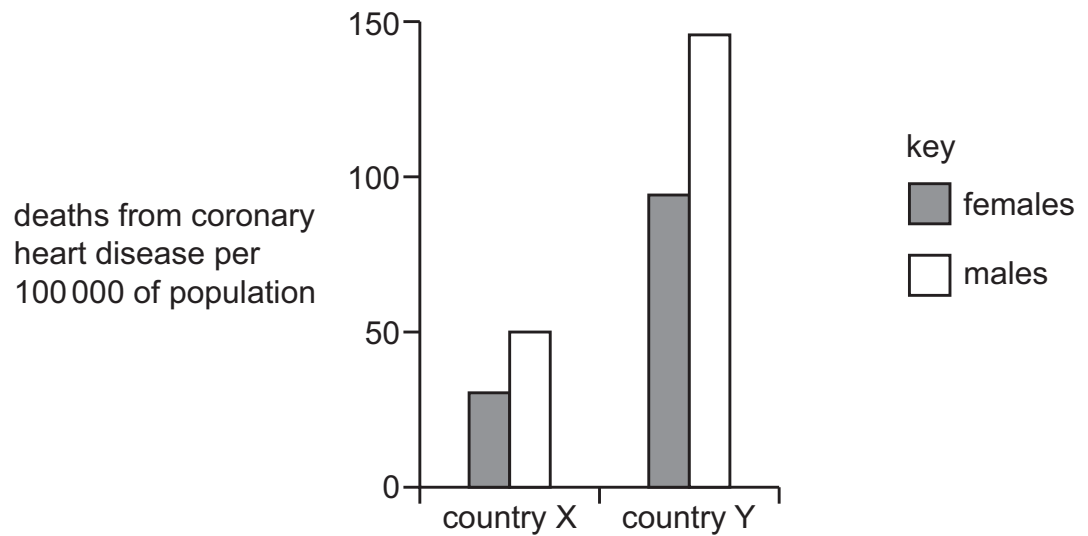
The following statements were made.

- 1 The relative risk of lung cancer depends on the number of cigarettes smoked each day.
- 2 The relative risk of lung cancer depends on the number of years of smoking.
- 3 The relative risk of lung cancer depends on the tar content of the cigarettes smoked.

Which statements are supported by the data in the graph?

	statement 1	statement 2	statement 3
<b>A</b>	✓	✓	✓
<b>B</b>	✓	✓	x
<b>C</b>	✓	x	✓
<b>D</b>	x	✓	✓

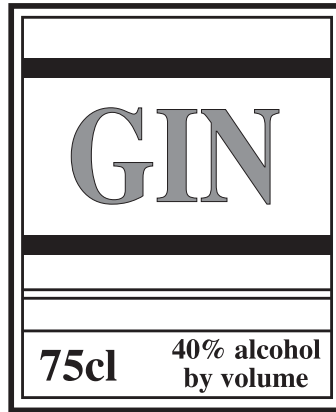
9 The graph shows the death rates from coronary heart disease in two different countries.



What could **not** explain the difference between the two countries?

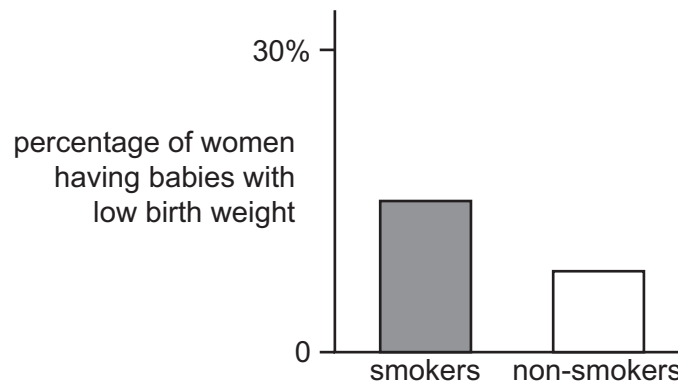
- A less smoking in country X
- B lower average age in country X
- C more males in country Y
- D more saturated fats eaten in country Y

10 The diagram shows the label from a bottle of gin.



What will happen, during the next few hours, after a person drinks a large amount of gin?

- A Their judgement of distance will improve.
  - B Their muscle control will be reduced.
  - C Their reaction time will decrease.
  - D Their urine output will decrease.
- 11 The bar chart shows the percentage of women who had babies of low weight, amongst smokers and non-smokers.



What is shown by the bar chart?

- A More women smoke during pregnancy than do not.
- B Smoking in pregnancy increases the risk of low birth weight.
- C Smoking is bad for the health of a pregnant woman.
- D Women whose babies have low birth weight are smokers.



12 What are the effects of the excessive consumption of alcohol?

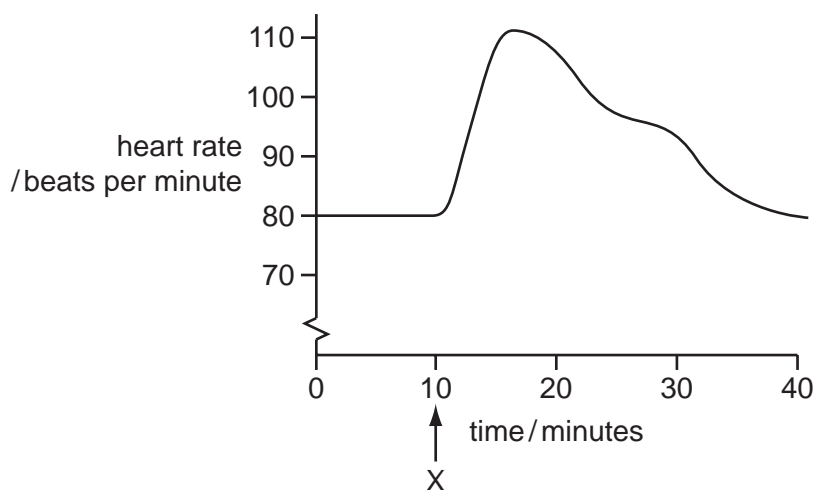
	depressant	liver damage	shorter reaction time
<b>A</b>	✓	✗	✓
<b>B</b>	✓	✓	✗
<b>C</b>	✗	✓	✓
<b>D</b>	✗	✓	✗

key  
✓ = effect occurs  
✗ = effect does not occur

13 Which component of cigarette smoke is the main cause of lung cancer?

- A carbon dioxide
- B carbon monoxide
- C nicotine
- D tar

14 A person begins to smoke a cigarette at time X. The graph shows how their heart rate changes.



Which substance in cigarette smoke is the main cause of the change in heart rate between 10 and 18 minutes?

- A carbon monoxide
- B nicotine
- C smoke particles
- D tar

15 Chemicals in tobacco smoke lead to the breakdown of the elastic tissue in the walls of the alveoli.

What is the name of this condition?

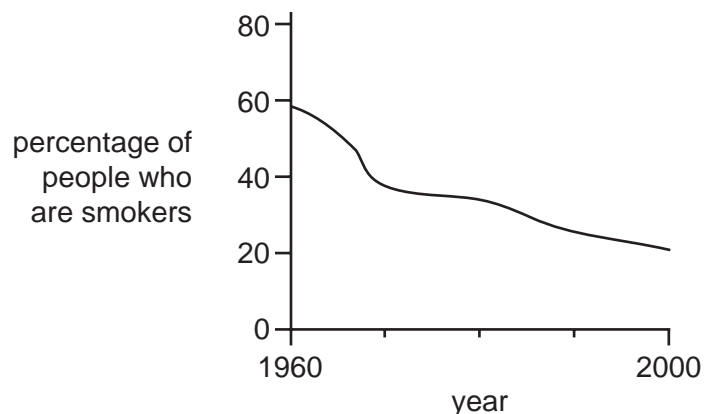
- A** bronchitis
- B** emphysema
- C** lung cancer
- D** pneumonia

16 The table shows some of the possible effects of three drugs.

Which combination of effects is correct?

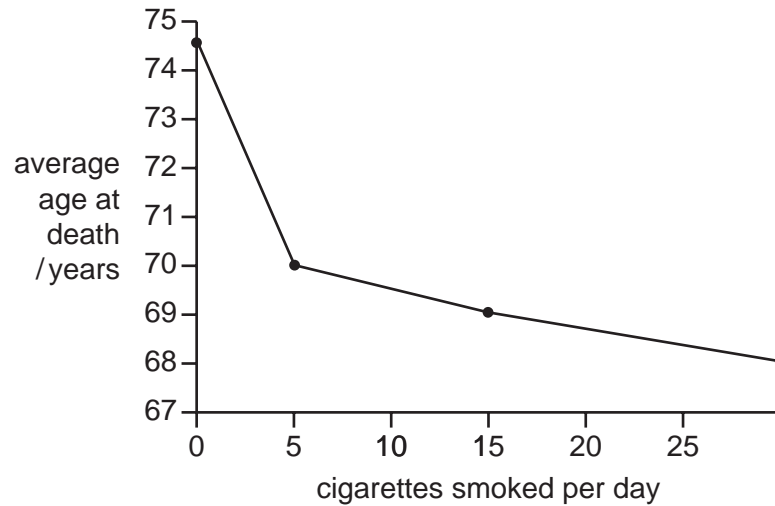
	heroin	carbon monoxide	alcohol
<b>A</b>	addiction	addiction	liver damage
<b>B</b>	addiction	emphysema	increased reaction time
<b>C</b>	depressant	reduced birth weight of babies	increased reaction time
<b>D</b>	depressant	reduced birth weight of babies	lung cancer

- 17 The graph shows, for one country, the percentage of people who smoked cigarettes in the years 1960–2000.



- Which statement about what happened after 1960 is supported by the graph?
- A fewer people were dying of lung cancer
  - B more smokers were dying
  - C smoking was becoming less socially acceptable
  - D smoking was causing more lung cancer
- 18 Which statement describes a problem of using antibiotics?
- A Antibiotics can cause bacteria to become immune.
  - B Antibiotics cannot be taken orally.
  - C Antibiotics have no effect on viruses.
  - D Antibiotics stimulate the growth of bacteria in the gut.

- 19 The graph shows the relationship between the average age at death and the number of cigarettes smoked per day.

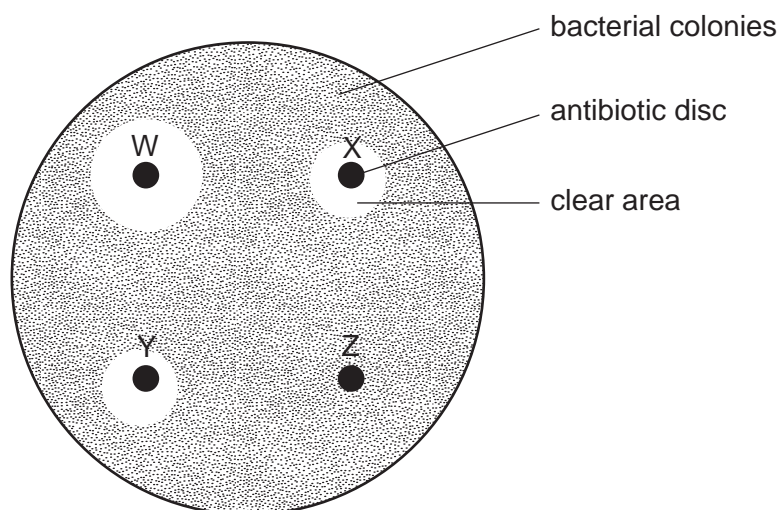


Which conclusion from the graph is correct?

- A** Most people living longer than 74 years are non-smokers.
  - B** People smoking five cigarettes a day live longer on average than those smoking 15 cigarettes a day.
  - C** The average length of life of people who smoke is 4.5 years less than that of non-smokers.
  - D** The main cause of death in people who smoke 30 cigarettes a day is lung cancer.
- 20 What is a major effect of nicotine in tobacco smoke?
- A** It causes lung cancer.
  - B** It destroys cilia in the trachea.
  - C** It increases mucus production in the trachea.
  - D** It increases the desire to smoke.

- 21 Bacteria were grown on an agar plate, until the plate was covered with visible yellow bacterial colonies.

Four discs containing equal amounts of different antibiotics were then placed on the agar plate. After two days, clear areas had formed around some of the discs, as shown in the diagram.



Which conclusion about this experiment is correct?

- A Antibiotic W is more effective against these bacteria than antibiotic X.
  - B Antibiotic Y is more effective against these bacteria than antibiotic W.
  - C Disc W has a higher concentration of antibiotic than disc Y.
  - D Disc Z contains no antibiotic.
- 22 When are antibiotics likely to be most effective?
- A Infection is caused by a bacterium or fungus.
  - B Infection is caused by a virus.
  - C The disease is cancerous.
  - D The pathogen can digest the antibiotic.

23 Which disease can be caused by excessive consumption of alcohol?

- A bronchitis
- B cirrhosis
- C emphysema
- D lung cancer

24 A patient with a sore throat went to the doctor. The doctor examined the patient and then prescribed an antibiotic as treatment.

What was the cause of the sore throat?

- A bacteria
- B tobacco smoke
- C viruses
- D yeasts

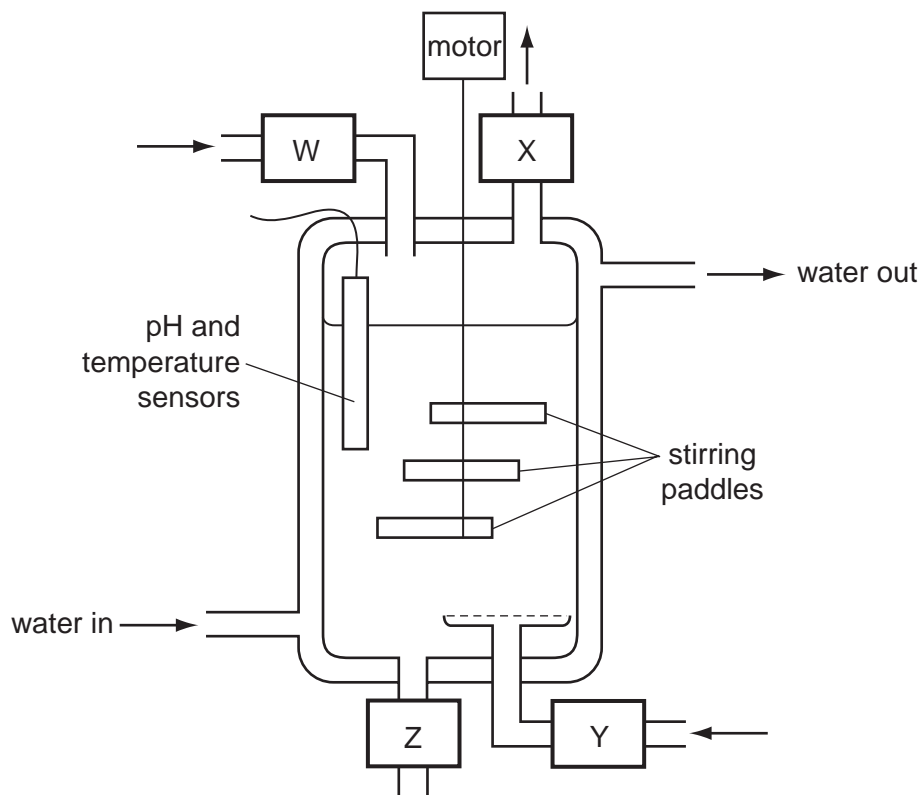
25 The table shows the death rates from lung cancer amongst smokers and non-smokers.

average number of cigarettes smoked per day	deaths from lung cancer per year per 100 000 people
0	10
1-14	78
15-25	127
26 or more	251

What can be concluded from the data?

- A People who get lung cancer are likely to be smokers of 26 or more cigarettes per day.
- B People who do not smoke will not get lung cancer.
- C People who smoke have a higher chance of getting lung cancer.
- D Smoking causes lung cancer.

26 The diagram shows a fermenter used for the production of antibiotics.



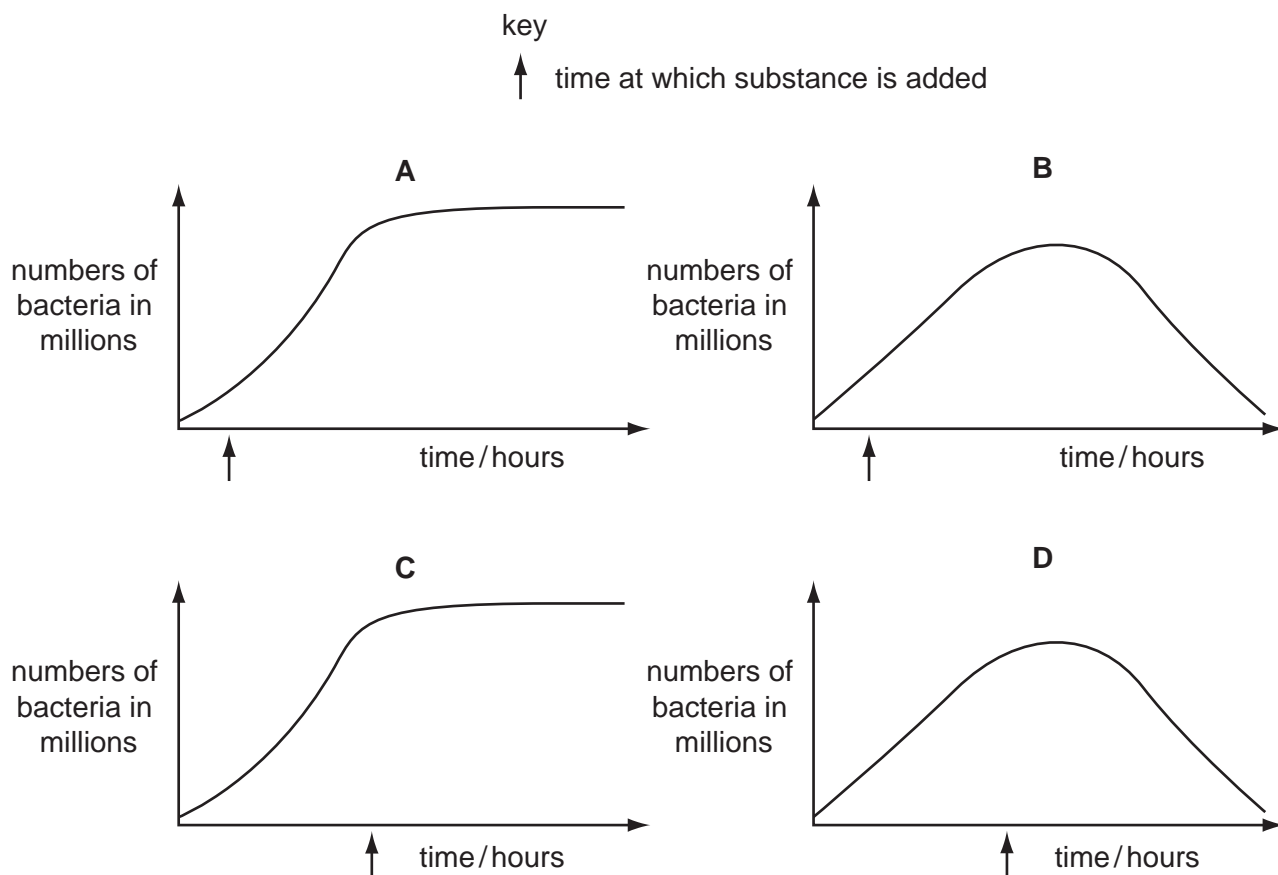
What happens at W, X, Y and Z?

	air in	antibiotic out	nutrients in	waste gases out
<b>A</b>	W	X	Y	Z
<b>B</b>	W	Y	Z	X
<b>C</b>	Y	Z	W	X
<b>D</b>	Z	W	X	Z

27 A student was investigating the growth of a culture of bacteria in flasks of nutrient broth.

Four substances were tested as possible antibiotics to be used against this bacterium. They were added at different times.

Which substance is most likely to be effective against the bacterium?



28 Some drugs are listed.

- 1 alcohol
- 2 heroin
- 3 penicillin

Which of these drugs may be addictive, leading to possible withdrawal symptoms when their use is discontinued?

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



29 Which of these substances do **not** occur naturally in the human body?

adrenaline	heroin	nicotine	penicillin
1	2	3	4

- A 2 and 3 only
- B 1, 2 and 3 only
- C 1, 3 and 4 only
- D 2, 3 and 4 only

30 Tar and carbon monoxide are present in tobacco smoke.

What are their effects on health?

	tar	carbon monoxide
A	causes high blood pressure	damages haemoglobin
B	causes high blood pressure	is addictive
C	causes lung cancer	damages haemoglobin
D	causes lung cancer	is addictive

31 The table shows results from a study into the effects of smoking while pregnant.

number of cigarettes smoked per day by mother while pregnant	average birth weight of baby / kg	average height of child at 15 years / cm
0	3.7	166.1
1–9	3.5	165.0
10 and over	3.1	162.8

Which of these effects of smoking while pregnant is supported by the information in the table?

- A increased growth rate
- B increased length of pregnancy
- C reduced birth weight
- D reduced chance of respiratory disease

32 Which condition is treated by antibiotics?

- A diabetes
- B heroin addiction
- C malaria
- D syphilis

33 Which organ is damaged as it breaks down alcohol?

- A brain
- B kidney
- C liver
- D stomach

34 Which aspect of behaviour is correctly linked with the health risks in the table?

key

✓ = risk

X = not at risk

aspect of behaviour		health risk				
		emphysema	lung cancer	liver damage	contracting syphilis	HIV/AIDS
<b>A</b>	drinking too much alcohol	✓	X	✓	X	✓
<b>B</b>	having many sexual partners	X	✓	X	✓	✓
<b>C</b>	injecting heroin	✓	X	✓	X	X
<b>D</b>	smoking cigarettes	✓	✓	X	X	X