15. Drugs

15.1 Drugs

Paper 1 and 2

Question Paper

Paper 1

Questions are applicable for both core and extended candidates

1 What is treated with antibiotics?

A a bacterial infection

B rickets

C scurvy

D a viral infection

2 A scientist investigates the effect of two types of antibiotics on bacteria.

The table shows the results.

type of antibiotic	effect on bacteria
penicillin	cells burst
tetracycline	stops protein synthesis

Which cell structure does each antibiotic affect?

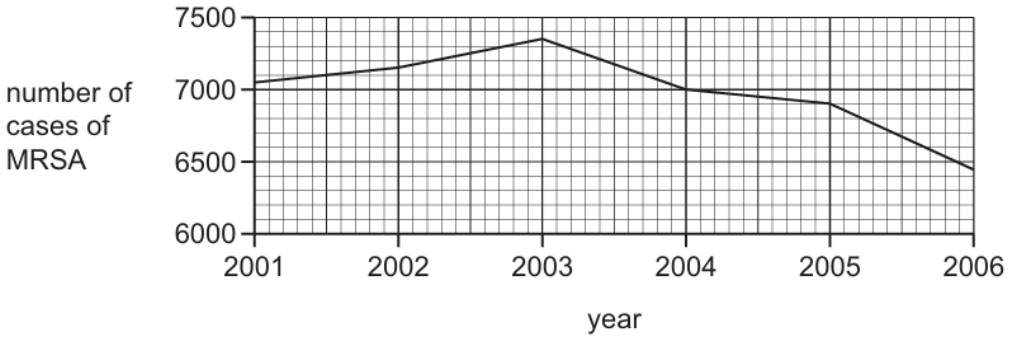
A Penicillin affects the cell wall and tetracycline affects the ribosomes.

B Penicillin affects the nucleus and tetracycline affects the cytoplasm.

C Penicillin affects the ribosomes and tetracycline affects the cell wall.

D Penicillin affects the vacuole and tetracycline affects the nucleus.

3 The graph shows the number of cases of MRSA in one country between 2001 and 2006.



Between which years was the **greatest** change in the number of cases of MRSA?

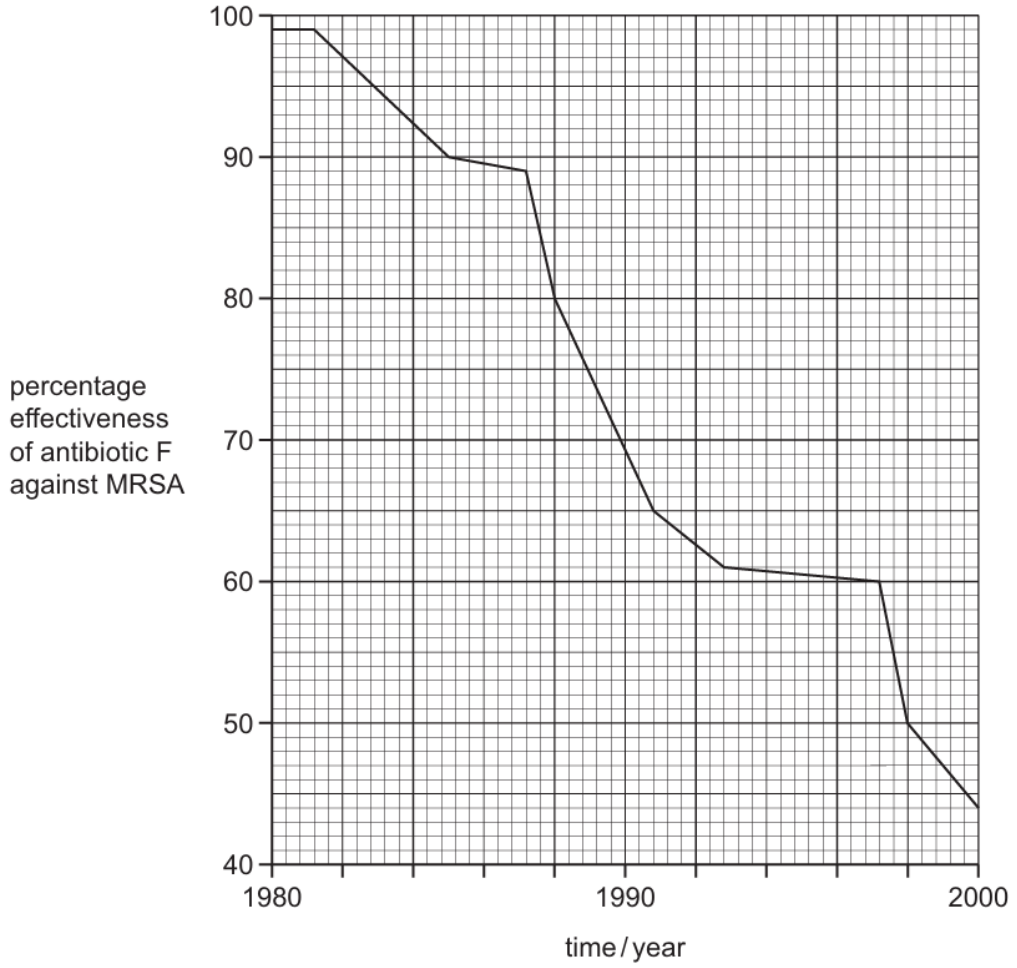
A 2002 and 2003

B 2003 and 2004

C 2004 and 2005

D 2005 and 2006

4 The graph shows how the percentage effectiveness of antibiotic F against MRSA bacteria varied between 1980 and 2000.



What is a correct conclusion from the graph?

A Antibiotic F was completely ineffective against MRSA in 2000.

B Antibiotic F was most effective in 1982.

C MRSA developed resistance to antibiotic F between 1981 and 2000.

D The greatest decrease in effectiveness of antibiotic F against MRSA was between 1988 and 1990.

5 Which diseases can be successfully treated with antibiotics?

	diseases caused by bacteria	rickets	diseases caused by viruses
A	✓	✓	✓
B	✓	✗	✗
C	✗	✓	✗
D	✗	✗	✓

key

✓ = can be treated

✗ = cannot be treated

6 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

7 Which statements about antibiotics are correct?

1 Antibiotics can be used to treat bacterial infections.

2 Antibiotics can be used to treat viral infections.

3 Antibiotics are **not** effective against resistant bacteria.

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

8 The table shows which antibiotics are effective against different types of bacteria.

The shaded areas show the antibiotic is effective against that type of bacteria.

	type of bacteria			
antibiotic	MRSA	*Streptococcus*	*Pseudomonas*	*Anaerobes*
1		■		
2		■	■	
3			■	
4	■	■	■	■
5				■
6	■			

A person has a disease caused by a type of *Streptococcus* bacteria and a second infection caused by a type of *Pseudomonas* bacteria.

Which antibiotic should be taken?

A 1 or 6 **B** 2 or 4 **C** 3 or 4 **D** 5 or 6

9 A disease cannot be treated with antibiotics.

What could be the reasons for this?

1 It is not a bacterial disease.

2 The pathogen is a virus.

3 The patient has become resistant to the antibiotic.

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

10 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

11 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

12 Which substance can be used to treat a bacterial infection?

A adrenaline

B antibiotics

C antigens

D insulin

13 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.

14 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

15 Which type of infection could be treated successfully with antibiotics?

	infection caused by		
	bacteria	resistant bacteria	viruses
A	✓	✓	✗
B	✓	✗	✗
C	✗	✓	✓
D	✗	✗	✓

key

✓ = yes

✗ = no

16 Which statement about antibiotic use in humans is correct?

A Different types of antibiotic are used to remove antibodies from the body.

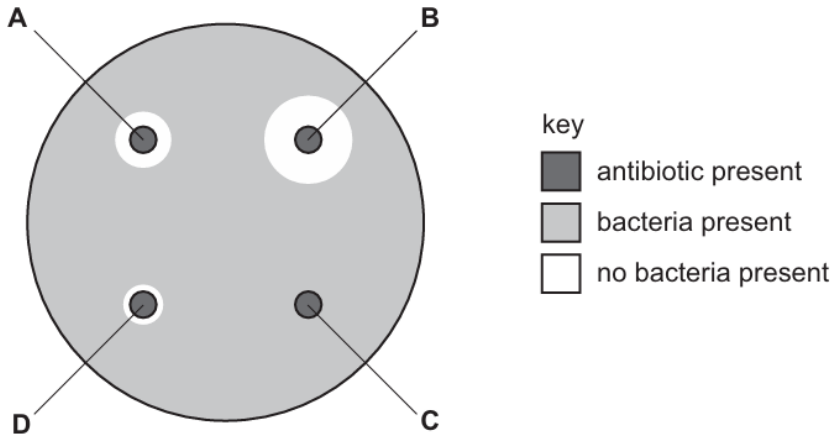
B Antibiotics are injected in childhood to prevent diseases in adults.

C Antibiotics are used to treat diseases caused by viruses.

D Different types of antibiotic are used because bacteria can become resistant.

17 The diagram shows the effect of four different antibiotics, A, B, C and D, on the growth of bacteria.

Which antibiotic are the bacteria most resistant to?



18 Which type of drug is used to treat bacterial infection?

A antibody

B antibiotic

C depressant

D vaccine

Paper 2

Questions are applicable for both core and extended candidates unless indicated in the question

19 Which statement about antibiotics is correct?

A Antibiotics do not affect bacteria but kill viruses.

B Antibiotics do not affect bacteria or viruses.

C Antibiotics kill bacteria and kill viruses.

D Antibiotics kill bacteria but do not affect viruses.

20 Which statement about antibiotics is correct?

A Antibiotics are used to treat all transmissible diseases.

B Antibiotics are used to treat diseases caused by viruses.

C Antibiotic resistance can be stopped by increasing their use.

D Antibiotics are used to treat diseases caused by bacteria.

21 Bacteria such as MRSA are resistant to antibiotics.

These processes can occur in bacteria.

1 artificial selection

2 genetic variation

3 mutation

4 natural selection

Which processes lead to the development of antibiotic resistance?

A 1, 2, 3 and 4

B 1, 2 and 3 only

C 2, 3 and 4 only

D 2 and 4 only

22 Which statement describes a drug?

A a substance that is produced in the body and alters the activity of target organs

B a substance that is produced in the body and increases the rate of chemical reactions in the body

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

D any substance that helps the body maintain a constant internal environment

23 What is a correct statement about antibiotics?

A Bacteria may become resistant to antibiotics as a result of artificial selection.

B Bacteria may become resistant to antibiotics as a result of natural selection.

C Viruses may become resistant to antibiotics as a result of artificial selection.

D Viruses may become resistant to antibiotics as a result of natural selection.

24 Which characteristic of viruses prevents them from being affected by antibiotics?

A They cannot reproduce on their own.

B They contain DNA or RNA.

C They have no cell structure.

D They are much smaller than bacteria.

25 The statements are about the use of antibiotics.

1 using an antibiotic to prevent infection

2 using an antibiotic known to kill the bacteria causing an infection

3 using an antibiotic only when essential

4 using an antibiotic to treat a viral infection

Which practices will increase the chance of the development of antibiotic resistance in bacteria?

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

26 When antibiotics are overused they become less effective.

Which statement is correct? **(extended only)**

A Artificial selection results in resistant strains of bacteria.

B Patients become resistant to the antibiotic.

C The antibiotic causes the bacteria to mutate.

D The antibiotic does not kill resistant bacteria.

27 Which statement is a reason why viruses are unharmed by antibiotics such as penicillin?

A They are very small in size.

B They do not have a cell wall.

C They have genetic material.

D They have a protein coat.