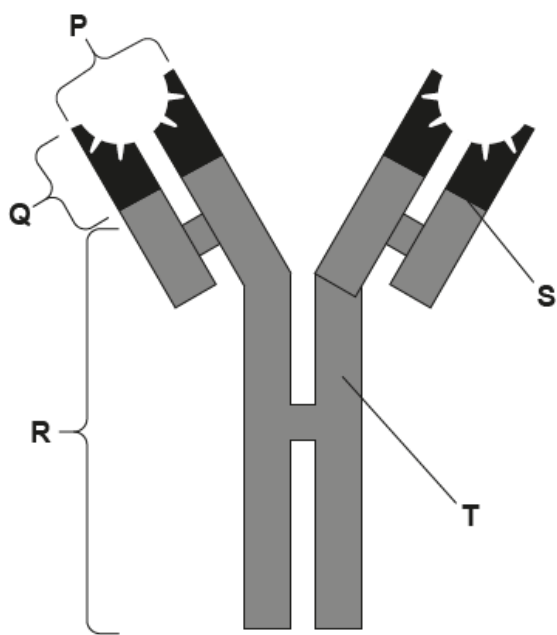


Communicable diseases, disease prevention and immune system – 2021/20 GCE AS Biology A**1. Nov/2021/Paper-H020/01/No.14**

The image below shows an antibody structure with the parts labelled P to T.



Which row, **A** to **D**, correctly identifies the parts of the antibody structure.

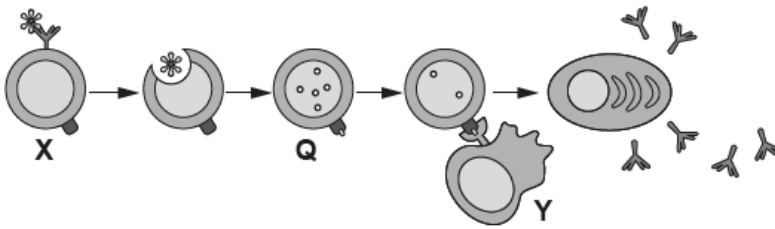
	P	Q	R	S	T
A	light chain	antigen binding site	heavy chain	variable region	constant region
B	antigen binding site	variable region	constant region	heavy chain	light chain
C	light chain	antigen binding site	heavy chain	light chain	constant region
D	antigen binding site	variable region	constant region	light chain	heavy chain

Your answer

[1]

2. Nov/2021/Paper-H020/01/No.17

Which row, **A** to **D**, identifies cells **X** and **Y** and process **Q** in the immune response in the diagram below?



	X	Y	Q
A	B cell	T helper cell	antigen presentation
B	phagocyte	T helper cell	clonal expansion
C	T cell	B memory cell	endocytosis
D	B cell	T killer cell	antigen presentation

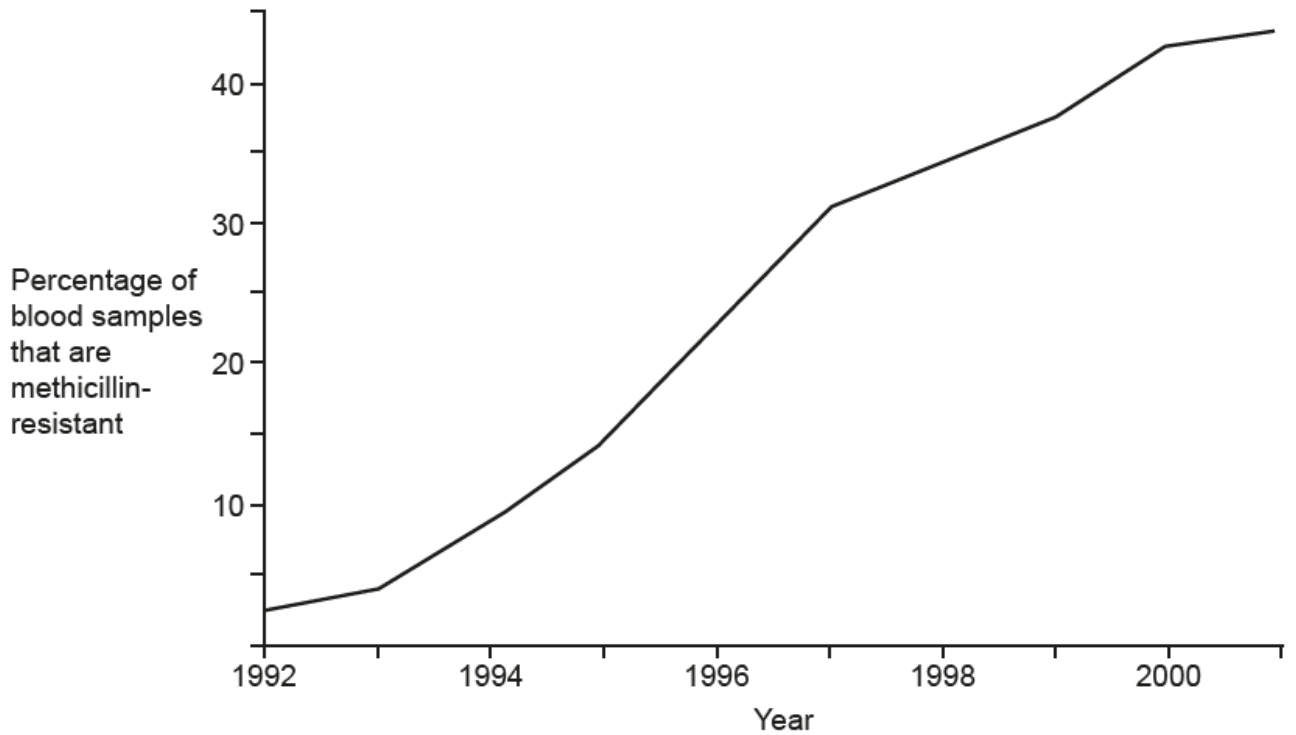
Your answer

[1]

3. Nov/2021/Paper-H020/01/No.24

In England and Wales, between 1992 and 2001, samples of blood were taken from patients infected with the bacterium *Staphylococcus aureus*.

The graph shows the percentage of these samples that were methicillin-resistant (MRSA).



- (a) (i) Suggest explanations for the positive correlation in the data in the graph.

.....

.....

.....

.....

.....

.....

.....

..... [3]

- (ii) *Staphylococcus aureus* is the binomial name for a species of bacterium.

State **one** advantage of referring to *Staphylococcus aureus* in this way.

.....

..... [1]

- (b) In 2019, scientists discovered a source of a new antibiotic in the roots of a wild bean plant, *Phaseolus vulgaris*, in Los Tuxtlas, Mexico.

The antibiotic, phazolicin, was extracted from the roots of the wild bean plant.

- (i) Suggest **one** feature of a bacterium the phazolicin might attack.

..... [1]

- (ii) Explain the importance of maintaining biodiversity for the discovery of new antibiotics like phazolicin.

.....

 [2]

- (c) Advances in medical technology include the development of personalised medicines and synthetic biology.

Explain what is meant by personalised medicine **and** synthetic biology.

Personalised medicine

 Synthetic biology

 [2]

4. Nov/2020/Paper-H020/01/No.8

Which of the following, **A** to **D**, is an example of disease transmitted by a vector?

- A** athlete's foot from a shower
- B** bubonic plague from rat fleas
- C** catching bird flu from inhaling water droplets
- D** salmonella from undercooked chicken

Your answer

[1]