

Developing new medicines & clinical trials

Q1.(2018)

(b) Patients with scarlet fever can be treated with antibiotics.

New antibiotics need to be tested before they can be used in patients.

Which is the correct sequence for the development of a new medicine?

(1)

- | | | | | | |
|----------------------------|-------------------------------|---|---------------------------------|---|---------------------------------|
| ☐ A | testing in healthy volunteers | → | testing using cultured cells | → | double blind trials on patients |
| ☐ B | testing using cultured cells | → | double blind trials on patients | → | testing in healthy volunteers |
| ☐ C | testing in healthy volunteers | → | double blind trials on patients | → | testing using cultured cells |
| ☐ D | testing using cultured cells | → | testing in healthy volunteers | → | double blind trials on patients |

Q2.a(2019)

(a) LDL cholesterol is a type of cholesterol which increases the risk of heart disease.

Statins are drugs used to reduce LDL cholesterol levels.

Figure 6 shows the cholesterol levels in the blood of a man.

He started taking statins at the beginning of February and stopped taking them four months later.

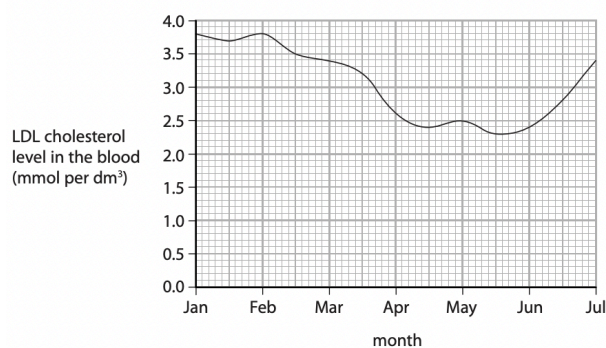


Figure 6

(i) Describe the effect of statins on LDL cholesterol levels in the blood.

Use data from the graph to support your answer.

(2)

Q2.b(2019)

Use evidence from the graph to explain why statins are usually prescribed as life-long medication.

(2)

Q2.c(2019)

(b) Which data can be used to calculate the man's BMI?

(1)

- ☐ A waist circumference and height
- ☐ B waist circumference and hip circumference
- ☐ C mass and height
- ☐ D mass and hip circumference

Q3.a(2022)

(b) Figure 6 shows the number of organ transplants needed and the number of donors available in the USA from 1991 to 2018.

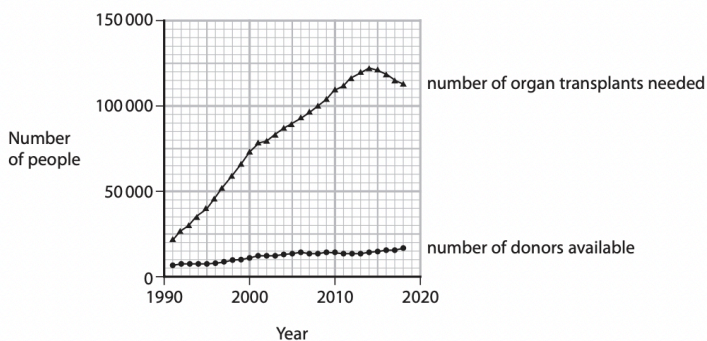


Figure 6

(i) Compare the number of donors available with the number of organ transplants needed from 1991 to 2018.

Use information from the graph to support your answer.

(3)

Q3.b(2022)

State why scientists are genetically engineering animals for organ transplants.

(1)

Q4.a(2024)

Statins are a type of medicine used to treat cardiovascular disease.

Some people taking statins have reported muscle pain as a side effect.

Scientists analysed data from double-blind trials to determine if there was a correlation between statin use and muscle pain.

In these double-blind trials, neither doctors nor patients knew whether the patient had been given statins or not.

(a) (i) Describe the benefits of using double-blind trials.

(2)

Q4.b(2024)

Which stage of the process for testing new medicines could involve a double-blind trial?

(1)

- ☐ A discovery
- ☐ B development
- ☐ C preclinical
- ☐ D clinical

Q4.c(2024)

In a study, people were given statins or a placebo.

The percentage of people who reported muscle pain was recorded.

Figure 6 shows the results of this study.

years after starting to take statins or placebo	people reporting muscle pain taking statins (%)	people reporting muscle pain taking placebo (%)
1	14.8	14.0
2	7.4	7.5
3	5.1	5.3
4	3.0	3.1

Figure 6

(i) In year one, 9 199 people taking statins reported muscle pain.

Calculate the total number of people taking statins in this study.

Give your answer to 4 significant figures.

(3)

..... people

Q4.d(2024)

The scientists concluded that most of the muscle pain reported was not due to the use of statins.

Explain, using information from the table in Figure 6, why the scientists made this conclusion.

(3)

Q4.e(2024)

The results of the study are reliable because the data was obtained from a large sample of people.

Describe **two** factors that should have been considered when selecting people for the study.

(2)
