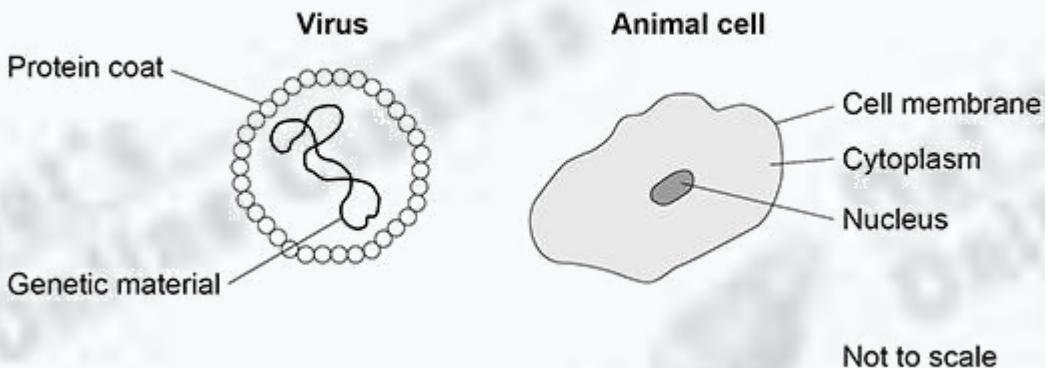




**Figure 1** shows a virus and an animal cell.

**Figure 1**



(c) Suggest **one** reason why viruses are **not** classed as cells.

(1)

A vaccine can protect humans from a viral disease.

(d) What does the vaccine contain?

Tick (✓) **one** box.

A toxic form of a virus

A weakened form of a virus

An active form of a virus

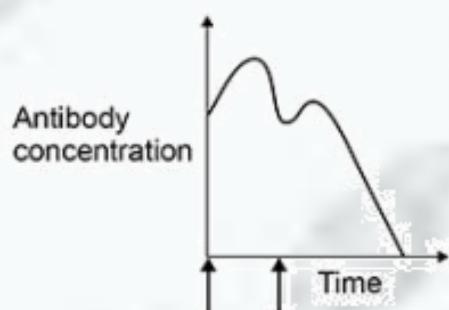
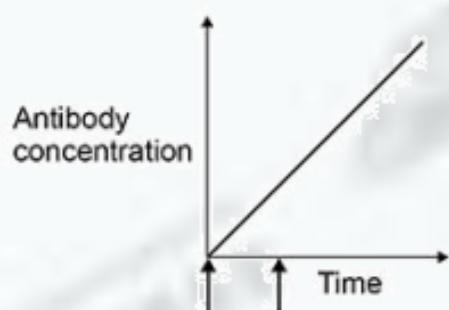
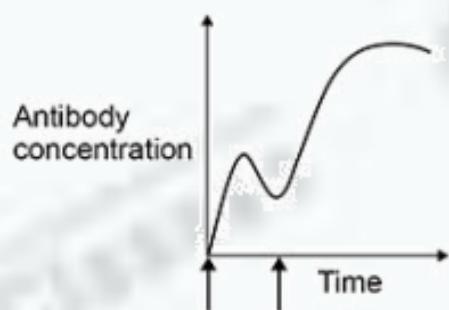
(1)

In some cases, a first vaccination needs to be followed by a second vaccination sometime later.

(e) Which graph shows how the concentration of antibodies in a person's blood changes after the first and second vaccinations?

Tick (✓) **one** box.

Key  
↑ Vaccination given



(1)

Tobacco mosaic virus (TMV) causes disease in plants.

TMV affects the rate of photosynthesis in plants.

(f) Which part of a plant shows discolouration caused by TMV?

Tick (✓) one box.

Flower

Leaf

Root

(1)

The table below shows the rate of photosynthesis in four different tobacco plants.

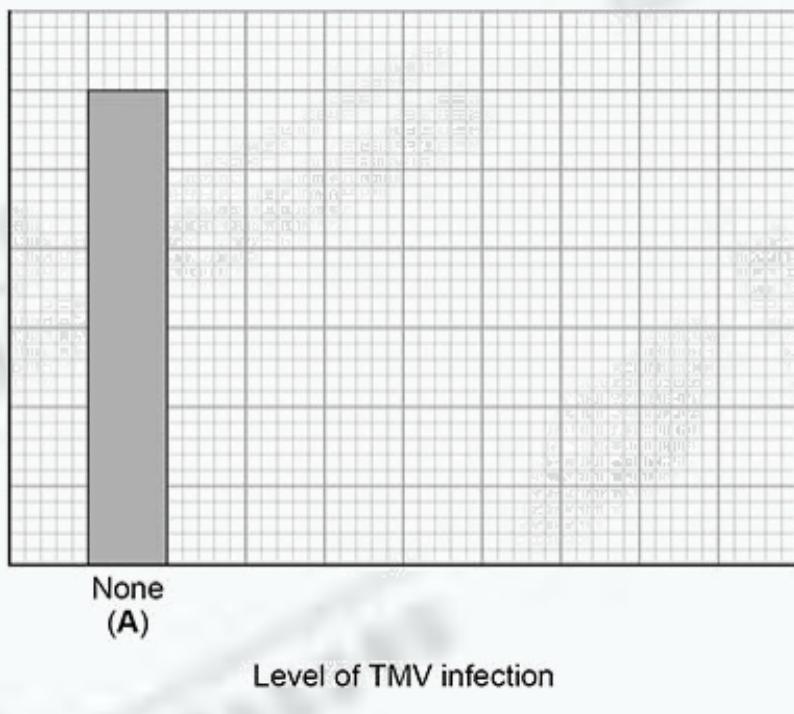
Tobacco plant	Level of TMV infection in plant	Rate of photosynthesis in arbitrary units
A	None	15
B	Mild	13
C	Medium	7
D	High	3

(g) Complete Figure 2.

You should:

- label the y-axis
- add the correct scale to the y-axis
- plot the data from the table above
- label each bar.

**Figure 2**



(5)

(h) What conclusion can be made from the data in the table above?

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(1)

(i) Explain why a high level of TMV infection reduces growth in a plant.

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(2)