Questions are for separate science science students only

Q1.

A root is a plant organ.

Plant roots contain many different types of tissue.

(a) What is a tissue?

_____

_____

(1)

(b) Tissue in the tip of a plant root contains stem cells.

Stem cells can differentiate into any type of cell.

Name the type of tissue in plants that contains stem cells.

_____

(1)

In the past many drugs were extracted from plants.

(c) Aspirin is a painkiller.

Which plant does aspirin originate from?

_____

(1)

Scientists have extracted chemical **A** from the deadly nightshade plant.

Chemical **A** can be used as a painkiller.

The table below shows information about where chemical **A** is found.

Part of deadly nightshade plant	**Mass of chemical A in 100 g of plant tissue in grams**
Roots	1.3
Leaves	1.2
Berries	0.7

(d) The scientists usually extract chemical **A** from the berries of the deadly nightshade plant.

Suggest **one** reason why berries are used instead of leaves or roots. **(biology only)**

_____

_____

(1)

A deadly nightshade plant has chlorosis (yellow leaves).

The mass of chemical **A** found in the **leaves** of the plant is 60% of the mass shown in the table above.

(e) Calculate the mass of chemical **A** in 200 g of the **leaves** with chlorosis.

Give your answer in mg. **(biology only)**

_____

_____

_____

_____

_____

_____

_____

Mass of chemical **A** = _____ mg

(4)

(f) Suggest **one** reason why the leaves of the deadly nightshade plant have chlorosis. **(biology only)**

_____

_____

(1)

Chemical **A** has **not** been tested in large-scale clinical trials in the UK.

(g) It is important for drugs to be tested in clinical trials before the drugs are approved for use by the public.

Give **two** reasons why.

1 _____

_____

2 _____

_____

(2)

There are many online reports making claims about the effects of chemical **A**.

Some of these reports are biased.

(h) Suggest **one** reason why a report making claims about the effects of chemical **A** may be biased.

_____

_____

(1)

(i) How can scientists be sure that claims about new drugs are valid?

Tick (✓) **one** box.

Advertise the claims on social media.	☐
Ask an international company to produce the drug.	☐
Have the claims peer reviewed.	☐
Publish the claims in a newspaper.	☐

(1)

(Total 13 marks)