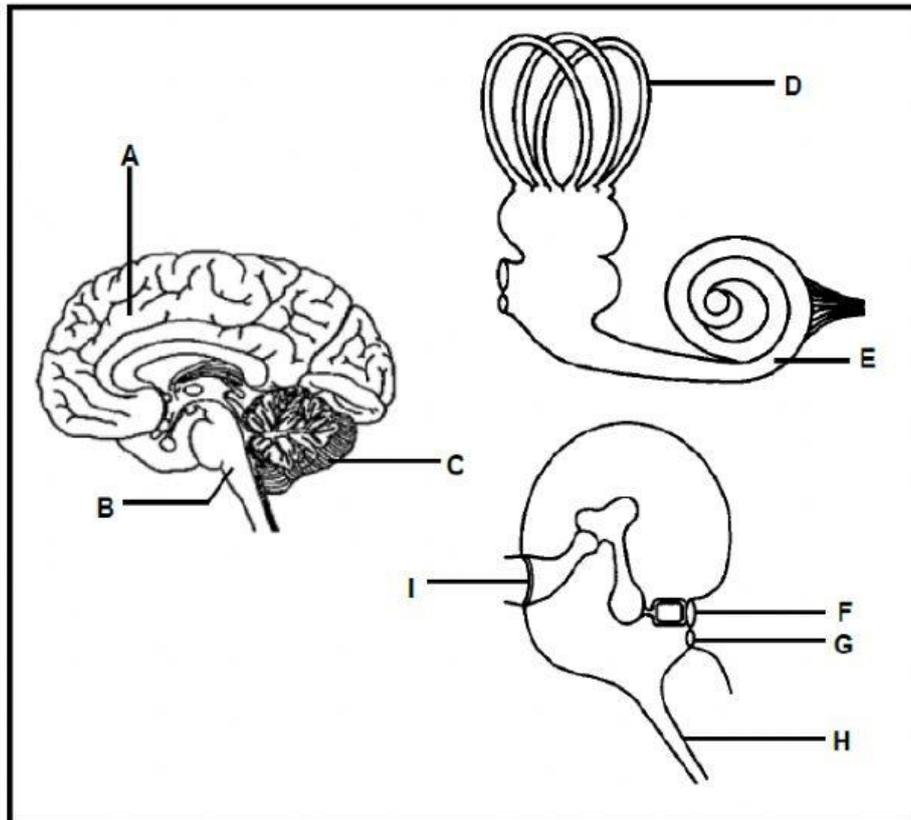


SECTION B

QUESTION 2

2.1 The diagrams below show different parts of the brain and the ear.



2.1.1 Identify part:

- (a) **A** (1)
- (b) **B** (1)
- (c) **H** (1)

2.1.2 Give the **LETTER** and **NAME** of the part of the ear that absorbs excess pressure waves from the inner ear. (2)

2.1.3 Name the receptors found at part **E**. (1)

2.1.4 Explain why damage to part **B** can lead to instant death. (2)

2.1.5 Describe how part **C** responds to impulses received from part **D**. (3)

2.1.6 In older people, part **F** of the ear may harden.
Explain how this condition may lead to hearing loss. (4)
(15)

2.2 Describe the accommodation of the eye for distant vision. (5)

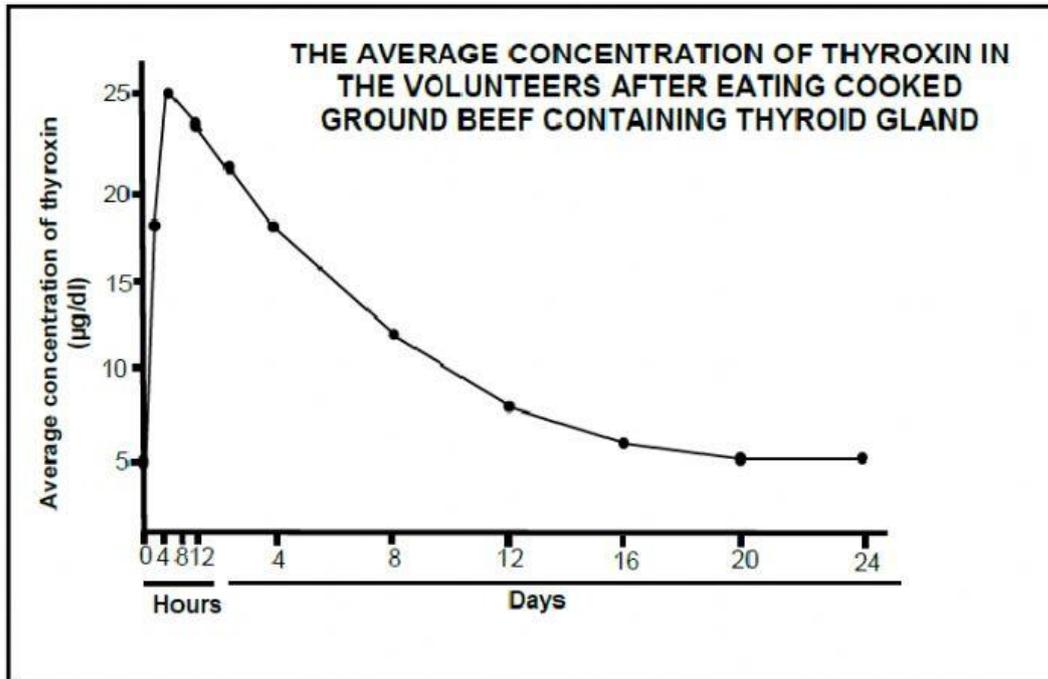
2.3 Read the extract below.

AN OUTBREAK OF THYROTOXICOSIS

Thyrotoxicosis is a medical condition caused by high levels of thyroxin in the blood. There was a sudden increase in the number of reported cases of this condition in one city. They suspected that this was due to people eating ground beef (minced meat) from a local butcher. The butcher added the thyroid glands of cattle when he produced the ground beef. Some people who ate this ground beef showed symptoms of increased heart rate, excessive sweating and weight loss.

Doctors conducted an investigation to determine if the ground beef caused the thyrotoxicosis. The normal thyroxin levels of 5 volunteers were measured. They were then given cooked ground beef from the butchery to eat. Their thyroxin concentration was measured every **4 hours on day 1** and then **once a day for the next 23 days**. The average thyroxin levels was calculated and recorded.

The results are shown in the graph below.



2.3.1 Give the average normal thyroxin concentration ($\mu\text{g/dl}$) in the blood of the volunteers. (1)

2.3.2 Calculate the percentage increase of the average thyroxin concentration in the first 8 hours after eating the ground beef. Show ALL working. (3)

2.3.3 Explain why thyrotoxicosis causes weight loss. (3)

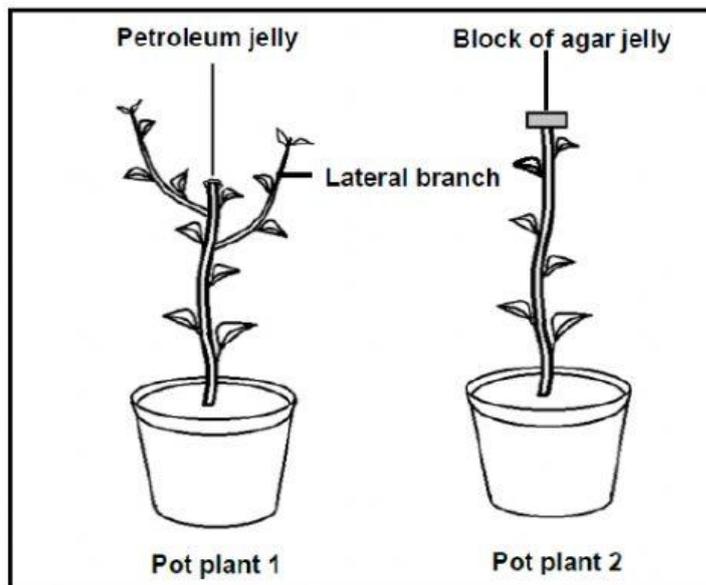
2.3.4 Explain the expected concentration of TSH in the blood 8 hours after eating the ground beef. (4)
(11)

2.4 An investigation was done to determine the effect of a plant hormone on plant growth:

The procedure was as follows:

- Two pot plants (1 and 2) of the same species and age were used.
- The apical buds of both plants were cut at the same length along the stem.
- The cut surface of plant 1 was sealed with petroleum jelly.
- The cut apical bud of pot plant 2 was placed on a block of agar jelly for 2 hours.
- The block of agar jelly was then placed on the cut surface of plant 2.
- The plants were exposed to the same environmental conditions for 2 weeks.
- The growth of both plants was observed at the end of this period.

The diagrams below show the results obtained.



2.4.1 State why the apical bud was placed on a block of agar jelly for 2 hours. (2)

2.4.2 Describe the results obtained for plant 1. (2)

2.4.3 Explain how fruit farmers can use the knowledge from the results in QUESTION 2.4.2 to their benefit. (2)

2.4.4 Explain why the stem in pot plant 2 grew upwards.

(3)
(9)
[40]