AQA - Hormonal coordination in humans – GCSE Combined Science Biology

1. May/2020/Paper_2H/No.4

0 4 . 1 In sexual reproduction, cells divide by meiosis to form gametes.

Which **two** statements are true for cell division by meiosis?

[2 marks]

Tick (✓) **two** boxes.

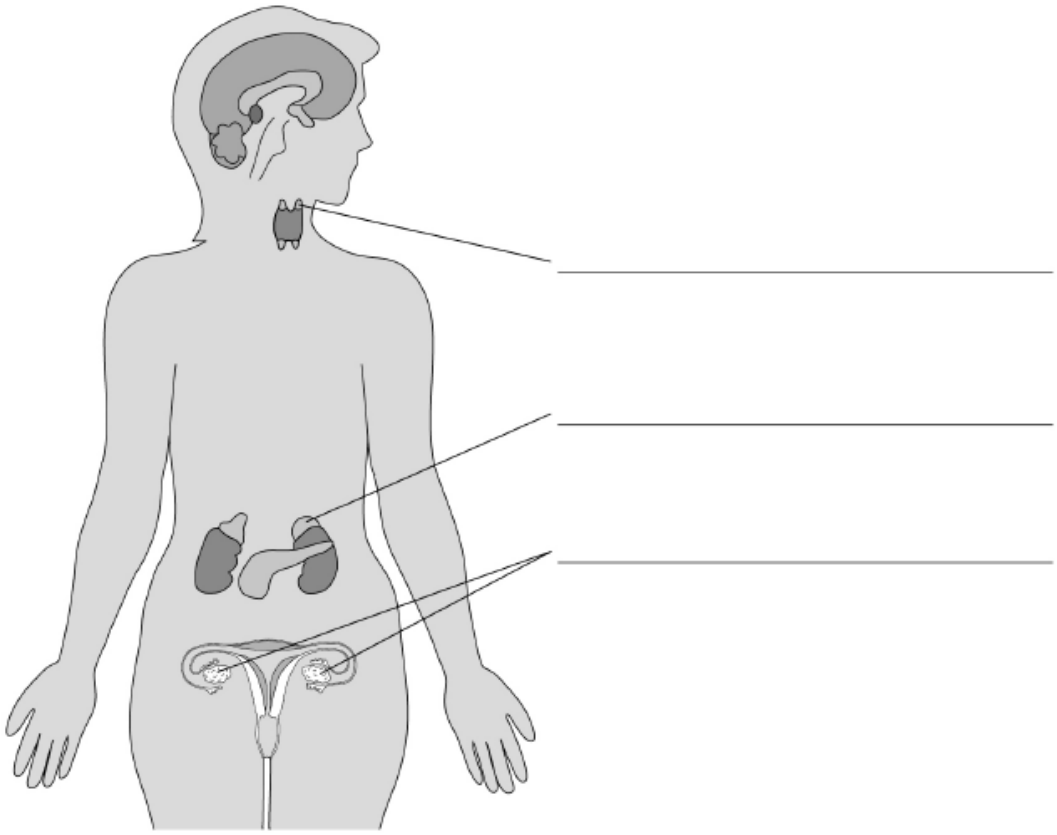
- Daughter cells have two sets of chromosomes. ☐
- Four daughter cells are formed. ☐
- The daughter cells are genetically identical. ☐
- The DNA replicates twice. ☐
- The parent cell divides twice. ☐

Hormones are released from endocrine glands.

Each hormone travels in the bloodstream to a target organ.

Figure 3 shows the position of endocrine glands in a female.

Figure 3



0 4 . 2 Label the endocrine glands on **Figure 3**.

[3 marks]

0 4 . 3 Complete **Table 2**.

[3 marks]

Table 2

Hormone	**Name of gland which releases hormone**	**Target organ of hormone**
Luteinising hormone (LH)	Pituitary gland	
	Adrenal gland	
Glucagon		

Millions of geranium plants are sold each year in garden centres.

Geraniums can be reproduced asexually or sexually.

Figure 4 shows a potted geranium plant.

Figure 4

Garden centres usually grow new geranium plants by asexual reproduction.

0 4 . 4 Suggest **two** advantages for garden centres of growing geraniums by asexual reproduction compared with sexual reproduction.

[2 marks]

1 _____

_____

2 _____

_____

0 4 . 5 Suggest **two** disadvantages for garden centres of growing geraniums by asexual reproduction compared with sexual reproduction.

[2 marks]

1 _____

_____

2 _____

_____

2. June/2019/Paper_2F/No.6

0 6 Some students investigated the effect of drinking caffeine on reaction time.

They used a drink containing 32.25 mg of caffeine per 100 cm^3

This is the method used.

1. Divide the students into four groups, **A**, **B**, **C** and **D**.
2. Measure and record the reaction time of each student using the ruler-drop test.
3. Students in:
   - group **A** drink 200 cm^3 of water
   - group **B** drink 200 cm^3 of the caffeine drink
   - group **C** drink 400 cm^3 of the caffeine drink
   - group **D** drink 600 cm^3 of the caffeine drink.
4. Repeat step 2 after 15 minutes.

0 6 . 1 Describe how to do the ruler-drop test.

[3 marks]

0 6 . 2 **Table 3** shows the mass of caffeine taken in by each student.

Table 3

Group	Mass of caffeine in mg
A	0
B	64.5
C	129.0
D	**X**

Calculate value **X**.

[1 mark]

X = _____ mg

0 6 . 3 Why did group **A** drink water instead of the caffeine drink?

[1 mark]

Table 4 was used to convert the results of the ruler-drop test into reaction times.

Table 4

Distance in cm	Reaction time in s
2	0.064
4	0.090
6	0.111
8	0.128
10	0.143
12	0.156
14	0.169
16	0.181
18	0.192
20	0.202
22	0.212
24	0.221
26	0.230

Distance in cm	Reaction time in s
28	0.239
30	0.247
32	0.256
34	0.263
36	0.271
38	0.278
40	0.286
42	0.293
44	0.300
46	0.306
48	0.313
50	0.319
52	0.326

0 6 . 4 Estimate the reaction time for a student who recorded a distance of 23 cm

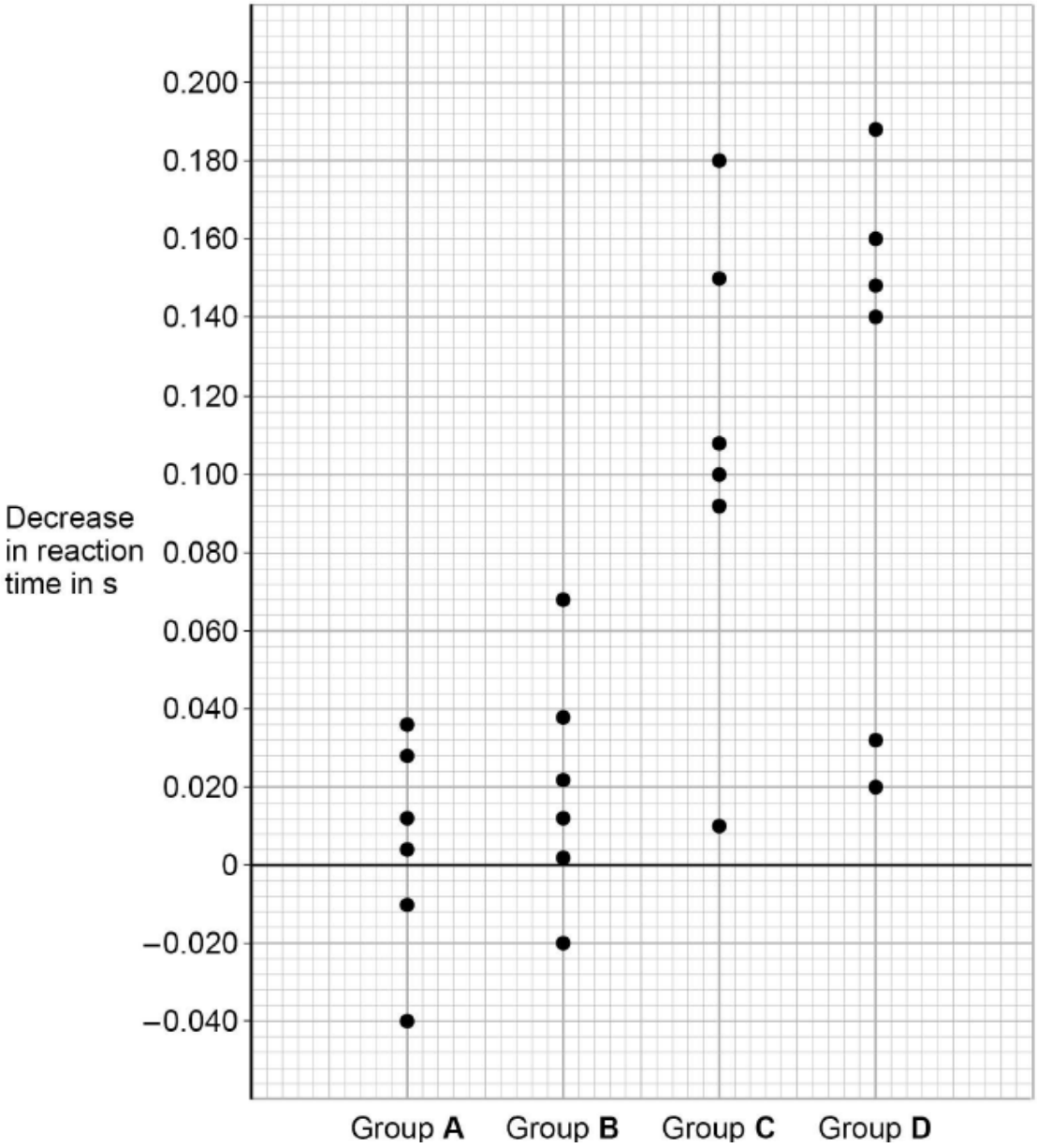
[1 mark]

Reaction time = _____ s

Students calculated the decrease in their reaction time after the drink compared with before the drink.

Figure 6 shows the results for each student.

Figure 6



0 6 . 5 Describe the effect of the mass of caffeine taken in on the decrease in reaction time.

[1 mark]

0 6 . 6 For three students the decrease in reaction time was negative.

Give the reason why the value was negative.

[1 mark]

0 6 . 7 What is the range of results for group **C**?

[1 mark]

0 6 . 8 Suggest **two** variables that should have been controlled in this investigation.

[2 marks]

1

2

0 6 . 9 Explain why the ruler-drop test does **not** involve a reflex action.

[2 marks]