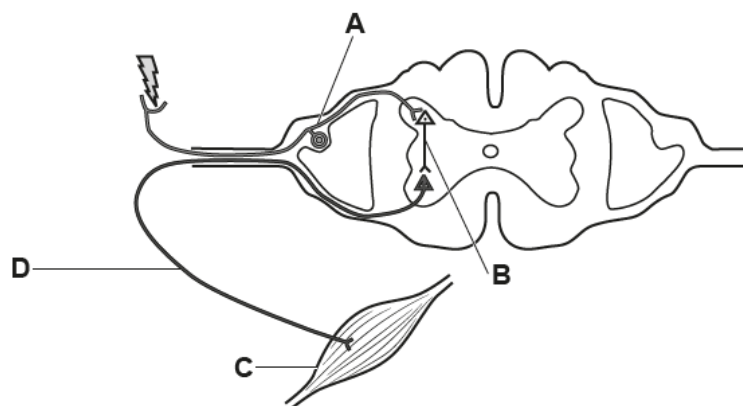


**Organism level system – 2022 GCSE Gateway Biology Combined Science A****1. May/2022/Paper\_J250/07/No.5**

The diagram shows the structure of the reflex arc.



Which label, A, B, C or D, shows the motor neurone?

Your answer

[1]

**2. May/2022/Paper\_J250/07/No.7**

Which row shows the effects of adrenaline in the body?

	Breathing rate	ATP production	Blood flow to digestive system
<b>A</b>	increase	increase	increase
<b>B</b>	decrease	decrease	decrease
<b>C</b>	decrease	decrease	increase
<b>D</b>	increase	increase	decrease

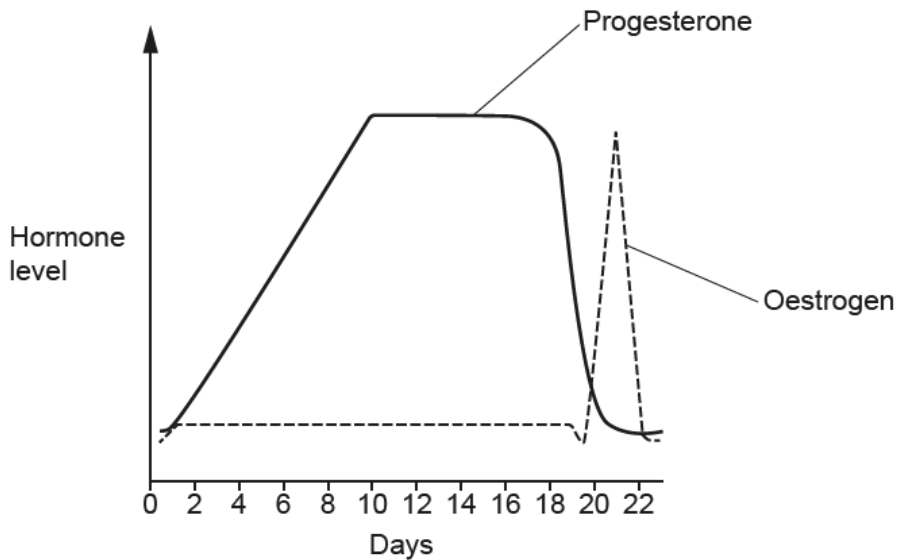
Your answer

[1]

**3. May/2022/Paper\_J250/07/No.8**

The hormones controlling the menstrual cycle in cows are the same as in humans.  
The length of the menstrual cycle is different.

The diagram shows the menstrual cycle of a cow.



Predictions for when the cow is most fertile are made based on knowledge of the human menstrual cycle.

Which range of days is when the cow is most fertile?

- A** Days 1–3
- B** Days 3–6
- C** Days 9–16
- D** Days 19–22

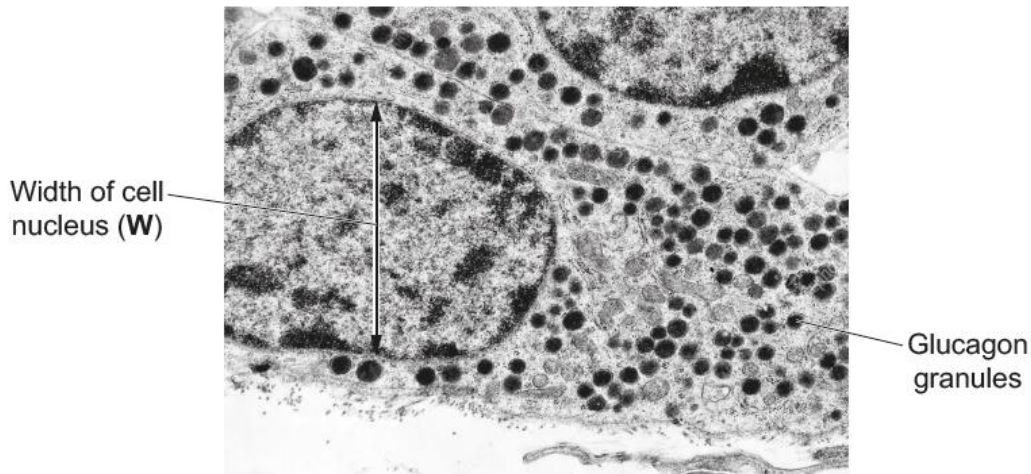
Your answer

[1]

4. May/2022/Paper\_J250/07/No.15

(a) Fig. 15.1 shows parts of two cells found in the pancreas.

Fig. 15.1



(i) The image has been magnified 5800 $\times$ .

Measure the length of **W** in **mm**. Use your answer to calculate the actual width of the nucleus.

Give your answer in  $\mu\text{m}$  to 2 significant figures.

Length of **W** = ..... mm

Actual width of nucleus = .....  $\mu\text{m}$   
[3]

(ii) Glucagon granules inside the cells shown in Fig. 15.1 store glucagon.

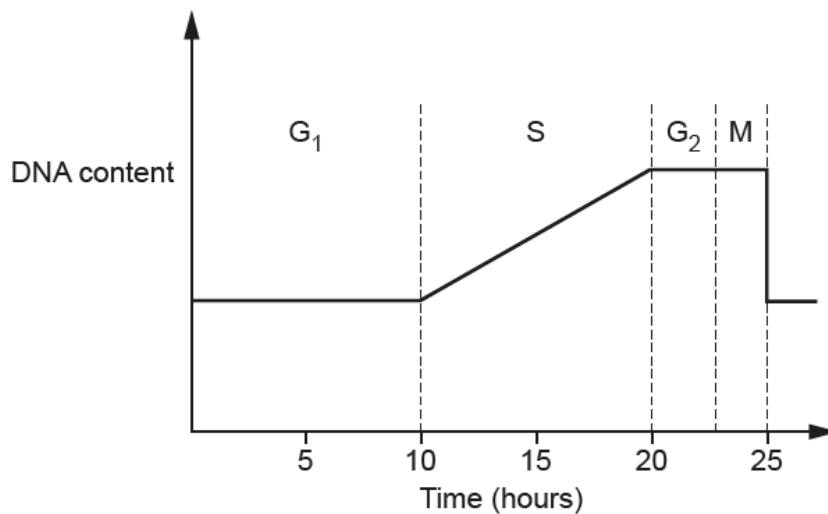
If the body has been exercising for some time, glucagon granules release their contents.

Explain why.

.....  
 .....  
 .....  
 .....  
 .....  
 .....  
 ..... [3]

(b) Fig. 15.2 shows the DNA content of the nucleus during different stages of the cell cycle.

Fig. 15.2



(i) How many hours does it take the cell to replicate the DNA?

..... hours [1]

(ii) Suggest what is happening to the cell during the first 10 hours of the cell cycle.

.....  
..... [1]