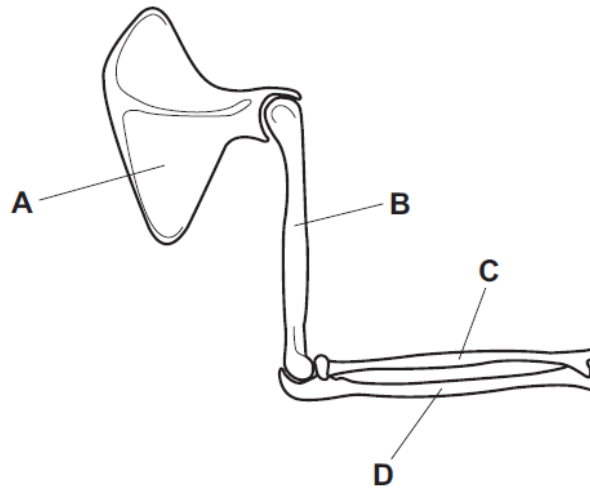


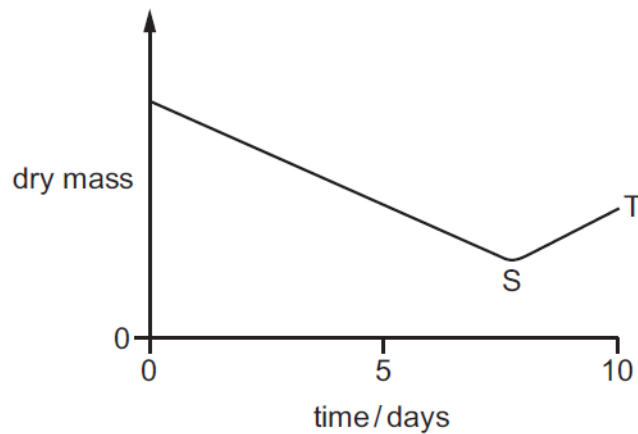
Development of organisms and continuity of life – 2021 O Level 5090**1. Nov/2021/Paper_11/No.24**

The diagram shows the bones of the arm.

Which label represents the radius?

**2. Nov/2021/Paper_11/No.34**

The graph shows changes in the dry mass of a seed as it germinates and grows.



What causes the change shown between points S and T?

- A osmosis
- B photosynthesis
- C respiration
- D transpiration

3. Nov/2021/Paper_11/No.37

Some statements about chromosomes are listed.

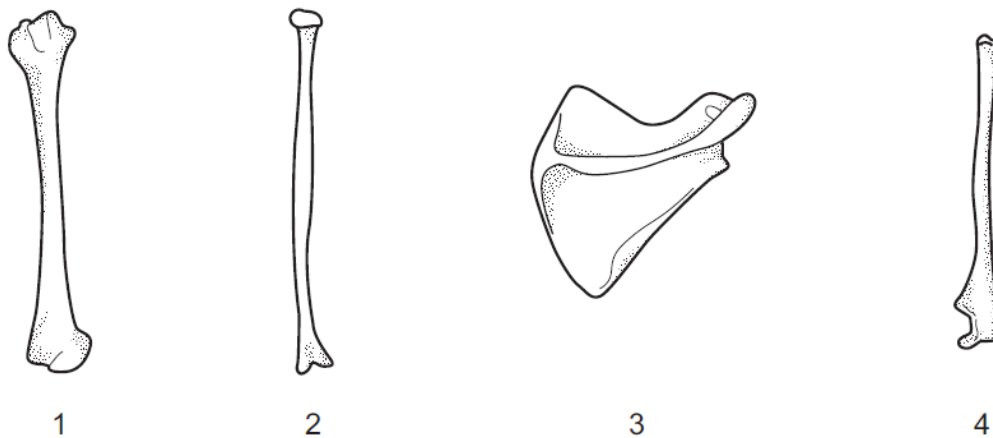
- 1 A chromosome includes a long molecule of DNA.
- 2 Genes are found in chromosomes.
- 3 In cell division, the chromosome number is kept the same by meiosis.
- 4 The normal human chromosome number is 46.

Which statements are correct?

- A** 1, 2, 3 and 4
B 1, 2 and 4 only
C 2 and 3 only
D 3 and 4 only

4. Nov/2021/Paper_12/No.24

The diagram shows the bones of the forelimb.

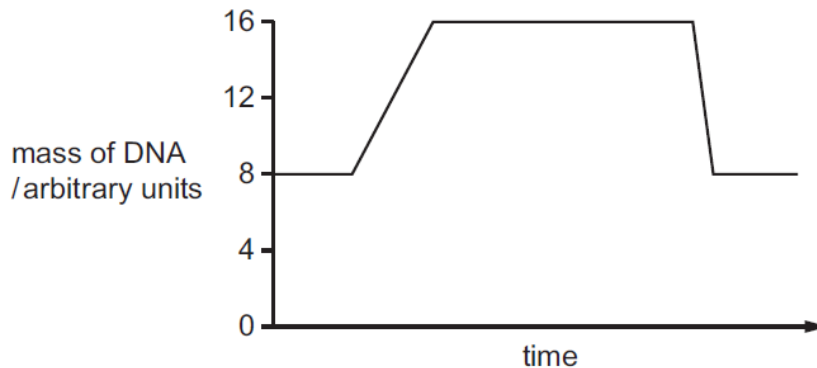


Which bones form the hinge joint of the forelimb?

- A** 1, 2 and 3 **B** 1, 2 and 4 **C** 1, 3 and 4 **D** 2, 3 and 4

5. Nov/2021/Paper_12/No.33

The diagram shows the mass of DNA in cells which are dividing.

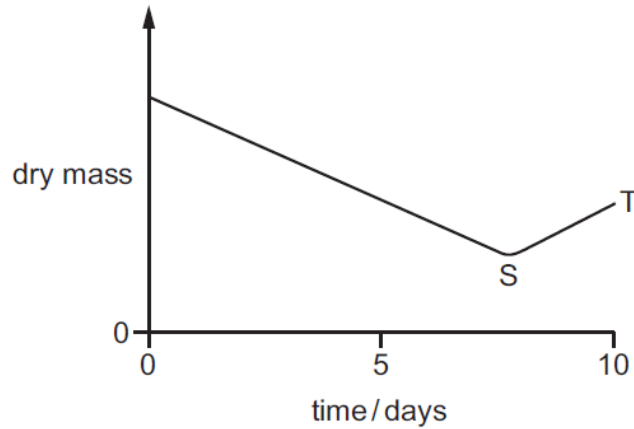


Which row describes this type of cell division?

| | type of cell division | type of reproduction using this cell division | this type of cell division gives rise to |
|----------|-----------------------|---|--|
| A | meiosis | asexual | genetically identical offspring |
| B | meiosis | sexual | genetically non-identical offspring |
| C | mitosis | asexual | genetically identical offspring |
| D | mitosis | sexual | genetically non-identical offspring |

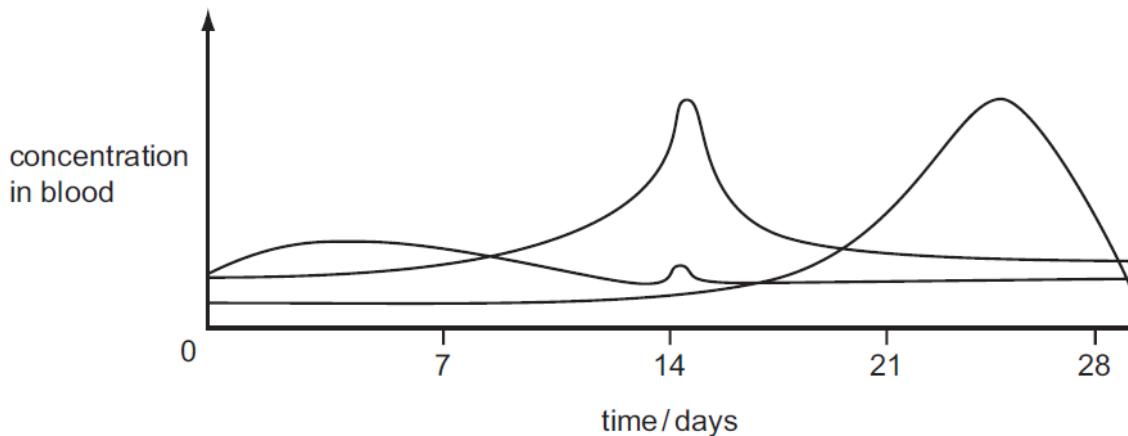
6. Nov/2021/Paper_12/No.34

The graph shows changes in the dry mass of a seed as it germinates and grows.



What causes the change shown between points S and T?

- A osmosis
 - B photosynthesis
 - C respiration
 - D transpiration
7. Nov/2021/Paper_12/No.35
- The graph shows the concentration in the blood of three of the four hormones FSH, LH, oestrogen and progesterone during a menstrual cycle.



Which hormone is **not** shown?

- A FSH
- B LH
- C oestrogen
- D progesterone

8. Nov/2021/Paper_21/No.7

(a) Explain the role of the nucleus and cell division in the inheritance of characteristics from parents to offspring.

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..... [6]

(b) If people are exposed to ionising radiation, this may affect the inheritance of characteristics by their children.

Suggest how this exposure to radiation may affect inheritance of characteristics.

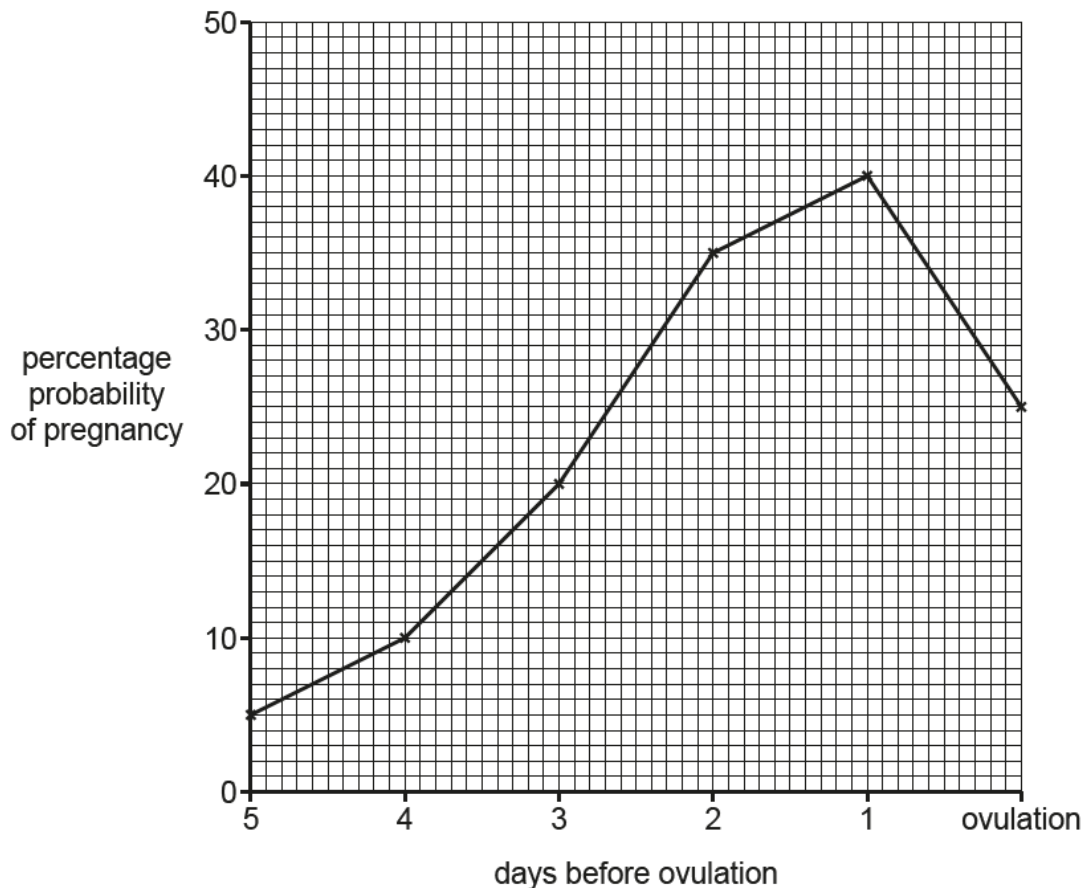
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..... [4]

[Total: 10]

10. Nov/2021/Paper_22/No.4

A study investigated the probability of pregnancy resulting from sexual intercourse on specific days of the menstrual cycle.

The graph shows the results of this study.

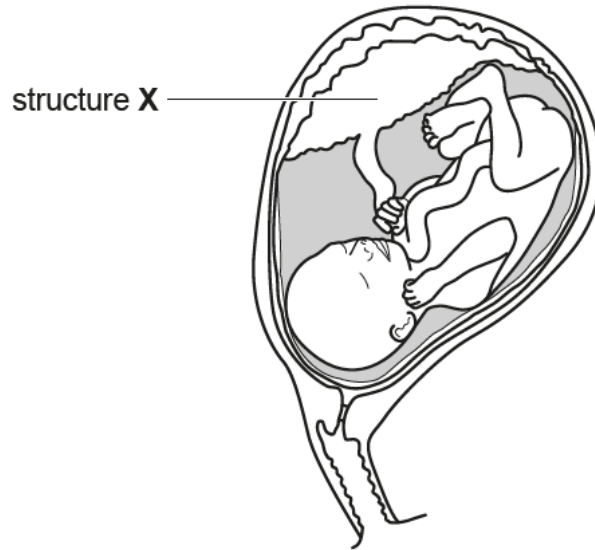


- (a) (i) The study shows a probability of 20% that sexual intercourse three days before ovulation will result in pregnancy.

State how many times more likely pregnancy is if sexual intercourse takes place two days later.

..... [1]

(b) The diagram shows a fetus developing in the uterus of a pregnant female human.



Name structure **X** and describe the functions of this structure.

name

functions

.....

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.....

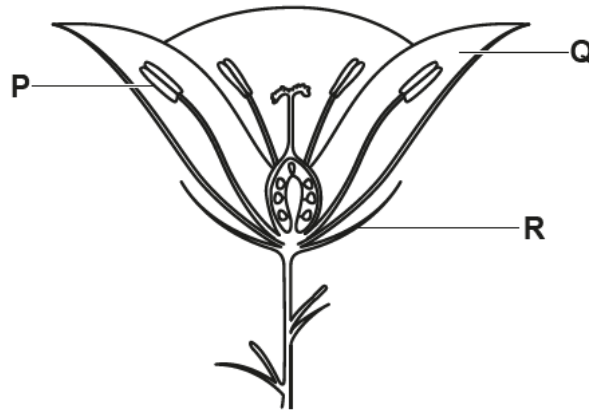
.....

[3]

[Total: 9]

11. Nov/2021/Paper_22/No.6

The diagram shows a cross-section of an insect-pollinated flower.



(a) Complete the table to show the name of structures **P**, **Q** and **R** and **one** function of each structure.

| structure | name | function |
|-----------|------|----------|
| P | | |
| Q | | |
| R | | |

[6]

(b) (i) Describe the surface of a pollen grain from an insect-pollinated flower.

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Explain how this feature is an advantage in insect-pollination.

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[2]

(ii) Explain how a pollen grain from a wind-pollinated flower is adapted for pollination.

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[2]

[Total: 10]

12. Nov/2021/Paper_22/No.9

(a) Outline the importance of a seed being provided with a good supply of oxygen.

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..... [3]

(b) Outline the importance of a plant being provided with a good supply of water.

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..... [7]

[Total: 10]

(b) The diagram shows a food label from a pot of yoghurt.

| contents | nutritional values in 100 g of yoghurt |
|---------------------|---|
| energy | 344 kJ |
| fat | 4.5 g |
| total carbohydrates | 5.5 g |
| sugar | 5.5 g |
| fibre | 0.0 g |
| protein | 4.2 g |
| salt | 0.1 g |
| calcium | 0.125 g |
| water | 81% |

Yoghurt can contribute to a balanced diet but adult humans cannot survive by eating only yoghurt.

Explain this statement using the information on the label.

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..... [5]

[Total: 10]

15. Jun/2021/Paper_21/No.5

A farmer is using a tool, called a mattock, to weed her crop.



(a) Explain how the muscles and bones in her right arm help her to lift the tool.

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..... [4]

(b) The farmer has not used any insecticides or artificial fertilisers on the crop. Explain ways in which this may help the local environment.

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..... [4]

[Total: 8]