

Past-paper walk-through

Mitosis ■ 17.2

eXercise

Questions in this set

- 0610/22 N25 Q33 ■ 1 mark
- 0610/21 J25 Q29 ■ 1 mark
- 0610/23 J25 Q31 ■ 1 mark
- 0610/22 M25 Q31 ■ 1 mark

Question 33

0610/22 N25 ■ Q33 ■ 1 mark

33 What are stem cells?

- A** specialised cells that divide by meiosis to produce daughter cells
- B** specialised cells that divide by mitosis to produce daughter cells
- C** unspecialised cells that divide by meiosis to produce daughter cells
- D** unspecialised cells that divide by mitosis to produce daughter cells

Solution 33

Answer: **D**

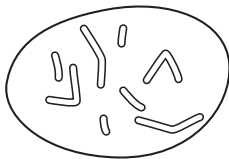
Why

- Stem cells are *unspecialised*, which is what lets them become other cell types.
- They divide by mitosis, so the daughter cells are genetically identical.
- Meiosis makes gametes and has nothing to do with stem cells.

Question 29

0610/21 J25 ■ Q29 ■ 1 mark

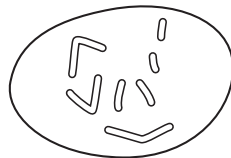
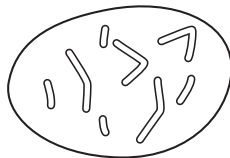
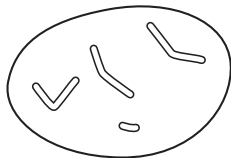
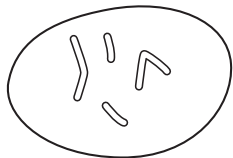
29 The diagram shows the chromosomes in the nucleus of a cell that divides by mitosis.



Which diagram shows the chromosomes in the nucleus of one of the daughter cells produced?

A**B****C****D**

Question 29



Solution 29

Answer: **C**

Why

- Mitosis produces two daughter cells genetically identical to the parent cell.
- So each daughter nucleus has the *same number* of chromosomes as the original.
- Look for the diagram with an identical set – halving the number would be meiosis.

Question 31

0610/23 J25 ■ Q31 ■ 1 mark

31 The diagram shows the cells of a mammalian embryo shortly after fertilisation.



What is the correct description of these cells?

- A** embryo cells undergoing meiosis
- B** gametes undergoing mitosis
- C** stem cells undergoing mitosis

Question 31

D zygote undergoing meiosis

Solution 31

Answer: **C**

Why

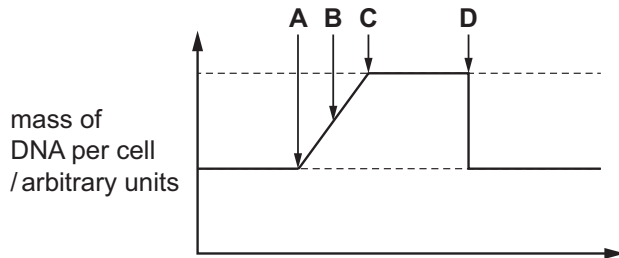
- After fertilisation the embryo grows by *mitosis*, producing identical cells.
- Meiosis only makes gametes, and that happened before fertilisation.
- So these are embryo cells dividing by mitosis.

Question 31

0610/22 M25 ■ Q31 ■ 1 mark

31 The graph shows how the mass of DNA changes during a mitotic cell division.

Where on the graph are **two** cells formed?



Question 31

time / hours

Solution 31

Answer: **D**

Why

- The DNA mass per cell doubles during interphase, before the division.
- It then halves when the two daughter cells separate.
- So the two cells are formed at the point where the DNA content per cell drops back down.