2010

21 The following statements are about nuclear division by meiosis and mitosis.

1 In animals meiosis only occurs in the reproductive organs.

2 Mitosis can result in the formation of clones.

3 Meiosis results in two nuclei.

4 Mitosis results in four nuclei.

5 Meiosis does not occur during asexual reproduction.

Which of these statements are true?

A 1, 2 and 3

B 1, 2 and 5

C 1, 3 and 4

D 2, 4 and 5

E 3, 4 and 5

2011

5 The following statements relate to typical nuclear division in human cells:

1 mitosis results in variation within the species

2 meiosis results in the production of genetically identical cells

3 mitosis results in the production of diploid cells

4 meiosis results in the production of haploid cells

5 mitosis results in the production of two daughter cells

Which statements are correct?

A 1, 2 and 3 only

B 1, 2 and 4 only

C 1, 4 and 5 only

D 2, 3 and 5 only

E 2, 4 and 5 only

F 3, 4 and 5 only

2013

17 Since Dolly the sheep, many other mammals have also been cloned by somatic cell nuclear transfer. The genetic material from a body cell is inserted into an egg cell that has had its own nucleus removed. The success rate ranges from 0.1% to 3%, which is why so few cloned animals have been produced.

Which of the following are possible correct reasons why cloning may fail?

1. An egg with a newly transferred nucleus may not begin to divide or develop properly.
2. The sperm cell may not fertilise the egg cell.
3. Implantation of the embryo into the surrogate mother might fail.
4. Implanted stem cells may not differentiate properly.
5. The enucleated egg and the transferred nucleus may not be compatible.

A 1, 3 and 5 only

B 1, 4 and 5 only

C 2, 3 and 4 only

D 2, 4 and 5 only

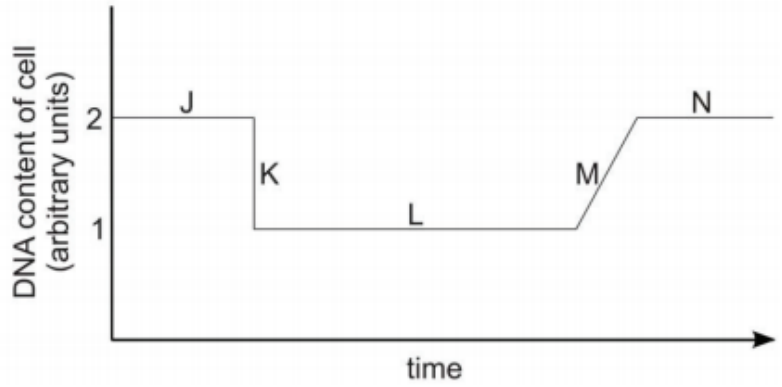
E 3, 4 and 5 only

F 1, 3 and 4 only

2014

5 Before a cell can divide by mitosis, DNA synthesis has to take place. Following DNA synthesis, the DNA is separated into each half of the cell and then the cell divides.

The graph below shows the DNA content per cell over a period of time.



Which of the letters on the graph represent the sequence of the three events described above?

	Cell divides	*DNA synthesis*	*DNA separates*
A	J	K	L
B	J	L	M
C	K	L	M
D	K	M	N
E	L	M	N
F	L	M	J
G	M	N	J
H	M	N	K

2016

21 Which statements describe a role of mitosis?

1 asexual reproduction

2 growth of a cell

3 repair of cells

4 stem cell division

A 1 and 4 only

B 1, 2 and 3 only

C 1, 2 and 4 only

D 1, 3 and 4 only

E 2, 3 and 4 only

F 1, 2, 3 and 4

2018

9 A sample of healthy human cells contains 4 cells. After they were allowed to divide 5 times using the same type of cell division, there were 128 cells in the sample.

Assuming that no mutations occur, which two of the following statements are correct?

1 All the cells would have the same number of chromosomes.

2 The cells were gametes.

3 The cells would be clones of the original cells.

4 This type of cell division is called meiosis.

A 1 and 2 only

B 1 and 3 only

C 1 and 4 only

D 2 and 3 only

E 2 and 4 only

F 3 and 4 only