Meiosis Past Papers

1. Steps 1 to 6 describe some events that occur during meiosis. Some terms are represented by the letters J, K, L and M.

   1. Chromosomes replicate to form two identical chromatids.
   2. Homologous chromosomes pair up and points of contact form between **J** chromatids of a homologous pair.
   3. **K** takes place to form new combinations of alleles of linked genes.
   4. Chromosomes of each homologous pair attach to spindle fibres and separate to opposite poles.
   5. **L** occurs and two daughter cells form.
   6. Two daughter cells undergo further division separating **M** chromatids of each chromosome.

   Which row in the table identifies J, K, L and M?

	J	K	L	M
A	non-sister	cytokinesis	crossing over	sister
B	sister	crossing over	cytokinesis	non-sister
C	non-sister	crossing over	cytokinesis	sister
D	sister	cytokinesis	crossing over	non-sister

2. Some stages of Meiosis I are described in the statements:

   1. Sections of DNA are exchanged between non-sister chromatids.
   2. Homologous chromosomes pair.
   3. Chiasmata formation occurs.
   4. Independent assortment of chromosomes occurs.
   5. The chromosomes of each homologous pair separate.

   The correct sequence of these stages in Meiosis I is

   A 2, 3, 1, 4, 5
   B 2, 5, 1, 3, 4
   C 3, 1, 2, 4, 5
   D 3, 1, 2, 5, 4

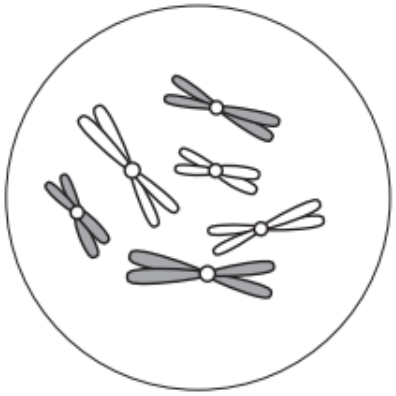
3. The list shows three events in meiosis I.

   Q Independent assortment
   R Recombination of alleles of linked genes
   S Pairing of homologous chromosomes

   The order in which these events occur is

   A S – R – Q
   B S – Q – R
   C Q – R – S
   D Q – S – R.

4. The figure below shows a nucleus in the early stages of meiosis I. Paternal chromosomes are shaded, maternal chromosomes are unshaded.



   How many different gametes would be produced as a result of independent assortment?

   A 2
   B 6
   C 8
   D 12

5. Chiasmata form when the chromosomes are arranged

   A as pairs during meiosis I
   B individually during meiosis I
   C as pairs during meiosis II
   D individually during meiosis II.

6. Which line in the table correctly describes cells in meiosis?

	Stage	*Chromosome complement*	*Number of cells*
A	Meiosis I	haploid	4
B	Meiosis I	diploid	2
C	Meiosis II	haploid	4
D	Meiosis II	diploid	2

7 The crossing over that generates new allele combinations in meiosis I occurs between

   A sister chromatids of homologous chromosomes
   B non-sister chromatids of homologous chromosomes
   C sister chromatids of non-homologous chromosomes
   D non-sister chromatids of non-homologous chromosomes.

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8 Independent assortment results in the production of gametes with varying combinations of maternal and paternal chromosomes.

How many different combinations are possible in the gametes of an organism whose haploid number is 3?

A 2

B 4

C 8

D 12

Meiosis Past Papers Answers

1. C
2. A
3. A
4. C
5. A
6. C
7. B
8. D