**1.** Which event occurs first in meiosis?

A. Centromere appearance

B. Chiasmata formation

C. Crossing over

D. Synapsis

(Total 1 mark)

**2.** What are homologous chromosomes?

A. Two chromosomes with differing sets of genes, in the same sequence, with the same alleles

B. Two chromosomes with the same set of genes, in a different sequence, with the same alleles

C. Two chromosomes with a different set of genes, in the same sequence, with different alleles

D. Two chromosomes with the same set of genes, in the same sequence, sometimes with different alleles

(Total 1 mark)

**3.** The diagram below shows a cell undergoing meiosis. What is this stage of meiosis?



A. Anaphase I

B. Prophase I

C. Anaphase II

D. Telophase II

(Total 1 mark)

**4.** If the amount of DNA in a haploid gamete is represented by , what is the net quantity of DNA in a cell from the same organism at the start of meiosis?

A. 0.5 

B. 

C. 2 

D. 4 

(Total 1 mark)

**5.** The diagram below shows chromosomes during prophase I of meiosis. How many chromosomes and chiasmata are visible?



|  |  |  |
| --- | --- | --- |
|  | **Number of chromosomes** | **Number of chiasmata** |
| A. | 2 | 2 |
| B. | 4 | 2 |
| C. | 2 | 4 |
| D. | 4 | 4 |

(Total 1 mark)

**6.** Explain how meiosis and fertilization can give rise to genetic variety.

(Total 6 marks)

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