MEIOSIS TEST ANSWERS

1. **Body Cells reproduce by Mitosis and contain the complete set of chromosomes (46). Sex Cells reproduce by Meiosis and contain half the set of chromosomes (23).**
2. **2 sex cells: sperm and egg cells.**
3. **Each stage of Meiosis in detail:**

STAGE 1 – Prophase I – In Prophase I, DNA condenses, the nucleus disappears and spindles form

STAGE 2 – Metaphase I – In Metaphase I, the Homologous Pairs/Chromosomes line up in the middle of the cell.

STAGE 3 – Anaphase I – In Anaphase I, the Homologous Pairs/Chromosomes separate and move to opposite ends of the cell.

STAGE 4 – Telophase I – In Telophase I, the Homologous Pairs/Chromosomes decondense and the nucleus reappears in both cells. (Cytokinesis occurs during Telophase) In animal cells, the cytoplasm pinches in and in plant cells a new cell wall is built.

STAGE 5 - Prophase II - In Prophase II, DNA condenses, the nucleus disappears and spindles form

STAGE 6 - Metaphase II, In Metaphase II, the Sister Chromatids line up in the middle of the cell.

STAGE 7 – Anaphase II – In Anaphase II, the Sister Chromatids separate and move to opposite ends of the cell.

STAGE 4 – Telophase II – In Telophase II, the Sister Chromatids decondense and the nucleus

reappears in both cells. (Cytokinesis occurs during Telophase) In animal cells, the cytoplasm pinches in and in plant cells a new cell wall is built.
(Cytokinesis) In animal cells, the cytoplasm pinches in and in plant cells a new cell wall is built.

4. **1.) Prophase I 2.) Metaphase I 3.) Anaphase I 4.) Telophase I 5.) Prophase II 6.) Metaphase II 7.) Anaphase II 8.) Telophase II Metaphase**
5. **'Metaphase II**
6. **Metaphase I**
7. **Telophase I**
8. **Propahse II**
9. **Anaphase II**
10. **Interphase**
11. **Telophase II**
12. **Anapahasse I**
13. **Prophase I**

14. **Answers can include:**

Characteristic	**Mitosis**	**Meiosis**
Type of cells that divide	Body Cells	Sex Cells
The number of chromosomes before the cell begins to reproduce	The same as the parent cell.	The same as the parent cell.

Metaphase	Sister chromatids line up at the center of the cell.	(Metaphase 1): The homologous Pairs line up at the center of the cell. (Metaphase 2): The sister chromatids line up at the center of the cell.
Anaphase	The sister chromatids separate from their copies.	(Anaphase 1): The homologous pairs separate from each other. (Anaphase 2): The sister chromatids separate from their copies.
Characteristic	**Mitosis**	**Meiosis**
Number of chromosomes in each cell at the end of reproduction.	The same as the parent cell.	Half the amount of the parent cell.
Total Number of Phases	4	8
Number of Daughter Cells Produced	2	4

15. **Centromere**
16. **Chromatin**
17. **Chromosome**

18. **Sister Chromatids**
19. **Meiosis**
20. **Embryo**
21. **Zygote**
22. **Diploid**
23. **Telophase**
24. **In animal cells, the cytoplasm pinches in and in plant cells a new cell wall is built.**
25. **Meiosis begins in males during puberty. In females, meiosis begins before birth. The process stops and begins again when the female reaches sexual maturity.**
26. **Diploid Cells are body cells (2x) contain pairs of chromosomes. Haploid cells are sex cells (x) contain one chromosome of each pair.**
27. **If Cytokinesis occurred without Mitosis, then each cell would only have half of the parent cell's genetic material.**
28. **The gonads are the sex organs, for males - the testis and for females the ovary**
29. **The gametes are the sex cells, for males - sperm and for females - eggs**