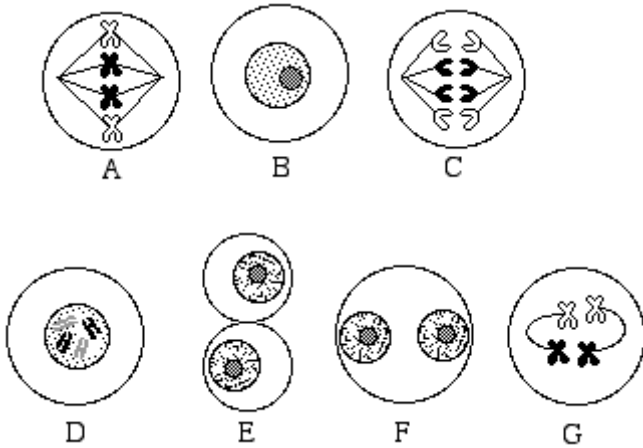


Name _____ Per: _____ Date: _____

Cell Division/Mitosis/Meiosis Test Study Guide

1. Explain why cells are small instead of large. (Reference surface area and volume).
2. What are the two main phases of the cell cycle?
3. In which stage/phase of the cell cycle does the cell spend most of its time? Why would it spend most of its time in that stage/phase?
4. What are the three stages of interphase? What happens in each of those stages?
5. In M-phase there are two divisions that occur. Describe both.
6. What is the function of mitosis?
7. Which would a liver cell perform: mitosis or meiosis?
8. What happens to the chromosomes during anaphase of mitosis? Why is an important step in producing the daughter cells?

9. List the following pictures in the correct order.

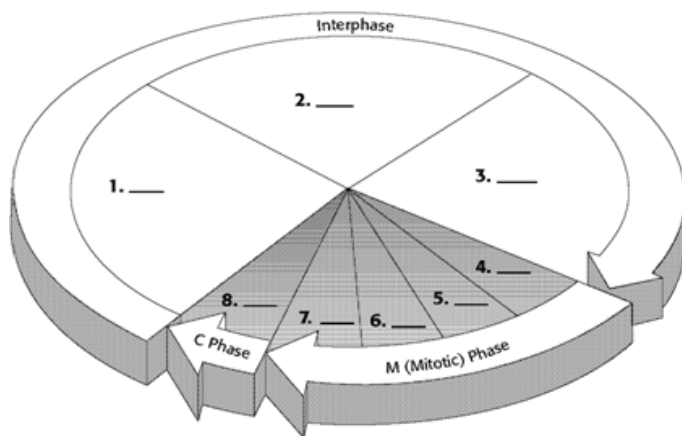


10. What is it called when a cell divides uncontrollably? Give an example of something that can cause this.

11. What phase is the cell picture below in?



12. Fill in the diagram.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____

13. Define **homologous chromosome**.

14. What is it called when there are two copies ($2n$) of each chromosomes in a cell?

15. What is a gamete?

16. What is it called when there is one copy of each chromosome in a cell? _____

17. What is the purpose of meiosis?

18. What happens during Interphase in regards to the DNA that is important to cell division?

19. How do the offspring of asexual reproduction and sexual reproduction differ in regards to their genetic makeup?

20. What two things happen during Prophase I?

1. _____

2. _____

21. What is crossing-over? How does this affect genetic variability (Increase or decrease)?

22. What are two processes that happen during meiosis to increase the combinations of genes (genetic variability)?

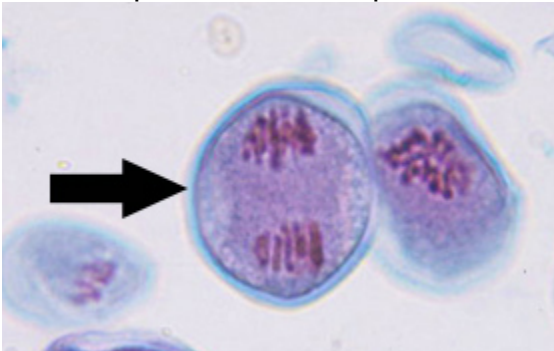
23. How are the cells produced by meiosis I different from the cells produced from mitosis? Why are they different?

24. How many cells (in total) result from meiosis II? _____

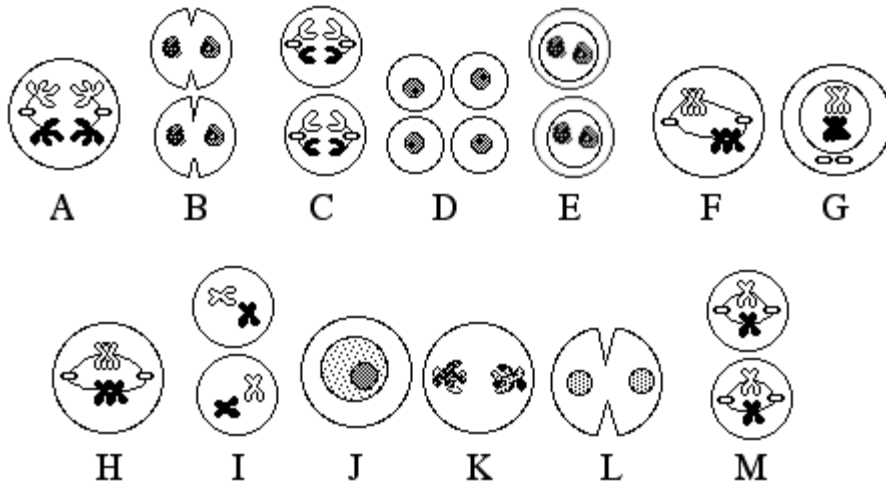
25. Below, describe six differences between mitosis and meiosis.

Mitosis		Meiosis	
1.		1.	
2.		2.	
3.		3.	
4.		4.	
5.		5.	
6.		6.	

26. What phase is the cell pictured below in?



27. List the correct sequence for the following cells undergoing meiosis.



28. DNA that is spread out (non-condensed) in a non-dividing cell is called _____.

- A. chromosomes
- B. chromatin

19. The two copies of each chromosome that are the same size, same shape, and carry genes for the same traits are called _____ chromosomes.

- A. maternal
- B. paternal
- C. heterozygous
- D. homologous

20. As a cell grows in size, which increases more rapidly?

- A. its volume
- B. its surface area

21. Cells spend most of their lifetime in _____ phase of interphase.

- A. Mitosis
- B. S
- C. G₁
- D. G₂

22. _____ is a kind of cell division that produces haploid cells with $\frac{1}{2}$ the number of chromosomes of the parent cell.

- A. mitosis
- B. meiosis

23. Cells undergo meiosis to _____.

- A. grow bigger
- B. repair injuries
- C. replace worn out cells
- D. make gametes

25. The group of 4 chromatids (two homologous chromosomes) that forms during prophase I is called a _____.
- A. biad
 - B. triad
 - C. tetrad
 - D. quadrad
26. The exchange of genetic material between homologous chromosomes is called
- A. synapsis
 - B. independent assortment
 - C. asexual reproduction
 - D. crossing over
27. The pairing up of maternal and paternal homologous chromosomes during meiosis happens in _____.
- A. prophase I
 - B. metaphase I
 - C. prophase II
 - D. interphase II
28. During meiosis, crossing over happens in _____.
- A. prophase I
 - B. metaphase I
 - C. prophase II
 - D. interphase II
29. In MEIOSIS a parent cell divides to produce _____.
- A. four genetically identical cells
 - B. two genetically identical cells
 - C. two genetically different cells
 - D. four genetically different cells
31. The production of offspring from one parent without joining gametes is called _____ reproduction.
- A. sexual
 - B. asexual

TRUE or FALSE

Circle T if the statement is TRUE.

Circle F if the statement is FALSE.

If it is FALSE, MAKE CORRECTIONS to the underlined word(s) to make the statement true.

- | | | |
|---|---|--|
| T | F | Offspring from <u>asexual</u> reproduction are genetically identical to the parent. |
| T | F | The <u>2nd division</u> in meiosis is similar to mitosis division <u>without</u> first copying the DNA. |
| T | F | Gametes produced in meiosis are <u>identical</u> to each other, but <u>different</u> from the parent cell. |