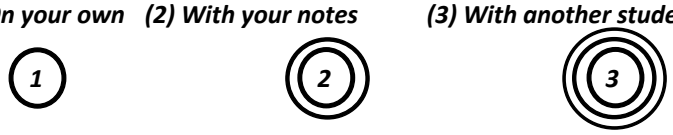
Science 9

Biology Practice Test

Name: Key
Date:
Block:

This practice test is designed to help you determine what concepts you DO know and more importantly what concepts you DO NOT know!

Go through the practice test THREE times:
(1) On your own (2) With your notes (3) With another student



Each time, if you cannot answer a question, draw a circle around it to identify that you should review this concept when preparing for the test.

True or False: Identify the following statements as true or false. If FALSE, rewrite the UNDERLINED WORD(S) with the correction *(1 mark each)*

1. T The Cell Theory states that all organisms are composed of one or more cells

2. F An example of a ~~prokaryotic~~ eukaryotic cell is an animal cell

3. F Binary fission is a type of ~~sexual reproduction~~ asexual reproduction that occurs in bacteria

4. F ~~Mitosis~~ Interphase is a stage that occurs during ~~Interphase~~ mitosis

5. F Meiosis happens during ~~asexual reproduction~~ sexual reproduction

Multiple Choice: Choose the BEST answer *(1 mark each)*

C 6. What is the role of a golgi body?
   a. Storage compartment for waste
   b. Jelly-like substance that contains organelles
   c. Sorts protein and packs them into vesicles
   d. Transports protein through here from the ribosome

B 7. Which structure separates the inside contents of the cell with the outside environment?
   a. Nucleus
   b. Cell membrane
   c. Ribosome
   d. Mitochondria

D 8. Which is NOT a part of the structure of DNA?

a. Phosphate
b. Nucleotide base
c. Deoxyribose sugar
d. Nucleic acid

C 9. An advantage of asexual reproduction is that…

a. It creates genetic diversity
b. A population will likely survive changes in their environment
c. Reproduction occurs quickly
d. Two parents are needed

C 10. What is the first step of binary fission?

a. Growth of cell
b. Segregation of DNA
c. Replication of DNA
d. Splitting of cells

D 11. Reproduction by budding occurs when

a. A tree produces new green shoots in springtime
b. Planaria are cut in half and grow back the missing parts
c. Amoebas divide in half
d. Yeast cells produce new smaller cells that break off and float away

D 12. Cells are NOT likely to divide if

a. There are not enough nutrients to support cell growth
b. The DNA within the nucleus has not been replicated
c. The DNA has been damaged in any way
d. All of the above

B 13. DNA is duplicated during this stage of the cell cycle identified as

a. Cytokinesis
b. Interphase
c. Prophase
d. Replication

B 14. In mitosis, the chromosomes are pulled to the middle of the cell during

a. Anaphase
b. Metaphase
c. Prophase
d. Telophase

B 15. If a zygote of an organism has 30 chromosomes, how many chromosomes will its body cells have when it develops?

a. 15 chromosomes
b. 30 chromosomes
c. 45 chromosomes
d. 60 chromosomes

A 16. During fertilization…

a. The nuclei of the gametes fuse together to form a zygote
b. The nuclei of the zygotes fuse together to form a gamete
c. Diploid cells become haploid cells
d. 46 chromosomes become 23

A 17. During which stage of meiosis does crossing over occur?

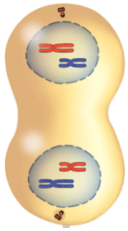
a. Prophase I
b. Metaphase I
c. Prophase II
d. Metaphase II

B 18. If you start with one diploid cell during meiosis, what do you end up with at the end of meiosis?

a. Two haploid cells
b. Four haploid cells
c. Two diploid cells
d. Four diploid cells

C 19. While looking through a microscope, you observe the following. What is the name of this phase in meiosis?

a. Anaphase I
b. Anaphase II
c. Telophase I
d. Telophase II



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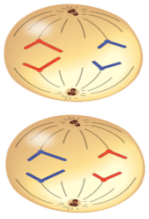


Short Answers

1. Write out the complimentary sequence of the following DNA strand (1 mark)

Strand 1: A T G C T G A C

Strand 2: T A C G A C T G

2. In binary fission, if you start with two parent cells, how many daughter cells will you end up with? (1 mark)

2 parent cells → 4 daughter cells

3. Identify two disadvantages for a species to reproduce sexually (2 marks)

a. It takes time to find a mate

b. Fewer offspring are produced, resulting in slower population growth

c. Offspring take longer to reach maturity

d. Offspring require time & energy from parents

4. List three methods of asexual reproduction and provide a brief description of each (3 marks)

a. Binary Fission - one parent cell splits into two genetically identical daughter cells.

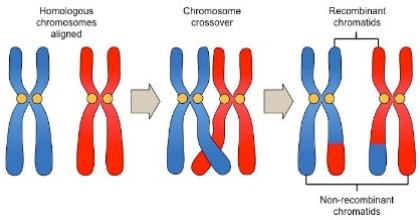
b. Budding - cells grow a bud that pinches off to become a separate cell

c. Spores - type of reproductive cell that develop into a new individual

d. Fragmentation - organisms break into 2+ fragments that develop into a new individual

e. Vegetative Propagation - new plants grow from a portion of the roots, stems, or leaves

5. Describe what is happening in the diagram below (2 marks)



This is a process called crossing over, when two homologous chromosomes pair up with each other and exchange different parts of their genetic material. This can lead to diversity in offspring.

6. Draw a diagram of two cells going from metaphase II → anaphase II → telophase II → cytokinesis. You should end up with four cells (4 marks)