

FINAL EXAM Review Package - BIOLOGY**Completion***Complete each statement.*

1. In most multicellular organisms, such as humans, mitosis is used for _____ and _____, but not reproduction.
2. You started life as a single cell, a fertilized egg. Your body is now made up of trillions of cells, most of which have the same genetic information. This large number of cells was produced by the process of _____.
3. The threadlike structures that regulate all cell activities in DNA are called _____.
4. A human skin cell has _____ chromosomes; after mitosis has occurred, each daughter cell has _____ chromosomes.
5. The cytoplasm contains tiny structures known as _____, whose function is to produce proteins. These tiny structures are assembled from materials originally found in the _____ of a cell.
6. DNA is a complex molecule made up of sugars, phosphates, and _____.
7. DNA is described as looking like a twisted ladder. If a rung of this ladder contains adenine, the molecule opposite it on the same rung of the ladder will be _____.
8. DNA is a code that uses three letter words. A gene is a section of DNA that codes for a specific _____.
9. Mitochondria are unusual organelles that have their own DNA and can divide independently of the nucleus. Your nuclear DNA came from both parents, but all of your mitochondria and their DNA came from _____.
10. You observe a living cell using a microscope and find that the cell is growing, taking in food, and excreting wastes. The cell is in the stage of the cell cycle known as _____.
11. You have observed some cells undergoing mitosis and have noticed the formation of a cell plate as the process ends. The organism you are observing is a _____.
12. People are beginning to realize the dangers of second-hand cigarette smoke because of cancer reported in non-smokers who work or live with smokers. Scientists have found that **all** cigarette smoke contains chemicals that can best be classified as _____.
13. If a common earthworm is cut in half, the anterior (front end) will grow a new posterior (rear end), but the posterior will not grow a new anterior. This tells us that the earthworm is capable of _____ but not reproduction by _____.
14. If you left a sandwich in your locker over the weekend, by Monday, the bread would be covered with a fuzzy, black material that, if touched, would release a cloud of small particles. If these particles fell on another sandwich, they would grow into new bread mould, genetically identical to the parent organism. The cloud of tiny black particles is probably made up of _____.
15. An amoeba is a common protist that reproduces by dividing into two amoebas of approximately equal size. This method of reproduction is known as _____, and the two amoebas produced are genetically _____.

Name: _____

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16. The name for male and female _____ is sperm and egg.
17. The _____ is formed when two cells fuse in the process of _____. It later is called an embryo, when it begins to divide.
18. The testes are enclosed in a protective sac called the _____.
19. The tube that carries both urine and sperm is called the _____.
20. Sperm are produced in the _____.
21. The tail of a sperm cell is called a _____.
22. The tube that carries the sperm from the epididymis to the urethra is the _____.
23. _____ is the male sex hormone.
24. Another name for the oviduct is _____.
25. The ovaries produce two female sex hormones called _____ and _____.

Matching

Match the phase of the cell cycle with the best description of what happens during that phase.

- | | |
|---------------|----------------|
| a. interphase | d. anaphase |
| b. prophase | e. telophase |
| c. metaphase | f. cytokinesis |

- _____ 26. nuclear membrane breaks down, sister chromatids are visible
- _____ 27. nuclear membrane forms, chromosomes get longer and thinner
- _____ 28. cell membrane pinches cytoplasm to divide cell
- _____ 29. cell is active, DNA is replicated
- _____ 30. sister chromatids line up along the middle of the cell
- _____ 31. chromosomes are pulled to opposite ends of the cell

There are several methods of asexual reproduction used by organisms. Match the description that best describes these methods of asexual reproduction.

- | | |
|-------------------|----------------------------|
| a. cloning | d. vegetative reproduction |
| b. binary fission | e. fragmentation |
| c. budding | f. spores |

- _____ 32. an offspring grows from the side of a parent organism
- _____ 33. two daughter cells of identical size are produced
- _____ 34. a piece of an animal can grow into a complete individual
- _____ 35. a piece of a plant can grow and develop into a complete organism
- _____ 36. a body cell nucleus from an adult cell replaces the nucleus of a fertilized egg
- _____ 37. thick-walled cells grow into an organism identical to the parent

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Essay

38. You are much smaller than an elephant. Does it seem reasonable that your cells are much smaller than an elephant's? Explain your reasoning.
39. Describe how a cell can make a protein, starting with the DNA code.
40. There are many differences between plant cells and animal cells. What are the specific differences between the process of mitosis in plants and the process of mitosis in animals cells?
41. Radiation is known to both cause cancer and treat cancer. Explain how this can be possible, providing an example to support your answer.
42. Imagine that you have a part-time job selling houseplants in a garden store. A customer has come in to return a fern, pointing out the spots on the underside of the fronds (leaves). How would you convince the customer that the plant is not ill, explain the spots, and convince them to keep the plant?
43. Discuss the advantages and disadvantages of sexual reproduction
44. Mutations in skin or liver cells are not as serious as mutations in ovary or testes cells. Explain this statement.
45. What are *mutations*, and why are they important?