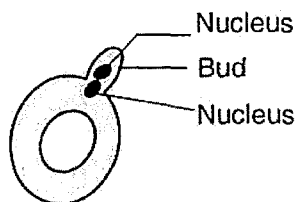


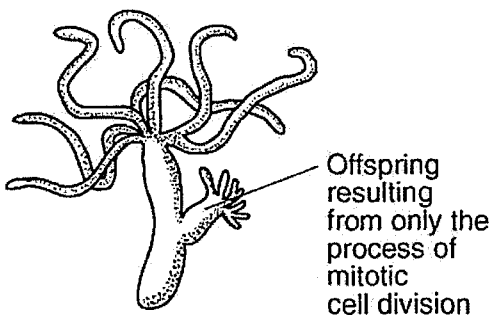
Name _____
Living Environment

- When a planarian (a type of worm) is cut in half, each half usually grows back into a complete worm over time. This situation most closely resembles
 - asexual reproduction in which a mutation has occurred
 - sexual reproduction in which each half represents one parent
 - asexual reproduction of a single-celled organism
 - sexual reproduction of a single-celled organism
- The diagram below represents a yeast cell that is in the process of budding, a form of asexual reproduction.



Which statement describes the outcome of this process?

- The bud will develop into a zygote.
 - The two cells that result will each contain half the species number of chromosomes.
 - The two cells that result will have identical DNA.
 - The bud will start to divide by the process of meiotic cell division.
- The organism represented below is multicellular, heterotrophic, and completely aquatic.

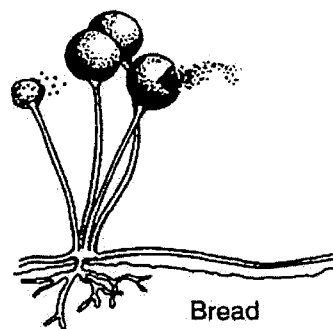


Which other characteristics could be used to describe this organism?

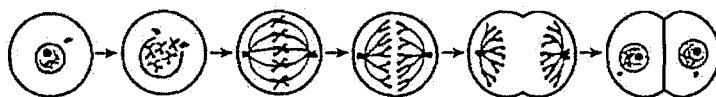
- carries out photosynthesis and needs oxygen
 - deposits cellular wastes on land and decomposes dead organisms
 - reproduces asexually and is a consumer
 - reproduces in a water habitat and is a producer
- Asexually reproducing organisms pass on hereditary information as
 - sequences of A, T, C, and G
 - chains of complex amino acids
 - folded protein molecules
 - simple inorganic sugars

Topic Five:
Reproduction & Development

- Which method of reproduction is shown in the diagram below?

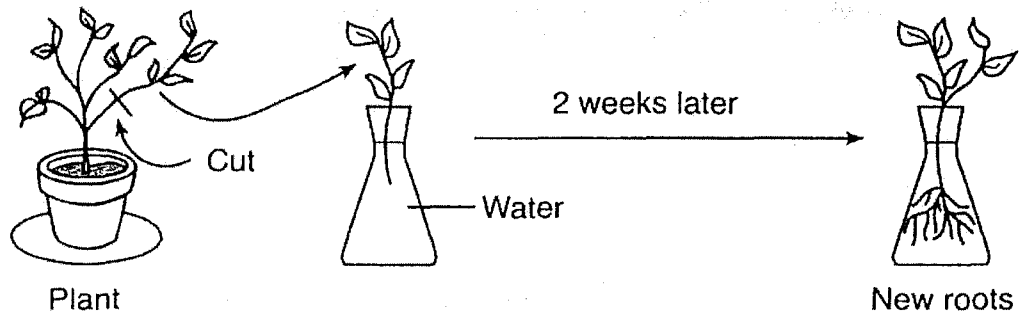


- stem cutting
 - budding
 - tuber formation
 - sporulation
- Strawberries can reproduce by means of runners, which are stems that grow horizontally along the ground. At the region of the runner that touches the ground, a new plant develops. The new plant is genetically identical to the parent because
 - it was produced sexually
 - nuclei traveled to the new plant through the runner to fertilize it
 - it was produced asexually
 - there were no other strawberry plants in the area to provide fertilization
 - Marine sponges contain a biological catalyst that blocks a certain step in the separation of chromosomes. Which cellular process would be directly affected by this catalyst?
 - mitosis
 - diffusion
 - respiration
 - photosynthesis
 - Which activity most directly involves the process represented in the diagram below?



- a gamete reproducing sexually
 - a white blood cell engulfing bacteria
 - a zygote being produced in an ovary
 - an animal repairing damaged tissue
- Which statement describes the reproductive system of a human male?
 - It releases sperm that can be used only in external fertilization.
 - It synthesizes progesterone that regulates sperm formation.
 - It produces gametes that transport food for embryo formation.
 - It shares some structures with the excretory system.

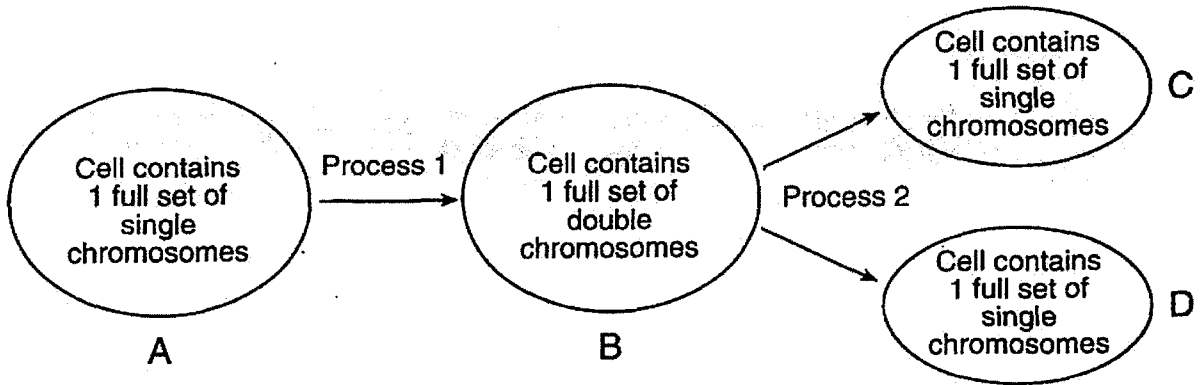
10. A technique used to reproduce plants is shown in the diagram below.



This technique is a form of

- 1) sexual reproduction 2) asexual reproduction 3) gamete production 4) gene manipulation

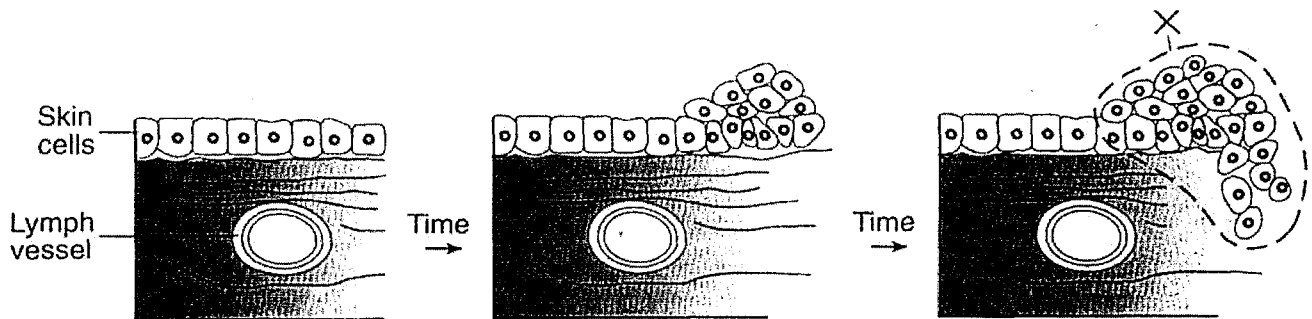
11. Base your answer to the following question on the diagram below and on your knowledge of biology. The diagram represents a single-celled organism, such as an amoeba, undergoing the changes shown.



As a result of these processes, the single-celled organism accomplishes

- 1) gamete production 2) energy production 3) sexual reproduction 4) asexual reproduction

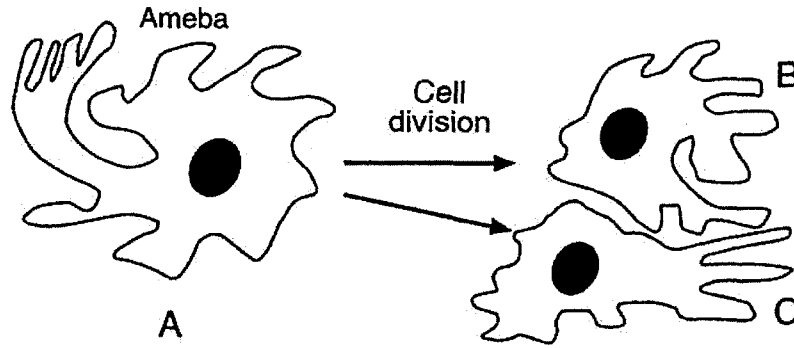
12. The diagram below shows the growth pattern of some exposed to ultraviolet radiation. skin cells in the human body after they have been



The cells in area X are most likely

- 1) red blood cells 2) cancer cells 3) white blood cells 4) sex cells

13. The diagram below represents a cell process.



Which statement regarding this process is correct?

- 1) Cell B contains the same genetic information that cells A and C contain.
 - 2) Cell C has DNA that is only 50% identical to cell B.
 - 3) Cell A has DNA that is only 75% identical to cell B.
 - 4) Cells A, B, and C contain completely different genetic information.
14. The chromosome content of a skin cell that is about to form two new skin cells is represented in the diagram below.



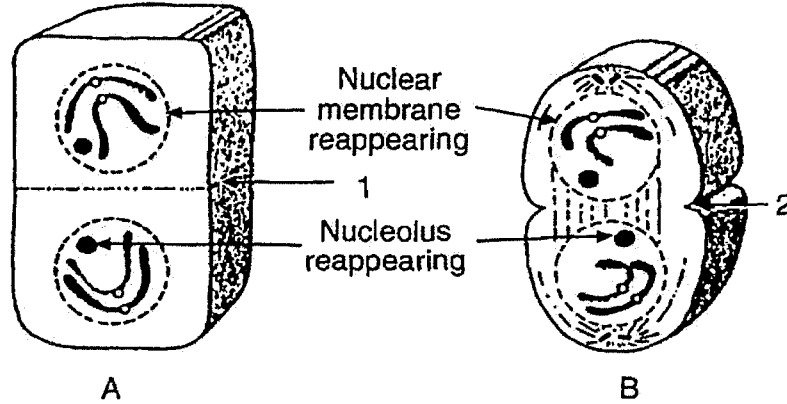
Which diagram best represents the chromosomes that would be found in the two new skin cells produced as a result of this process?

- 1) and
- 2) and
- 3) and
- 4) and

15. Which reproductive structure is correctly paired with its function?

- 1) uterus—usual site of fertilization
 - 2) testis—usual location for egg development
 - 3) ovary—delivers nutrients to the embryo
 - 4) sperm—transports genetic material
16. Regulation of sexual reproductive cycles of human males is related most directly to the presence of the hormone
- 1) estrogen
 - 2) progesterone
 - 3) testosterone
 - 4) insulin

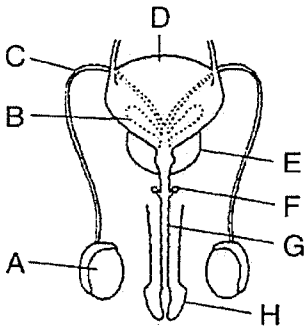
17. Diagrams *A* and *B* represent two cells in the final stage of cell division.



Which processes occur in regions 1 and 2 in these cells?

- 1) synthesis of a cell plate at 1, pinching in of the cell membrane at 2
- 2) pinching in of the cell membrane at 1, synthesis of a cell plate at 2
- 3) replication of a chromatid at 1, spindle apparatus joining the nuclear membrane with the cell membrane at 2
- 4) spindle apparatus joining the nuclear membrane with the cell membrane at 1, replication of a chromatid at 2

Base your answers to questions 18 through 20 on the picture below which represents systems in a human male and on your knowledge of biology.



18. Which structure has both reproductive and excretory functions?
 - 1) A
 - 2) G
 - 3) C
 - 4) D

19. Which structures aid in the transport of sperm by secreting fluid?
 - 1) A and H
 - 2) B and E
 - 3) C and D
 - 4) D and H

20. Which sequence represents the path of sperm leaving the body?
 - 1) A → C → G
 - 2) A → C → B
 - 3) E → F → H
 - 4) D → F → G

21. The data in the table below indicate the presence of specific reproductive hormones in blood samples taken from three individuals. An *X* in the hormone column indicates a positive lab test for the appropriate levels necessary for normal reproductive functioning in that individual.

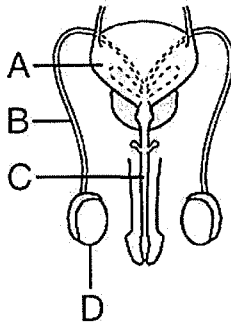
Data Table

| Individuals | Hormones Present | | |
|-------------|------------------|--------------|----------|
| | Testosterone | Progesterone | Estrogen |
| 1 | | X | X |
| 2 | | | X |
| 3 | X | | |

Which processes could occur in individual 3?

- 1) production of sperm, only
- 2) production of sperm and production of eggs
- 3) production of eggs and embryonic development
- 4) production of eggs, only

22. The diagram below represents a human reproductive system.



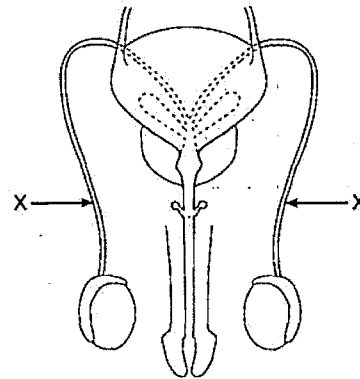
Meiosis occurs within structure

- 1) A
 - 2) B
 - 3) C
 - 4) D
23. The reproductive system of the human male produces gametes and
- 1) transfers gametes to the female for internal fertilization
 - 2) produces enzymes that prevent fertilization
 - 3) releases hormones involved in external fertilization
 - 4) provides an area for fertilization
24. The human female reproductive system is adapted for
- 1) production of zygotes in ovaries
 - 2) external fertilization of gametes
 - 3) production of milk for a developing embryo
 - 4) transport of oxygen through a placenta to a fetus

25. Toxins can harm a developing fetus. They usually enter the fetus by the process of

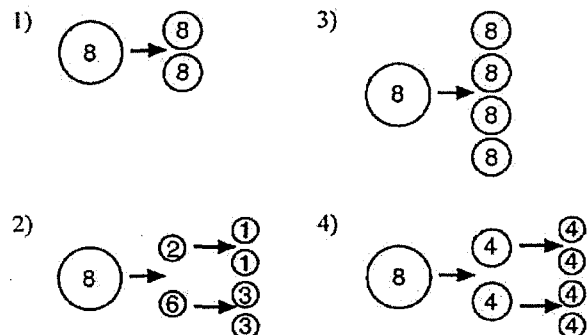
- 1) blood flow from the mother to the fetus
- 2) active transport from the ovary
- 3) diffusion across placental membranes
- 4) recombination of genes from the fetus and mother

26. Some body structures of a human male are represented in the diagram below.

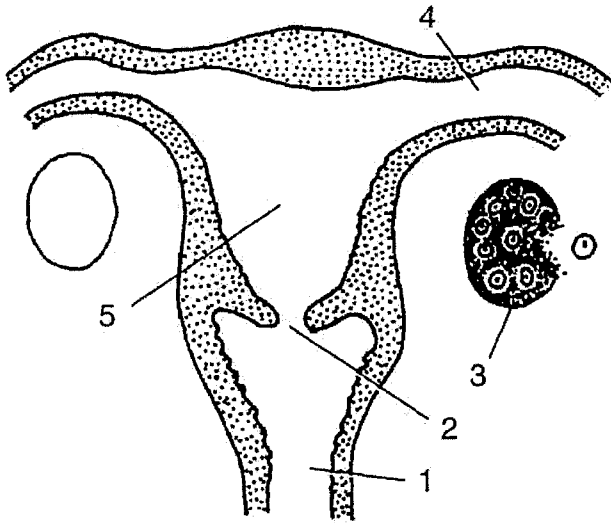


An obstruction in the structures labeled *X* would directly interfere with the

- 1) transfer of sperm to a female
 - 2) production of sperm
 - 3) production of urine
 - 4) transfer of urine to the external environment
27. Which diagram best represents part of the process of sperm formation in an organism that has a normal chromosome number of eight?



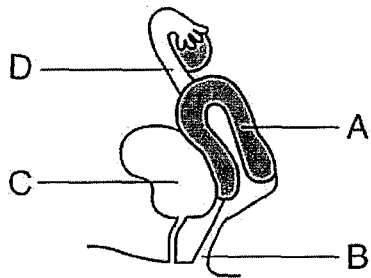
37. The diagram below represents part of the human female reproductive system.



Fertilization and development normally occur in structures

- 1) 1 and 5
- 2) 2 and 4
- 3) 3 and 1
- 4) 4 and 5

38. The letters in the diagram below represent structures in a human female.



Estrogen and progesterone increase the chance for successful fetal development by regulating activities within structure

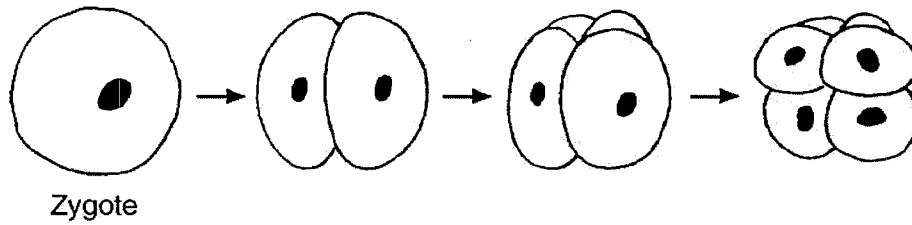
- 1) A
- 2) B
- 3) C
- 4) D

39. In sexually reproducing species, the number of chromosomes in each body cell remains the same from one generation to the next as a direct result of

- 1) meiosis and fertilization
- 2) mitosis and mutation
- 3) differentiation and aging
- 4) homeostasis and dynamic equilibrium

40. Sexually produced offspring often resemble, but are not identical to, either of their parents. Explain why they resemble their parents but are *not* identical to either parent.

41. The diagram below represents some stages of early embryonic development.



Which process is represented by the arrows in the diagram?

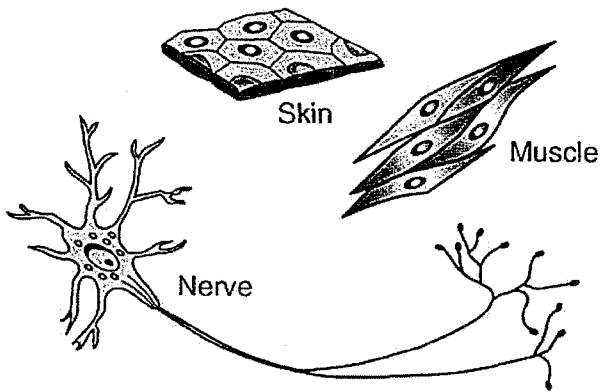
1) meiosis

2) fertilization

3) mitosis

4) evolution

42. The types of human cells shown below are different from one another, even though they all originated from the same fertilized egg and contain the same genetic information.



Explain why these genetically identical cells can differ in structure and function.

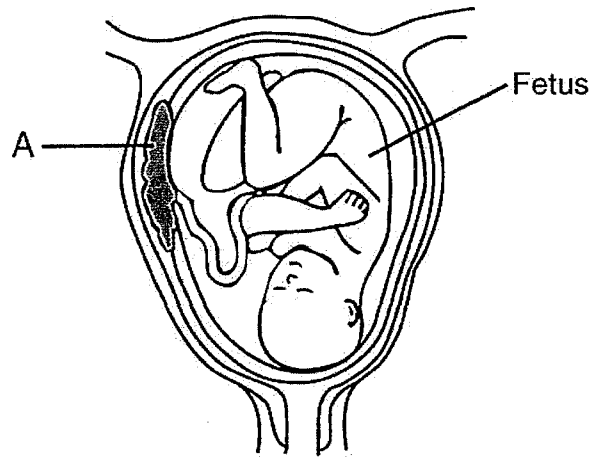
43. Base your answer to the following question on the information below and on your knowledge of biology.

Human reproduction is influenced by many different factors.

Identify *one* reproductive hormone and state the role it plays in reproduction.

Base your answers to questions 44 and 45 on the statement and diagram below and on your knowledge of biology.

Women are advised to avoid consuming alcoholic beverages during pregnancy.



44. Identify the structure labeled *A* and explain how the functioning of structure *A* is essential for the normal development of the fetus.

Structure A: _____

45. Explain why consumption of alcoholic beverages by a pregnant woman is likely to be more harmful to her fetus than to herself.

