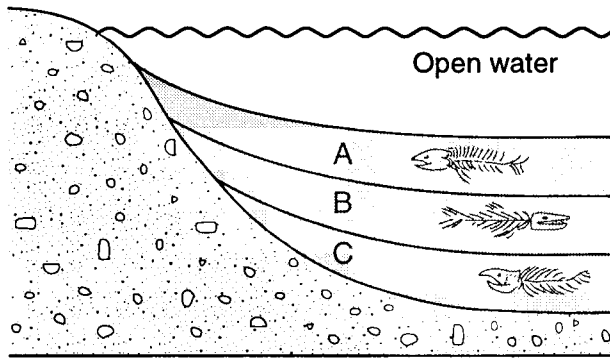


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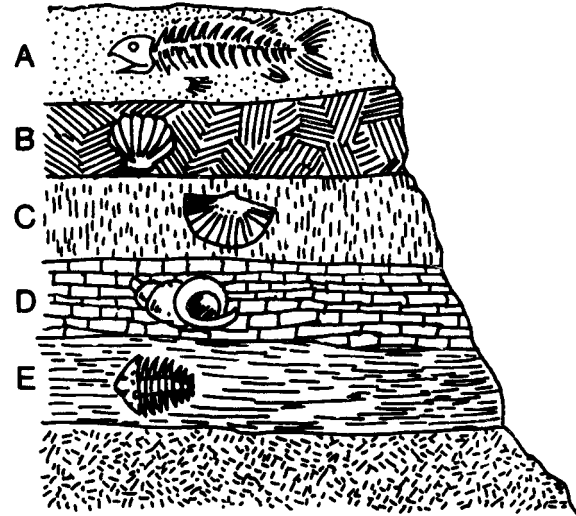
1. The diagram below illustrates the distribution of fossils in undisturbed layers of silt at the bottom of the ocean.



Which inference can correctly be made from the diagram?

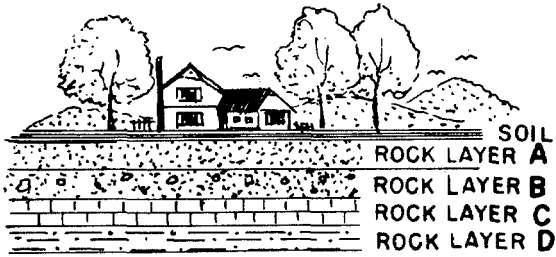
- A) The fossils in layer *C* are older than those in layer *A*.
- B) The fossils in layer *B* are older than those in layer *C*.
- C) The fossils in layer *A* are older than those in layer *C*.
- D) The fossils in layer *A* are older than those in layer *B*.
2. Which sequence of terms is in the correct order from simplest to most complex?
- A) cells → tissues → organs → organ systems
- B) tissues → organisms → cells → organ systems
- C) cells → tissues → organ systems → organs
- D) organs → organisms → organ systems → cells

3. In the diagram below of undisturbed sedimentary rock strata, in which rock layer are the fossils of more complex animals generally found?



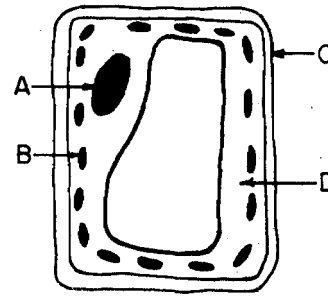
- A) *A*
- B) *B*
- C) *E*
- D) *D*
4. The ribosome is an organelle that functions in the process of
- A) phagocytosis
- B) pinocytosis
- C) protein synthesis
- D) cellular respiration

5. A geologist finds fossils in each of the undisturbed rock layers represented in the diagram below. The fossils are all structurally similar. Which is the most likely conclusion that the geologist would make?



- A) All the fossils are of the same age.
- B) The relative ages of the fossils cannot be determined.
- C) The fossils in rock layer *D* are older than those in layer *A*.
- D) The fossils in rock layer *B* are older than those in layer *C*.
6. Which organelles' activity contributes most directly to muscle contraction in an earthworm?
- A) Golgi bodies
- B) chloroplasts
- C) mitochondria
- D) lysosomes

7. Which structures in the diagram below enable the observer to identify it as a plant cell?



- A) *A* and *B*
- B) *B* and *C*
- C) *A* and *C*
- D) *B* and *D*
8. A structure involved in regulating the movement of materials into a cell is the
- A) ribosome
- B) centriole
- C) Golgi complex
- D) cell membrane
9. Transport of molecules within animal cells is assisted by a system of internal membranes that make up the
- A) endoplasmic reticulum
- B) mitochondria
- C) ribosomes
- D) chloroplast

10. Within a cell, DNA is chiefly found in the

- A) cell wall
- B) plasma membrane
- C) ribosomes
- D) chromosomes

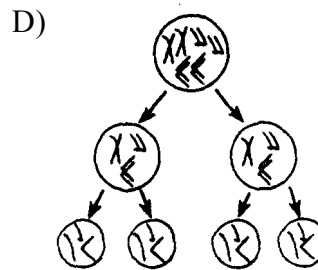
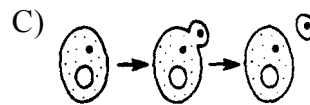
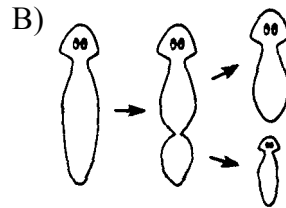
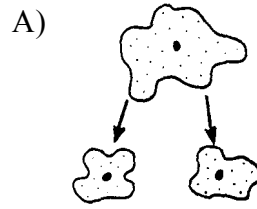
11. Which is a true statement about normal mitotic cell division?

- A) Each daughter cell produced has only one-fourth the number of chromosomes of the parent cell.
- B) Each daughter cell produced has only one-half the number of chromosomes of the parent cell.
- C) Each daughter cell produced has the same number of chromosomes as the parent cell.
- D) Each daughter cell produced has twice the number of chromosomes of the parent cell.

12. Each body cell of a chimpanzee contains 48 chromosomes. How many chromosomes would normally be present in a gamete produced by this chimpanzee?

- A) 24
- B) 36
- C) 48
- D) 96

13. Which illustration represents a process that results in the production of gametes?



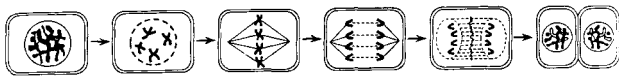
14. Mitotic and meiotic cell division are similar in that both processes

- A) produce diploid gametes from monoploid cells
- B) produce monoploid gametes from diploid cells
- C) involve synapsis of homologous chromosomes
- D) involve replication of chromosomes

15. Compared to human cells resulting from mitotic cell division, human cells resulting from meiotic cell division would have

- A) twice as many chromosomes
- B) the same number of chromosomes
- C) one-half the number of chromosomes
- D) one-quarter as many chromosomes

16. Which process is represented by the series of diagrams below?



- A) gametogenesis
- B) fertilization
- C) mitotic cell division
- D) meiotic cell division

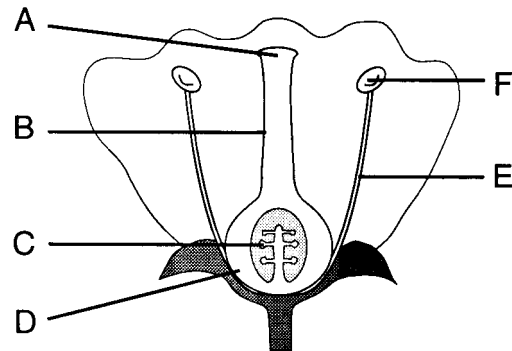
17. After normal mitotic division, how many chromosomes does each new daughter cell contain as compared to the mother cell?

- A) the same number
- B) twice as many
- C) half as many
- D) four times as many

18. Which diagram best represents mitotic cell division?

- A)
- B)
- C)
- D)

19. The diagram below represents some parts of a flower.



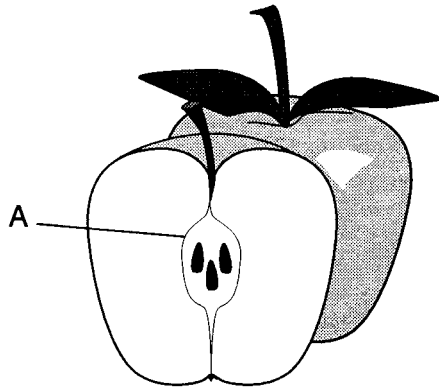
Both meiosis and fertilization occur within

- A) *A* and *F*
- B) *B*
- C) *C*
- D) *D* and *E*

20. Which part of the plant makes seeds?

- A) root
- B) flower
- C) stem
- D) leaf

21. From which flower part does structure *A* in the diagram below develop?



- A) stamen
- B) petal
- C) anther
- D) ovary

22. Gregor Mendel formulated some basic principles of heredity from the results of his experiments with

- A) *Drosophila*
- B) bacteria
- C) four-o'clock plants
- D) pea plants

23. In pea plants, the trait for tall stems is dominant over the trait for short stems. If two heterozygous tall plants are crossed, what percentage of the offspring would be expected to have the same *phenotype* as the parents?

- A) 25%
- B) 50%
- C) 75%
- D) 100%

24. An organism possessing two identical genes for a trait is said to be

- A) heterozygous for the trait
- B) hybrid for the trait
- C) homozygous for the trait
- D) incompletely dominant for the trait

25. The patterns on butterfly wings are

- A) inherited from parent butterflies
- B) inherited from birds
- C) acquired from plant life
- D) acquired from flying

26. The instructions for an organism's traits are coded in

- A) glucose units in carbohydrate molecules
- B) bases in DNA in the nucleus
- C) fat molecules in the cell membrane
- D) energy-rich bonds in starch molecules

27. In a population of dogs, curly hair is dominant over straight hair. If two parents are heterozygous for this trait, what is the probability that any of their offspring will have straight hair?

- A) 0%
- B) 25%
- C) 75%
- D) 100%

28. In nucleotides, the letters *A*, *G*, *C*, and *T* represent

- A) phosphate groups
- B) deoxyribose sugars
- C) nitrogenous bases
- D) ribose sugars

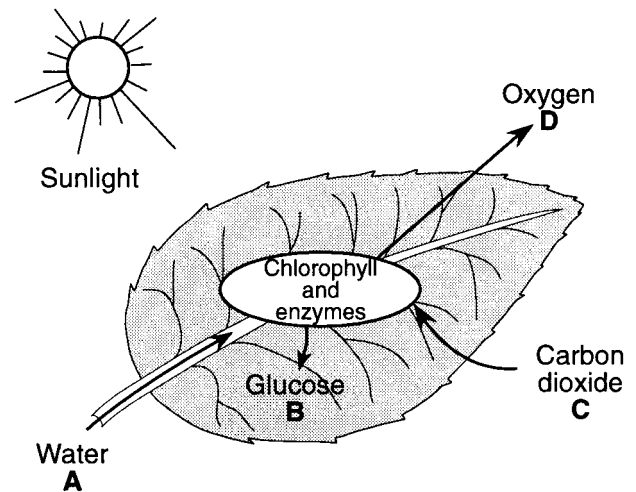
29. In watermelon plants the allele for solid green fruit (*G*) is dominant over the allele for striped fruit (*g*). Pollen from a flower of a homozygous green watermelon plant is used to pollinate a flower from a heterozygous green watermelon plant. What percent of the offspring of this cross will bear striped watermelons?

- A) 0%
- B) 25%
- C) 50%
- D) 100%

30. Photosynthesis transforms molecules of water and carbon dioxide into molecules of

- A) carbohydrate and oxygen
- B) carbohydrate and nitrogen
- C) polypeptide and oxygen
- D) polypeptide and nitrogen

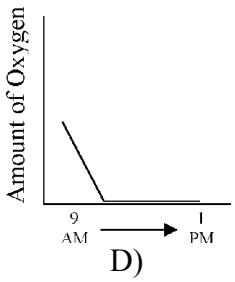
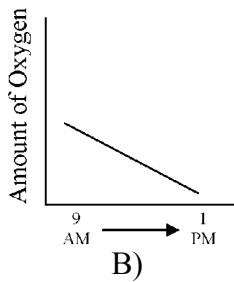
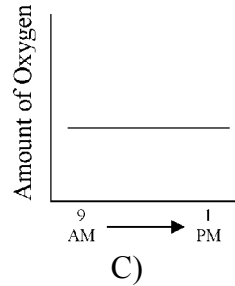
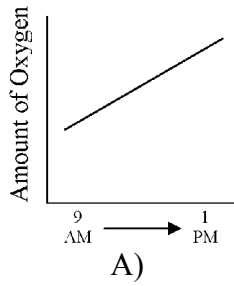
31. Base your answer to the following question on the diagram below and on your knowledge of biology. The diagram represents some processes occurring in the leaf of a plant.



Which equation illustrates a process of nutrition carried out within the leaf?

- A) $B + D \rightarrow A + C$
- B) $A + C \rightarrow A + B + D$
- C) $B + C \rightarrow A + D$
- D) $A + B + D \rightarrow B + C$

32. A plant has been undergoing photosynthesis for a few hours. Which of the following graphs best illustrates the levels of oxygen in the air over time?



33. The main result of aerobic respiration is the
- A) conversion of radiant energy into chemical energy
 - B) production of lactic acid as an end product
 - C) storage of energy in a polysaccharide
 - D) production of ATP from the breakdown of glucose

34. The transfer of energy from nutrients to ATP is accomplished most directly by the process of
- A) cyclosis
 - B) diffusion
 - C) cellular respiration
 - D) glucose synthesis

35. In the process of respiration, aerobic organisms generally use

- A) carbon dioxide and give off molecular oxygen
- B) molecular nitrogen and give off carbon dioxide
- C) carbon dioxide and give off molecular nitrogen
- D) molecular oxygen and give off carbon dioxide

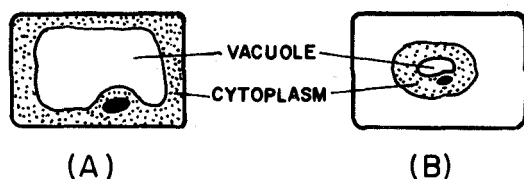
36. Which process would include a net movement of sugar molecules through a membrane from a region of lower concentration to a region of higher concentration?

- A) osmosis
- B) cyclosis
- C) active transport
- D) passive transport

37. After a cookie has been digested, glucose molecules enter the bloodstream by the process of

- A) phagocytosis
- B) diffusion
- C) ingestion
- D) pinocytosis

38. A biologist observed a plant cell in a drop of water and illustrated it as in diagram *A*. He added a 10% salt solution to the slide, observed the cell, and illustrated it as in diagram *B*.



The change in appearance of the cell resulted from more

- A) salt flowing out of the cell than into the cell
 B) salt flowing into the cell than out of the cell
 C) water flowing into the cell than out of the cell
 D) water flowing out of the cell than into the cell

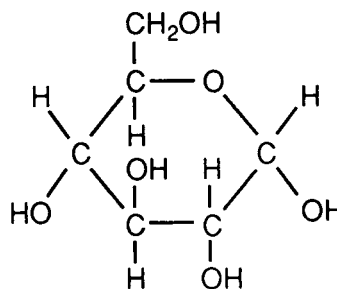
39. Which represents a carbohydrate molecule?

- A) $C_6H_6O_6$
 B) $C_{12}H_{12}O_6$
 C) $C_6H_{12}O_5$
 D) $C_6H_{12}O_6$

40. What is the ratio of hydrogen atoms to oxygen atoms in a molecule of glucose?

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

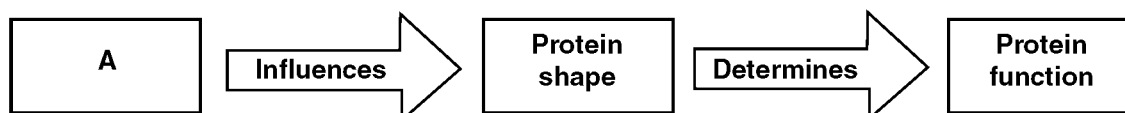
41. Which compound has the structural formula shown below?



- A) starch
 B) PGAL
 C) ATP
 D) glucose
42. In living organisms, lipids function mainly as
- A) sources of stored energy and transmitters of genetic information
 B) sources of stored energy and components of cellular membranes
 C) transmitters of genetic information and catalysts of chemical reactions
 D) catalysts of chemical reactions and components of cellular membranes
43. Vegetable oils, such as corn oil, belong to which general class of organic substances?
- A) lipids
 B) proteins
 C) carbohydrates
 D) salts

44. Proteins ingested by animals are immediate sources of
- A) glucose
 - B) cellulose
 - C) fatty acids
 - D) amino acids
45. An element found in all proteins but not found in carbohydrates and lipids is
- A) carbon
 - B) hydrogen
 - C) oxygen
 - D) nitrogen

46. The diagram below provides some information concerning proteins.



Which phrase is represented by *A*?

- A) sequence of amino acids
- B) sequence of simple sugars
- C) sequence of starch molecules
- D) sequence of ATP molecules

**Review [Life]
Answer Key**

1. A

25. A

2. A

26. B

3. A

27. B

4. C

28. C

5. C

29. A

6. C

30. A

7. B

31. B

8. D

32. A

9. A

33. D

10. D

34. C

11. C

35. D

12. A

36. C

13. D

37. B

14. D

38. D

15. C

39. D

16. C

40. B

17. A

41. D

18. A

42. B

19. C

43. A

20. B

44. D

21. D

45. D

22. D

46. A

23. B

24. C

Question ID's in Test
Order.

1. 1676
 2. 2932
 3. 494
 4. 4182
 5. 451
 6. 452
 7. 1029
 8. 2194
 9. 3898
 10. 2275
 11. 922
 12. 804
 13. 2917
 14. 2445
 15. 4204
 16. 1338
 17. 1882
 18. 2444
 19. 1567
 20. 4080
 21. 3471
 22. 2452
 23. 928
 24. 2454
 25. 4092
 26. 3262
 27. 4025
 28. 1789
 29. 1349
 30. 1636
 31. 2656
 32. 4362
 33. 618
 34. 677
 35. 1547
 36. 253
 37. 1961
 38. 2420
 39. 415
 40. 1085
 41. 2892
 42. 1916
 43. 512
 44. 2757
 45. 3394
 46. 4201
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Review [Life]

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