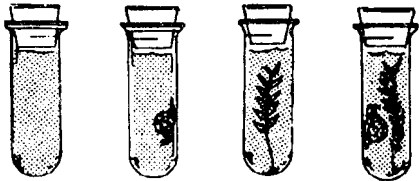


## NY Regents Biology Samples

- 1) In an investigation of the cycling of environmental gases, a student placed water and bromthymol blue in each of four test tubes as shown in the diagrams shown. No additional items were placed in tube 1, a snail was placed in tube 2, and aquatic plant (elodea) was placed in tube 3, and both a snail and an elodea were placed in tube 4. The tubes were then stoppered and placed in bright light for 24 hours.



Tube 1   Tube 2   Tube 3   Tube 4

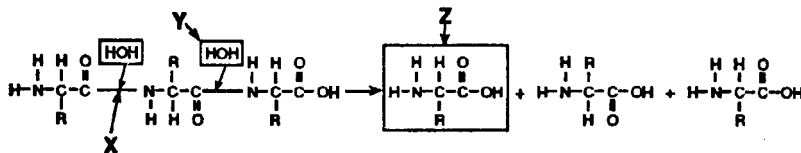
The function of tube 1 in this investigation is to

- A. detect the presence of glucose
- B. determine the amount of gases in the water
- C. demonstrate the transparency of the solution
- D. serve as a control

- 2) The fluid-mosaic model of the cell membrane suggests that the membrane is primarily composed of
- A. proteins and starches
  - B. carbohydrates and lipids
  - C. sugars and proteins
  - D. proteins and lipids
- 3) What does the process of photosynthesis produce?

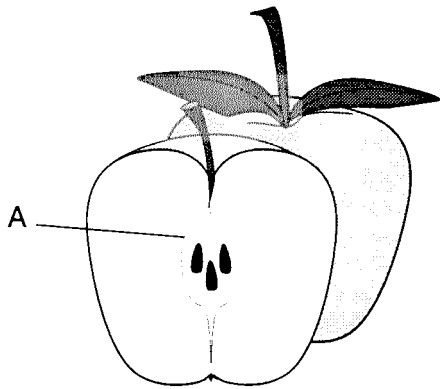
- A. starch, which is metabolized into less complex molecules by dehydration synthesis
- B. protein, which is metabolized into less complex molecules by dehydration synthesis
- C. glycerol, which is metabolized into more complex carbohydrates by dehydration synthesis
- D. glucose, which is metabolized into more complex carbohydrates by dehydration synthesis

- 4) The molecule represented within the box labeled Z is



- A. a protein molecule
- B. a polypeptide
- C. an amino acid
- D. a glycerol molecule

- 5) From which flower part does structure A in the diagram shown develop?



- A. stamen                      B. petal  
C. anther                      D. ovary
- 6) If some of the xylem of a young oak tree were destroyed, it would most likely interfere with the tree's ability to

- A. absorb sunlight  
B. produce carbon monoxide  
C. conduct water  
D. conduct organic compounds

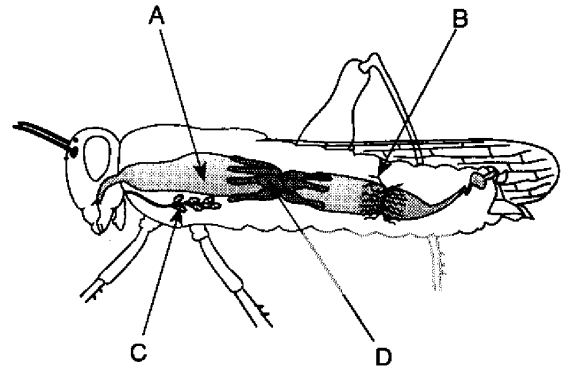
- 7) The nephrons of humans are most similar in structure and function to the

- A. nephridia of earthworms  
B. cell membranes of hydra  
C. contractile vacuoles of paramecia  
D. spiracles of grasshoppers

- 8) Which event is *not* part of the process of DNA replication?

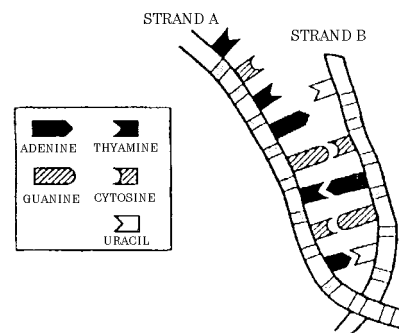
- A. Nitrogenous base pairs are formed.  
B. Hydrogen bonds are broken.  
C. A double-stranded molecule unwinds.  
D. Ribosomes are synthesized.

- 9) Which statement correctly identifies the function and relative location of two structures shown in the diagram?



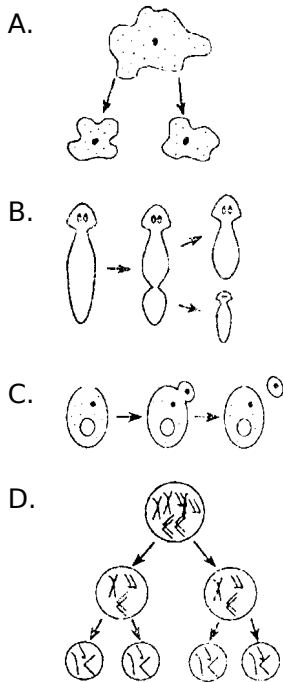
- A. Digestive structure A is posterior to excretory structure B.  
B. Digestive structure C is ventral to digestive structure A.  
C. Excretory structure B is anterior to excretory structure D.  
D. Circulatory structure D is dorsal to respiratory structure C.

- 10) If strand A represents a portion of a DNA molecule, its complementary sequence of nitrogenous bases on messenger RNA would normally be

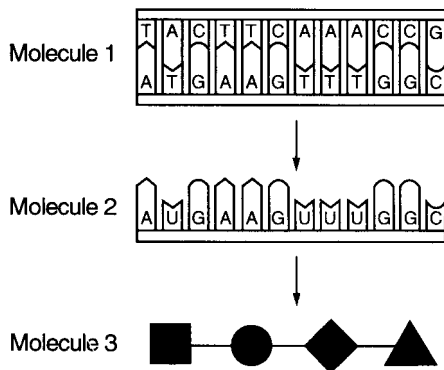


- A. A-G-A-T-C-A-G-T  
B. T-C-T-A-G-T-C-T  
C. A-G-A-U-C-A-G-U  
D. U-G-U-A-G-U-C-U

11) Which illustration represents a process that results in the production of gametes?



12) The diagram represents molecules involved in protein synthesis.



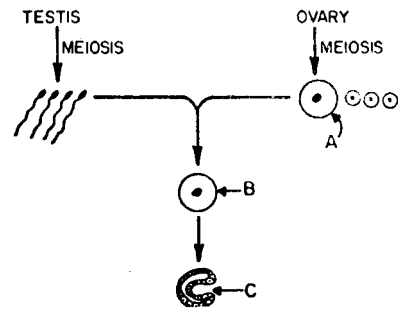
Molecule 3 is formed as a result of

- A. deamination
- B. dehydration synthesis
- C. enzymatic hydrolysis
- D. oxidation

13) Plants with desirable qualities can be rapidly reproduced from the cells of a single plant by a process known as

- A. cloning
- B. gamete fusion
- C. reduction division
- D. gametogenesis

14) Structure A in the diagram represents



- A. a zygote
- B. an egg
- C. a sperm
- D. an embryo

15) Shown are two statements. Select the choice which best applies to this pair of statements.

An egg passes from an ovary to the uterus through the urethra.  
Sperm cells leave the body by passing through the urethra.

- A. Both statements are correct.
- B. Neither statement is correct.
- C. The first statement is correct; the second is incorrect.
- D. The first statement is incorrect; the second is correct.

16)	Patient	Name of Genetic Disorder	Characteristics of the Disorder
	A	sickle-cell anemia	
	B		deterioration of the nervous system due to accumulation of fatty material

Patient *B* has the genetic disorder known as

- A. phenylketonuria    B. Tay-Sachs    C. hemophilia    D. color blindness

17) Which concept is part of the modern evolutionary theory, but *not* Darwin's original theory?

- A. Variations in traits are caused by mutation and recombination.
- B. Species tend to produce more offspring than can survive.
- C. Better adapted individuals survive to produce offspring.
- D. The environment is responsible for eliminating less fit individuals.

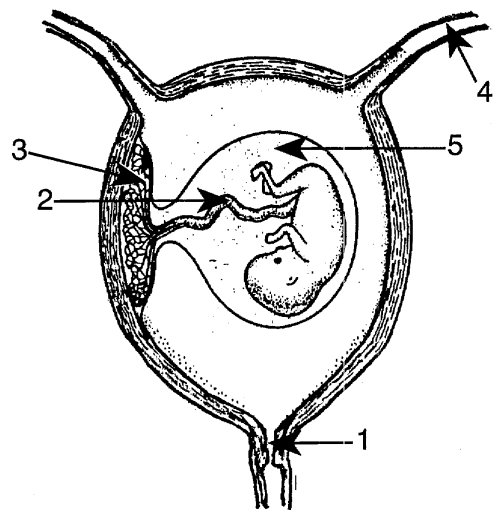
18) According to the heterotroph hypothesis, the earliest forms of life on Earth would be classified as

- A. aerobic heterotrophs
- B. anaerobic heterotrophs
- C. aerobic autotrophs
- D. anaerobic autotrophs

19) Which sequence represents the normal order of events that occur during the menstrual cycle?

- A. menstruation → ovulation → corpus luteum → follicle stage
- B. follicle stage → ovulation → corpus luteum → menstruation
- C. ovulation → follicle stage → corpus luteum → menstruation
- D. follicle stage → menstruation → corpus luteum → ovulation

20) Shown is a diagram which represents a human embryo developing in the uterus. Internal fertilization normally takes place in the structure indicated by number

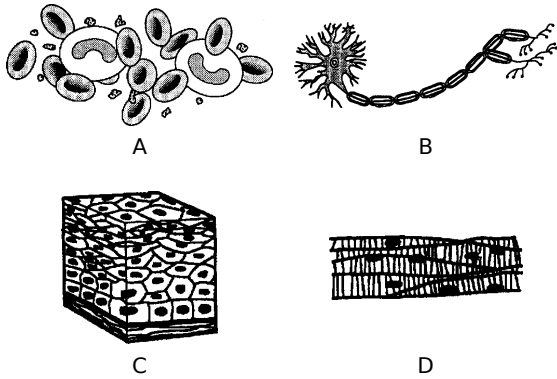


- A. 1    B. 2    C. 5    D. 4

21) Smoking may damage the respiratory system because deposits from the smoke can

- A. interfere with ciliary action in the trachea
- B. trigger the release of antigens by the alveoli
- C. block the transmission of impulses that regulate breathing
- D. lower blood pressure in the mucous membranes of the bronchioles

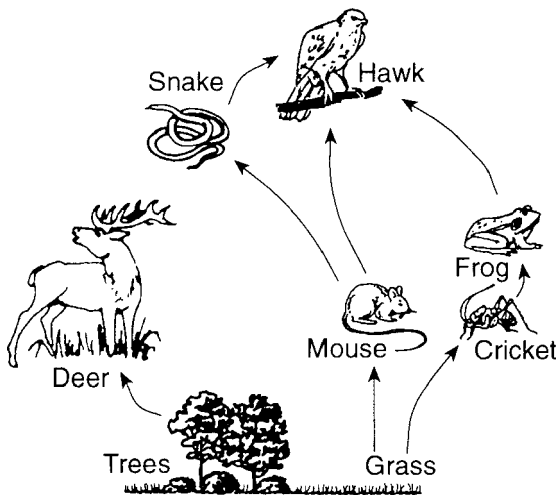
22)



Which statement describes a relationship between the human cells illustrated in the diagrams shown?

- A. *B* may cause *D* to contract.
- B. *A* is produced by *D*.
- C. *C* transports oxygen to *A*.
- D. *B* is used to repair *C*.

23) Nutritional relationships between organisms are shown in the accompanying diagram.



Which organisms are primary consumers?

- A. mouse, snake, and hawk
- B. snake, hawk, and frog
- C. cricket, frog, and deer
- D. mouse, deer, and cricket

24) A field study was conducted to observe a deer population in a given region over time. The deer were counted at different intervals over a period of 40 years. During this period of time, both ranching and hunting increased in the study region. A summary of the data is presented in the table.

Data Table

Year	Deer Population (thousands)
1900	3.0
1910	9.5
1920	65.0
1924	100.0
1926	40.0
1930	25.0
1940	10.0

Using the information in the data table, construct a line graph on a grid. Plot the data for the deer population on the grid. Surround each point with a small circle and connect the points.

Example:

