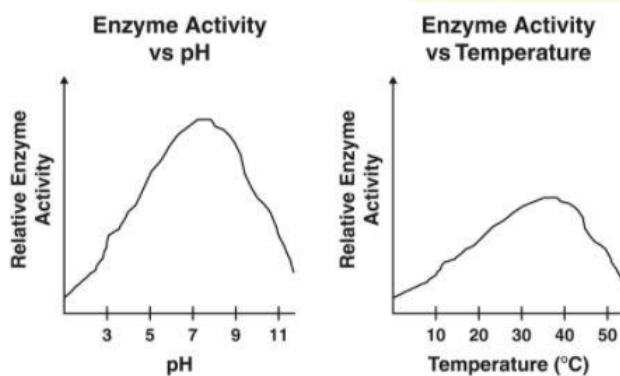


1. Estella spilled tomato sauce on her shirt. When she washed her shirt, she noticed that the detergent she used contained enzymes. Enzymes are added to detergents to break down proteins from food and other substances that may stain clothing. Which would most likely inhibit the ability of the enzymes to remove the stain on her shirt?

- A.the amount of dissolved minerals in the water
- B.the type of fibers from which her shirt was made
- C.the temperature of the water
- D.the fragrances in the detergent

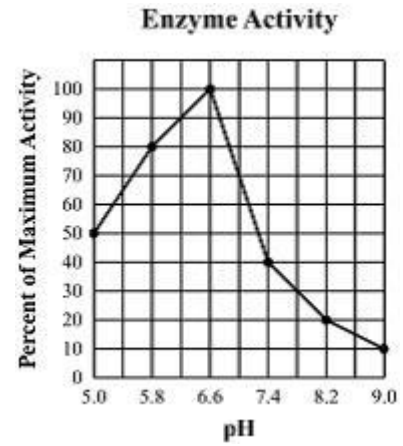
2. Catalase is an enzyme that speeds up the decomposition of hydrogen peroxide (H₂O₂) into water and oxygen. Students conducted two investigations to determine the ideal conditions for the function of catalase. One investigation compared catalase activity at different values of pH. The other investigation compared catalase activity at different temperatures.

According to the data in the graphs, which pH and temperature combination provides the best conditions for catalase to function?



- A.pH 5 and 4°C
- B.pH 5 and 25°C
- C.pH 7 and 37°C
- D.pH 7 and 50°C

3. Which of the following conclusions can be drawn from this graph?



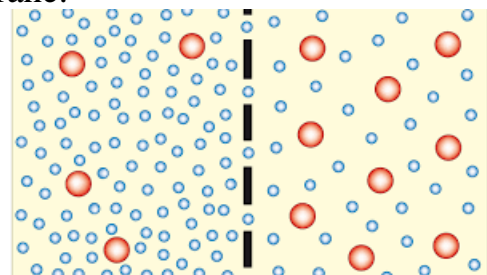
- A.The optimum pH of the enzyme is 6.6.
- B.The optimum pH of the enzyme is 5.8
- C.The enzyme’s activity increases as pH increases 5.0 to 9.0
- D.The enzyme’s activity is greater around pH of 8.0 .

4. Which substrate would this enzyme catalyze?



- A.Δ
- B.σ
- C.∅
- D.μ

5. Osmosis is the movement of _____ across a membrane.



- A.food
- B.energy
- C.oxygen
- D.water

6. Which instrument is credited for helping scientists develop cell theory?



- A. the microscope
- B.a hand lens
- C.an electronic balance
- D.a thermometer

7. Some students observing a classroom device being used, noticed the below energy transformations.

Electrical → Mechanical → Sound
Which device were the students most likely observing?

- A.A triple beam balance measuring an object's mass.
- B.A pencil sharpener plugged into a wall outlet.
- C.A projector displaying a diagram on the screen.
- D.A working flashlight used to light up a dark corner.

8. Which is not an example of cross contamination?

- A.Vegetables contaminated by bacteria in soil because they hadn't been washed properly
- B.A food handler using a red chopping board for raw chicken and then making sandwiches on the same board.

C.Cooked meat contaminated by blood from raw meat that hasn't been cleaned off the surface.

D.Food handlers getting bacteria on their hands from the fridge handle and then making pasta salads.

A

9. Which type of date marking is important for food safety

- A.use-by-date
- B.best-before-date
- C.sell-by-date
- D.production-date

10. An area where an organism finds food, shelter and water in a specific arrangement



- A.niche
- B.biosphere
- C.biome
- D.habitat

11.

Genes found on DNA contain the instructions for _____ making

- A.pyrimidines
- B.pyrimidines
- C.proteins
- D.purines

12. In humans, what would the blood type of a child be if she inherited type A from Dad and type B from Mom?

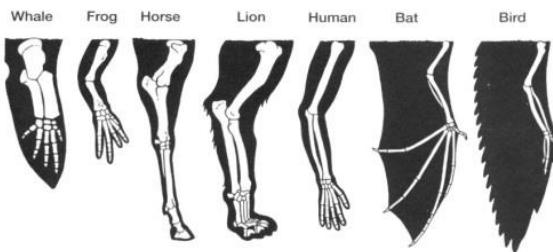
A.O

- B.A
- C.B
- D.AB

13. Chargaff's Rules states that

- A. for any given species, the abundance of A was the same as T, and G was the same as C.
- B. for any given species, the abundance of A was the same as G, and T was the same as C.
- C. for any given species, the abundance of C was the same as T, and G was the same as A.
- D. for any given species, the abundance of A was the same as C, and G was the same as T.

14. Which statement best represents the illustration?



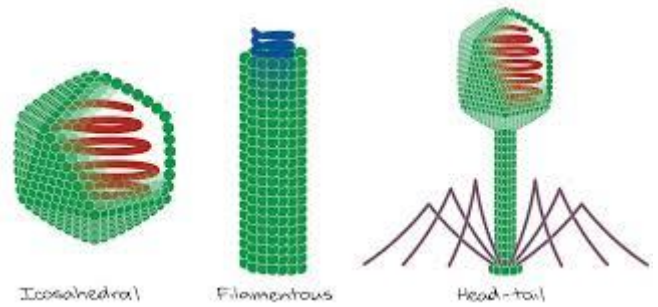
- A. All of the above animals are mammals.
- B. All of the above share homologous structures
- C. All of the above structures show no evidence of relationship.
- D. All of the above animals evolved in the same habitat.

15. A spider making a web is an example of a



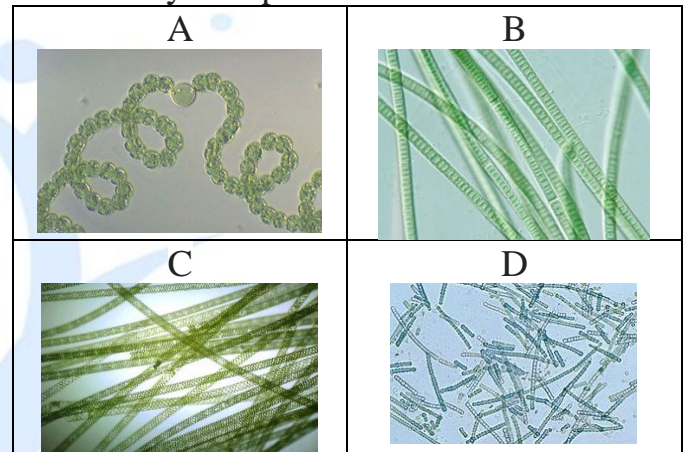
- A. stimulus
- B. genetic behavior
- C. fixed action pattern
- D. learned behavior

16. What do viruses have in common with living cells? They both...

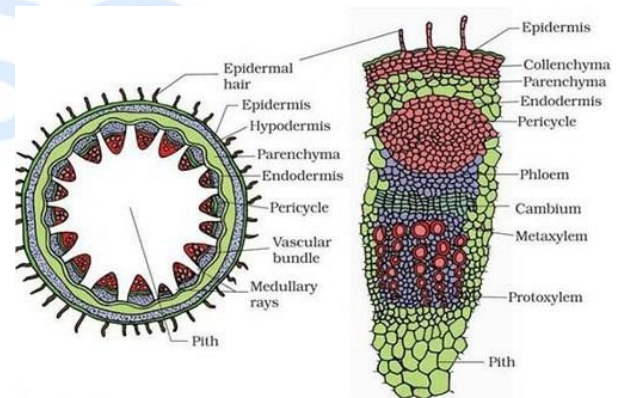


- A. store genetic information
- B. have chloroplasts
- C. use glucose for cellular respiration
- D. have endoplasmic reticulum

17. Identify the specimen Oscillatoria



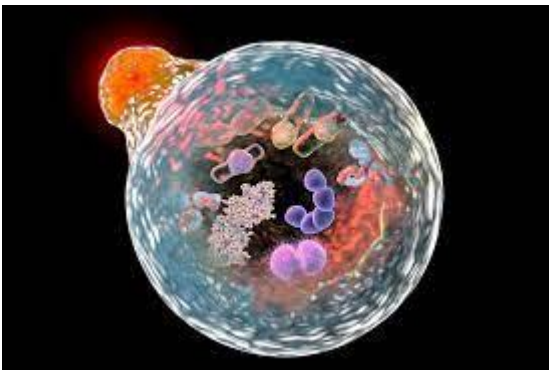
18. The vascular bundles shown in this picture are



- A. Open and conjoint
- B. Open and radial
- C. Conjoint and closed
- D. Radial and closed

19. Identify the correct statement
- a) Stomata are present on both epidermal layers in isobilateral leaves
 - b) Guard cells are dumb-bell shaped in grass leaves
 - c) Photosynthesis do not occur in guard cells
 - d) Stomata opens when guard cells are flaccid
- A.a, c
 B.c,d
 C.a, b
 D.b, d

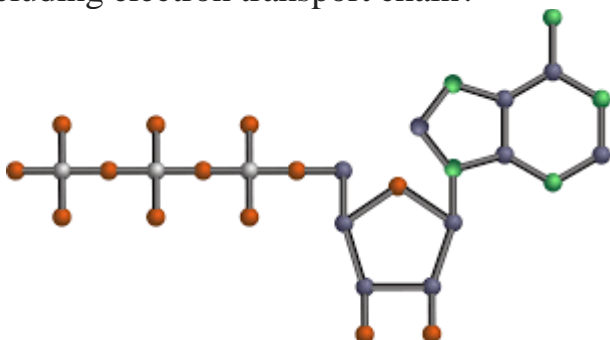
20. Which of the following statements is not correct?



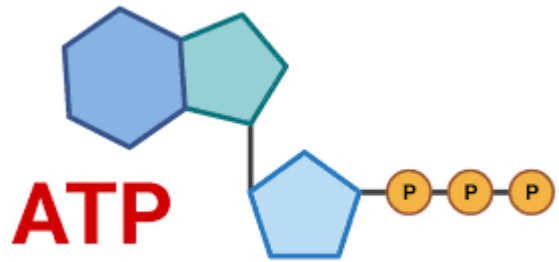
- A.Lysosomes have numerous hydrolytic enzymes
- B.The hydrolytic enzymes of lysosomes are active under acidic pH
- C.Lysosomes are membrane bound structures
- D.Lysosomes are formed by the process of packaging in the endoplasmic reticulum

21. The longest cell in the human body is cell

22. How many ATP molecules are formed from three molecules of acetyl CoA in Krebs cycle excluding electron transport chain?



23. What is the net gain of ATP during aerobic respiration if the malate-aspartate shuttle is used?



Definition, Structure, Production, Synthesis, Functions

24. Tidal Volume and Expiratory Reserve Volume of an athlete is 500 mL and 1000 mL, respectively. What will be his Expiratory Capacity if the Residual Volume is 1200 mL in mL?



25. What amount of carbon dioxide is delivered by every 100 ml of deoxygenated blood at the alveoli in mL?

