

## HESI A2 and Allied Health

## Practice Test III

1. The structure that prevents food from entering the lungs is the
  - A. esophagus
  - B. larynx
  - C. epiglottis
  - D. trachea
  
2. If an organism can survive in an environment without oxygen, it must be
  - A. a green plant
  - B. an auxin
  - C. an anaerobe
  - D. an aerobe
  
3. Which of these gases in the upper atmosphere efficiently absorbs ultraviolet radiation?
  - A. carbon dioxide
  - B. nitrogen
  - C. hydrogen
  - D. ozone
  
4. What instrument would be best for separating the components of blood for special types of transfusions?
  - A. electron microscope
  - B. centrifuge
  - C. micro dissection apparatus
  - D. suction filter
  
5. For fats to be usable by cells, the fats must first be converted to
  - A. glycerol and fatty acids
  - B. simple sugars
  - C. amino acids
  - D. carbon dioxide and water

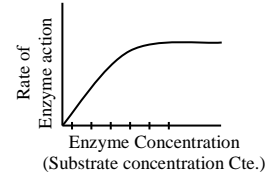
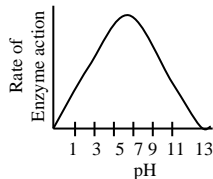
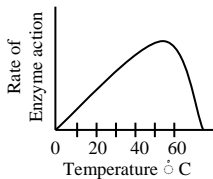
6. Which system of the body operates by means of electrochemical impulses?

- A. digestive
- B. nervous
- C. endocrine
- D. circulatory

7. The volume of 8 fluid ounces is approximately equal to

- A. 100 ml.
- B. 250 ml.
- C. 500 ml.
- D. 1000 ml.

**Questions 8 and 9 are based on the graphs below, which show the activity of an enzyme under different temperature and pH conditions.**



8. What is the effect of temperature on the activity of the enzyme?

- A. The activity is not affected by temperature.
- B. The activity increases as temperature increases.
- C. The activity decreases as temperature increases.
- D. The activity first increases, then decreases, as temperature increases.

9. At about what pH does the enzyme act most effectively?

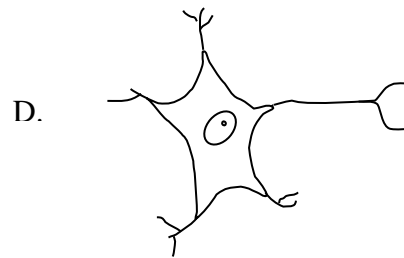
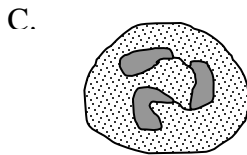
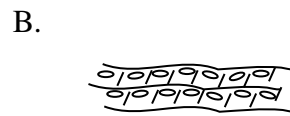
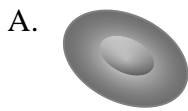
- A. 1
- B. 3
- C. 6
- D. 13

10. Which of the following is an example of a habit?

- A. A knee-jerk response when the knee is tapped.
- B. Using the touch system in typing.
- C. A bird building a nest.
- D. Peristalsis

11. What materials do most organisms use in their cell metabolism?
- urea and carbon dioxide
  - nitrogen gas and starch
  - proteins and carbon dioxide
  - glucose and oxygen
12. The world population is multiplying rapidly. What is expected to be the most serious factor upon the growth of the population?
- water pollution
  - air pollution
  - availability of food
  - diseases

Questions 13 and 14 refer to the diagrams below:

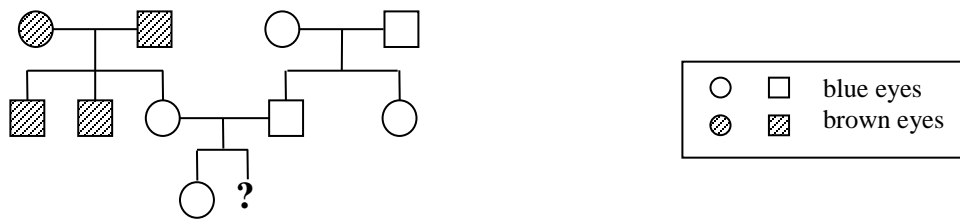


13. Which diagram represents a cell adapted for carrying impulses?
- A
  - B
  - C
  - D
14. Which diagram represents a cell that can carry and release oxygen?
- A
  - B
  - C
  - D

15. The vena cavae deliver blood to
- A. Lungs
  - B. Head and neck
  - C. Right auricle/atrium
  - D. Left ventricle
16. The offspring of hybrid pink four o'clocks are planted, and the resulting flowers are pink, white, and red. This variety of colors illustrates the principle of
- A. segregation
  - B. independent assortment
  - C. incomplete dominance
  - D. complete dominance
17. Which of these tubes that carry body fluids are characterized by heavily muscled walls?
- A. capillaries
  - B. veins
  - C. arteries
  - D. lymph vessels
18. Sodium hydroxide pellets will absorb carbon dioxide. If all of the air in a balanced, closed vivarium were to be constantly pumped through sodium hydroxide, which organisms would be harmed first?
- A. insects
  - B. green plants
  - C. bacteria
  - D. mice
  - E.
19. For digestion to occur, what substance must be present along with the proper enzymes?
- A. water
  - B. oxygen
  - C. carbon dioxide
  - D. urea
20. Neutral pH is
- A. 12
  - B. 7
  - C. 3
  - D. 9

21. The movement of particles from an area of high concentration to one of low concentration is
- Diffusion
  - Active transport
  - Transport
  - Osmosis
22. Which of these substances is usually found in the muscle when muscle fatigue is experienced?
- ATP
  - Glucose
  - Lactic acid
  - Carbon dioxide

Questions 23 – 25 refer to the pedigree chart below:



23. According to the information given, blue eyes are
- definitely pure recessive
  - definitely pure dominant
  - incompletely dominant
  - sex-linked
24. Joe's eyes are brown. Joe's genes for eye color are
- definitely pure recessive
  - definitely pure dominant
  - definitely hybrid
  - either pure dominant or hybrid
25. Nancy's sex chromosomes must be
- XX
  - XY
  - YY
  - XYY

26. If a person takes in more salt than he needs, his or her body will
- A. store the salt for future use
  - B. excrete more salt than usual
  - C. adapt to a higher salt concentration
  - D. excrete less salt than usual
27. During inspiration, the diaphragm moves down and the ribs move upward and outward. What is the result of this?
- A. The lung space is increased and the air pressure is lower than that of the outside air.
  - B. The lung space is increased and the air pressure is higher than that of the outside air.
  - C. The lung space is decreased and the air pressure is lower than that of the outside air.
  - D. The lung space is decreased and the air pressure is higher than that of the outside air.
28. If the concentration of glucose in the blood falls below normal, what will be the immediate result?
- A. More glucose will be released from glycogen in the muscles and liver.
  - B. The individual will need insulin.
  - C. The individual will burn up fat.
  - D. The body cells will synthesize more glucose.
29. Waste products of nitrogen metabolism leave the body mainly through the
- A. skin
  - B. lungs
  - C. rectum
  - D. urinary bladder
30. If saltwater protozoan is placed in fresh water, it will
- A. Swell up by osmosis.
  - B. Swell up by active transport.
  - C. Shrink by osmosis.
  - D. Remain the same size.
31. Gas exchange in the lungs occurs in the
- A. Turbinates
  - B. Bronchioles
  - C. Alveoli
  - D. Pleural cavity

32. A microscope has an eyepiece of 10x and objectives of 10x and 40x. How would you obtain the largest field of view with this microscope?
- A. Move the objective very close to the slide.
  - B. Increase the light passing through the slide.
  - C. Use the 10x objective.
  - D. Use the 40x objective.
33. The working unit of the kidney is
- A. Capsule
  - B. Nephron
  - C. Tubule
  - D. Ureter
34. If all the bacteria in the soil were destroyed, the availability of which minerals would be decreased?
- A. carbonates
  - B. nitrates
  - C. phosphates
  - D. oxides
35. What part of the nervous system governs memory, sensation, and judgment?
- A. spinal cord
  - B. medulla
  - C. cerebrum
  - D. cerebellum
36. Sugars are transported from the leaves to the roots of a plant by
- A. Peristaltic motion.
  - B. Osmotic pressure
  - C. Active transport
  - D. Phloem cells

HESI A2 and Allied Health Practice Test III  
Answer Key

- |       |       |
|-------|-------|
| 1. C  | 19. A |
| 2. C  | 20. B |
| 3. D  | 21. A |
| 4. B  | 22. C |
| 5. A  | 23. A |
| 6. B  | 24. D |
| 7. B  | 25. A |
| 8. D  | 26. B |
| 9. C  | 27. A |
| 10. B | 28. A |
| 11. D | 29. D |
| 12. C | 30. A |
| 13. D | 31. B |
| 14. A | 32. C |
| 15. B | 33. C |
| 16. C | 34. B |
| 17. C | 35. C |
| 18. B | 36. B |