

CONTESTANT NUMBER:

FOR GRADER USE ONLY

Score Test Below:

_____ Initials _____

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Papers contending to place:

_____ Initials _____



**University Interscholastic League
A+ Science Contest • Answer Sheet**

Write your contestant number in the upper right corner, and circle your level below.

Circle Level:

Science I

Science II

1. _____

21. _____

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**UNIVERSITY INTERSCHOLASTIC LEAGUE
2016-2017 A+ SCIENCE I
FALL/WINTER DISTRICT TEST**

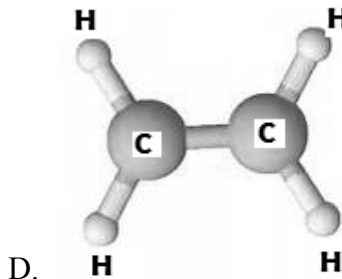
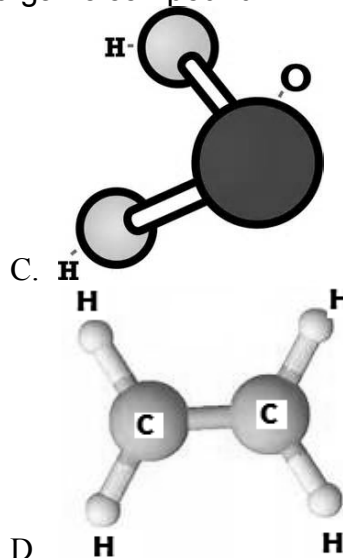
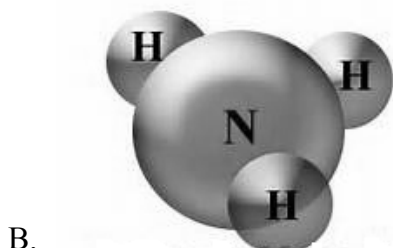
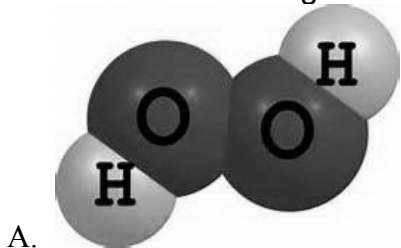
- The length of a ruler is approximately 31 centimeters. Expressed in meters, it would be:
A. .031 m B. .31 m C. 3.1 m D. 31 m
- What property of plants make them an essential part of cycling carbon through the environment?
A. Plants change carbon dioxide into "food"
B. Plants live in an atmosphere with carbon
C. Plants releasing carbon dioxide into the atmosphere
D. Plants reproducing both sexually and asexually
- In photosynthesis, radiant energy from the sun is converted into what other form of energy that is used for life functions?
A. Thermal C. Kinetic
B. Chemical D. Mechanical

- Which population in the food chain shown is most likely to have the greatest biomass?



- Grass
- Deer
- Cougar
- Buzzard


- Which of the following correctly represents an organic compound?



6. What is the first chemical change that is involved in digestion in the human body?
- A. Chewing
 - B. Saliva in the mouth
 - C. Gastric juices in the stomach
 - D. Enzymes in the small intestine
7. Which of the following does not provide a good source of carbohydrates for your body to digest?
- A. Potato
 - B. Strawberry
 - C. Whole grain bread
 - D. Pasta
8. Which scenario has the same amount of work as the following statement:
Pulling a book up 2 stories
- A. Pulling two books up two stories
 - B. Pulling two books up one story
 - C. Pulling four books up two stories
 - D. Pulling one book up two stories
9. Which is an example of a correct energy transformations?
- A. Gravitation potential energy transforming into elastic potential energy
 - B. Friction transforming into kinetic energy and then to heat
 - C. Potential energy transforming in kinetic energy and then back to potential energy
 - D. Plants transforming energy from the moon into potential energy
10. What is the gravitational force exerted on an object referred to as:
- A. Centripetal force
 - B. Friction
 - C. Momentum
 - D. Weight
11. Which occurs every time there is an earthquake?
- A. Lava seeps onto the land
 - B. New soil formation
 - C. Tectonic plates shift
 - D. Mountain ranges form
12. Ocean waves continually crash against a boulder as shown. Over time, the boulder will most likely:



- A. Be pushed up the beach
- B. Be buried under the beach
- C. Grow larger in size
- D. Become smaller in diameter

13. Groundwater becomes surface water at which of the following locations?
A. River
B. Ocean
C. Spring
D. Aquifer
14. For plants from Earth to flourish on a different planet, what must be present in the atmosphere?
A. Carbon dioxide
B. Nitrogen
C. Oxygen
D. Helium
15. Which of the following is not an accommodation for manned space explorations?
A. Space suits
B. Space craft
C. Vacuum
D. Food preparation
16. This biome shown in the picture represents a:
A. Rain forest
B. Savannah
C. Tundra
D. Desert
- 
17. Why is maintaining biodiversity important?
A. Uses resources
B. Destroys habitats
C. Takes up space
D. Helps the environment
18. In what type of environment best describes where ecological succession can take place?
A. Urban areas
B. Rural areas
C. Anywhere
D. Suburban areas
19. By working through pairs of descriptive statements and their responses, you can use this to help identify unknown organisms. What is this referring too?
A. DNA analysis
B. Dichotomous key
C. Binomial nomenclature
D. Encyclopedia
20. A viceroy butterfly looks very similar to a monarch butterfly. The viceroy butterfly tastes terrible to its predators, such as a bird, therefore they don't chance to eat the wrong butterfly. What type of adaptation best describes this situation?
A. Mimicry
B. Camouflage
C. Hibernation
D. Migration

21. Breeding cats to produce only white phenotypes is an example of which of the following:

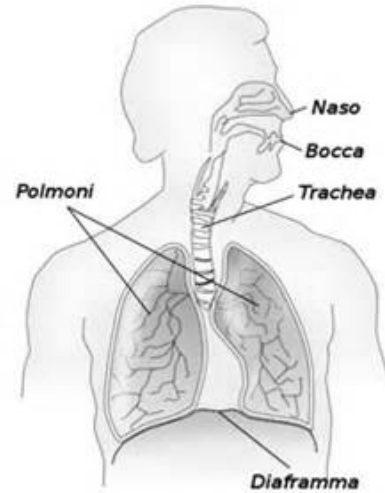
- A. Modification selection
- B. Selective breeding
- C. Natural selection
- D. Artificial selection

22. Which of the following is not an example of an internal structural adaptation?

- A. Gills on a fish
- B. Hollow bones in birds
- C. Xylem in plants
- D. Fur coat of a polar bear

23. What body system is represented by the illustration shown?

- A. Nervous
- B. Endocrine
- C. Respiratory
- D. Circulatory



24. Pick the level of organization that is one level higher than a tissue.

- A. System
- B. Cell
- C. Organism
- D. Organ

25. Which of the following organelles may be absent from an eukaryotic cell?

- A. Nucleus
- B. Mitochondria
- C. Plasma membrane
- D. Chloroplast

26. If an organism couldn't digest cellulose, which organelle would be difficult for an organelle to digest or eat?

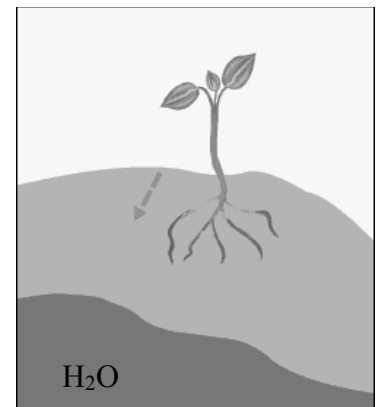
- A. Cell membrane
- B. Cell wall
- C. Endoplasmic reticulum
- D. Golgi bodies

27. Which of the following is not a part of the cell theory?

- A. New cells have nuclei identical to preexisting cells
- B. Cells are function units
- C. Cells are structural units
- D. New cells come from preexisting cells

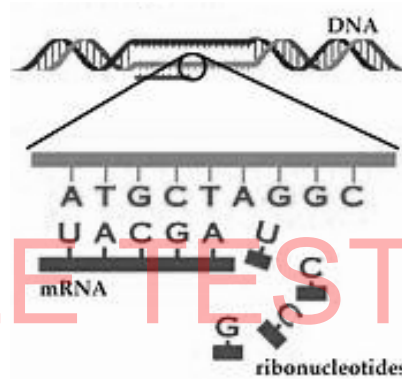
28. A tropism is named for the stimulus involved. What type of tropism is shown?

- A. Phototropism
- B. Hydrotropism
- C. Geotropism
- D. Thermotropism



29. Which is not an example of homeostasis?
- Regulating blood glucose levels
 - Temperature regulation
 - Regulating vision
 - Regulating blood carbon dioxide levels
30. A plant is heterozygous for flower color. Two genes determine the flowers color – one purple and one white gene. If the plant's flowers are all purple it can be concluded that the purple allele is ____ and the white allele is ____.
- Recessive; dominant
 - Dominant; recessive
 - Strong; weak
 - Weak; strong

31. What mechanism below does not contribute to genetic variation in meiosis?
- Parthenogenesis
 - Independent assortment
 - Crossing over
 - Random fertilization



32. What process is shown?

- Replication
- Translation
- Meiosis
- Transcription

33. When heating a material in the lab, which of the following is not true?
- Point a test tube away from yourself and others
 - Work with chemicals that produce fumes only in well ventilated areas
 - Use hot plates, not open flames, for heating
 - Use tongs when transferring hot beakers

34. A scientist wants to determine whether water from a river is acidic, basic, or neutral. What equipment would be best to use in the field?
- Electronic watch
 - Microscope
 - pH paper
 - Paper chromatography

35. An experiment to measure the amount of water vapor in air at different barometric pressures was conducted. In graphing this, what quantity would be plotted on the x-axis of the graph?
- Amount of water vapor
 - Dependent variable
 - Barometric pressure
 - Time

UNIVERSITY INTERSCHOLASTIC LEAGUE
2016-2017 SCIENCE I
FALL/WINTER DISTRICT TEST

Answer Key

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

SAMPLE TEST
AND KEY