

**2<sup>nd</sup> Copernicus Olympiad**  
**Natural Science Discipline, Category II,**  
**Global Round Exam.**

**Name and Surname:**

**Country:**

**Date:**

**Grade:**

**Rules and Regulations:**

- This exam has 25 multiple choice and classical type questions. Each question weighs 4 points. Maximum point student can get is 100. Four (4) incorrect answers will eliminate one correct answer.
- Time allocated for this exam is 70 minutes. You will start when proctor tells you to start and will stop when proctor tells you that time is over.
- Students are not allowed to use any kind of electronic device.
- This exam contains 5 pages. Before starting the exam please check and let your proctor know if any page is missing.
- Students can use both pen and pencil, but we recommend to use pencil, so it will be easier to clean when you make mistake.
- Each question has to have only one answer. Questions with more than one answer will be counted as incorrect.
- Students cannot consult the proctor as to the meaning of any question.
- Students must not give or receive assistance of any kind during the exam. Any cheating, any attempt to cheat, assisting others to cheat, or participating therein, or engaging in such improper conduct is a serious violation and will generally result in disqualifying.
- Students must sign each page of their exam paper. Candidates who fail to do so will have their exams disqualified.

End of rules and regulations. **Good luck!**

Q1: What is the effect caused by the tilt of Earth's axis?

- A. the changing season
- B. meteors and asteroids
- C. the alignment of the planets
- D. periods of daylight and darkness

Q2: Where is food made in a plant cell?

- A. in the nucleus
- B. in the chloroplast
- C. in the cell membrane
- D. in the endoplasmic reticulum

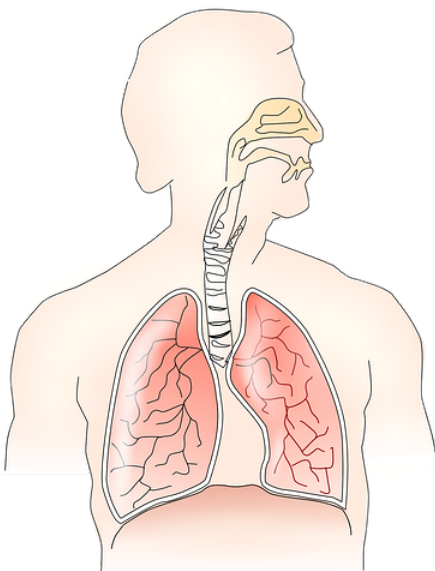
Q3: Which is the best example of a pure substance?

- A. peanuts
- B. milk
- C. gold
- D. air

Q4: Which best describes the amount of Earth's total water supply that is usable freshwater?

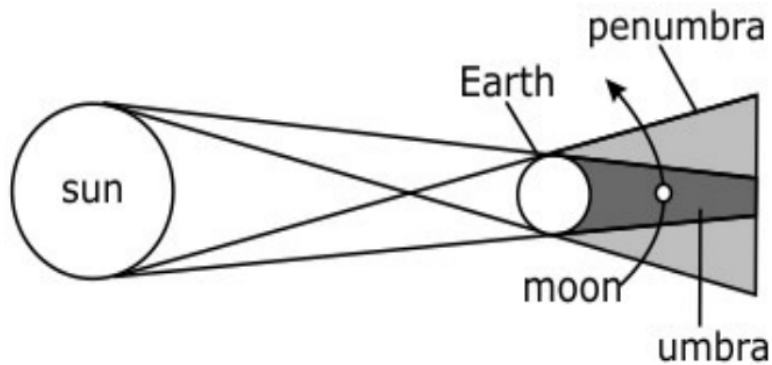
- A. less than 1%
- B. less than 25%
- C. greater than 50%
- D. greater than 75%

Q5: Which body system is shown in the diagram below?



- A. digestive system
- B. excretory system
- C. nervous system
- D. respiratory system

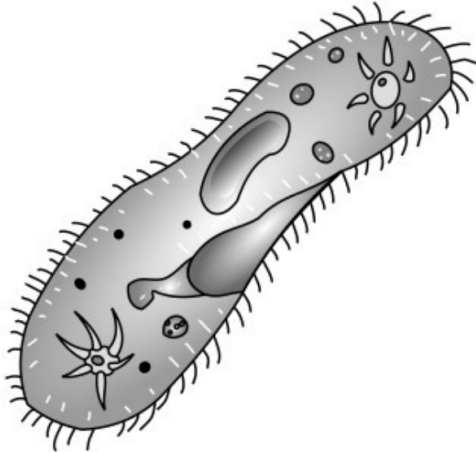
Q6: This diagram shows an alignment of the Sun, Earth, and the moon.



Which event happens during this alignment?

Answer: \_\_\_\_\_

Q7: Alex observed this organism under the microscope.



Which organism did he observe?

- A. a volvox, because it has cilia
- B. a euglena, because it has cilia
- C. an amoeba, because it has cilia
- D. a paramecium, because it has cilia

Q8: Chemical formulas for several common substances are listed in the table below.

Substance	Chemical Formula
water	$H_2O$
ammonia	$NH_3$
sugar	$C_6H_{12}O_6$
baking soda	$NaHCO_3$

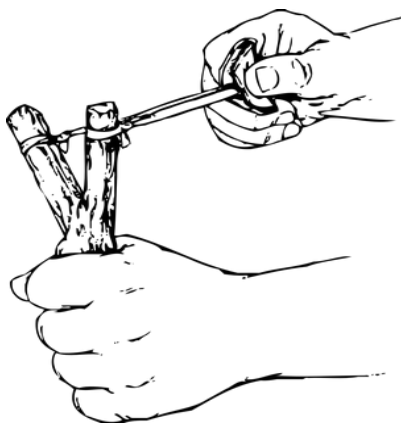
Why does hydrogen (H) have a different subscript in each substance?

- A. The subscript indicates the number of hydrogen atoms in each substance.
- B. The subscript indicates the number of mixtures that the hydrogen is forming.
- C. The subscript indicates the number of compounds that the hydrogen is forming.
- D. The subscript indicates whether the hydrogen is forming a compound or a mixture.

Q9: Which undisturbed rock layers are most likely to contain fossils resembling existing species?

- A. layers on the top
- B. layers on the bottom
- C. layers nearest to oceans
- D. layers nearest to volcanoes

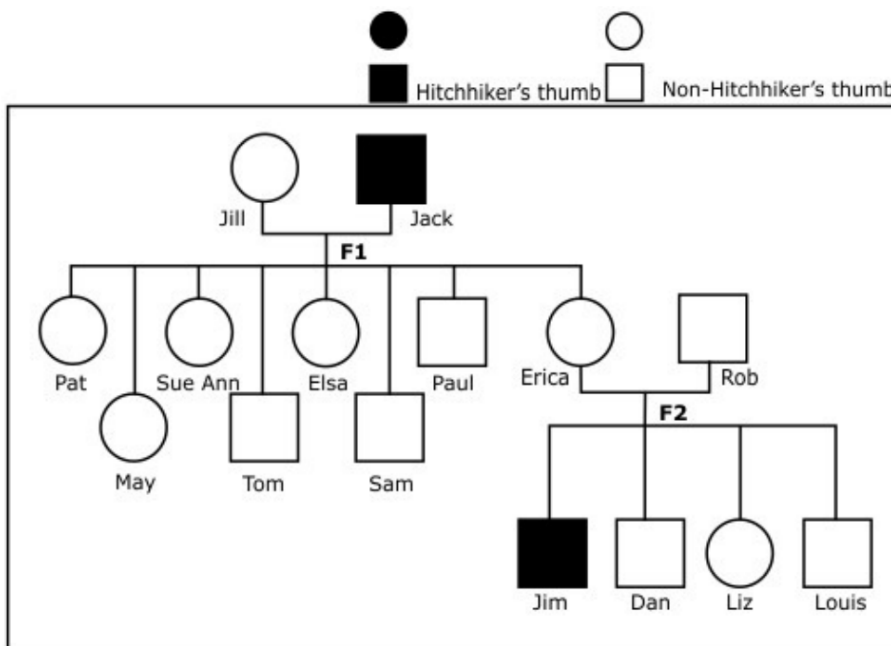
Q10: The picture below shows an extended slingshot.



What type of energy is demonstrated by the hand holding the slingshot back in place?

- A. power
- B. kinetic energy
- C. elastic potential energy
- D. gravitational potential energy

Q11: The pedigree below shows the inheritance pattern of hitchhiker's thumb in a multigenerational family.



Please write names of those individuals in this family who have a hitchhiker's thumb.

Answer: \_\_\_\_\_

Q12: Which statement best explains how the periodic table is organized?

- A. increasing atomic number from left to right
- B. increasing number of neutrons from left to right
- C. decreasing number of electrons from left to right
- D. decreasing atomic mass number from left to right

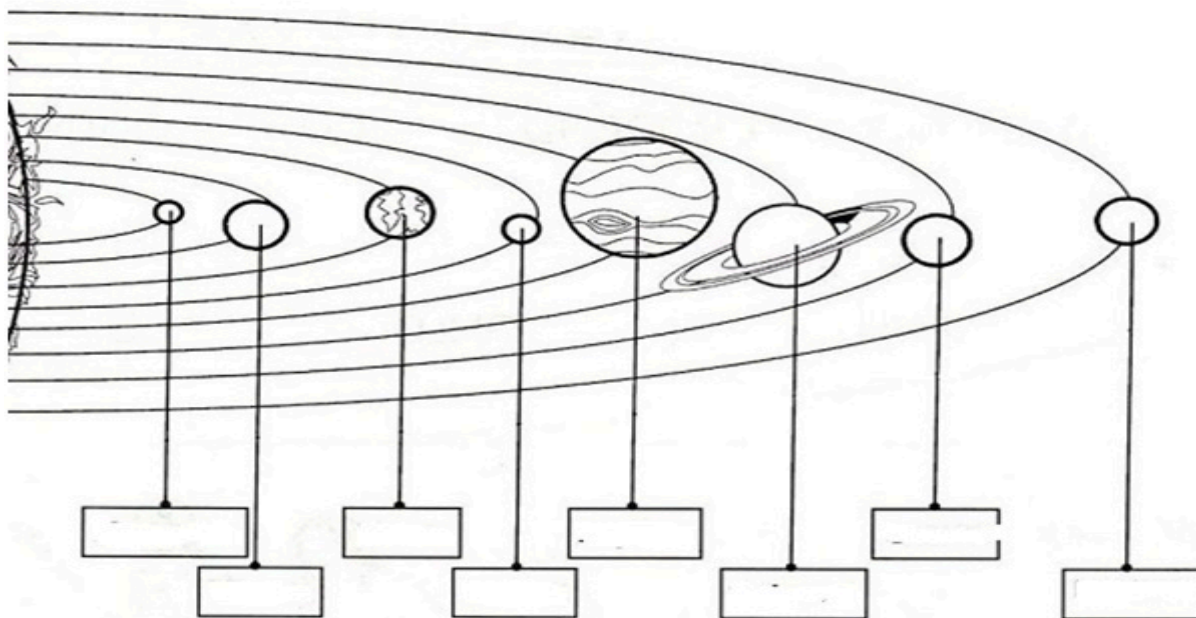
Q13: In which part of the ocean do the greatest number of organisms live?

- A. in the deep zone to escape predators
- B. near the shore to burrow in the sand
- C. close to the surface to be near to the largest food source
- D. in the open ocean to regulate their bodies in cooler temperatures

Q14: Which factor would most likely change the potential energy of an object?

- A. height
- B. temperature
- C. texture
- D. volume

Q15: Label the planets in the solar system.



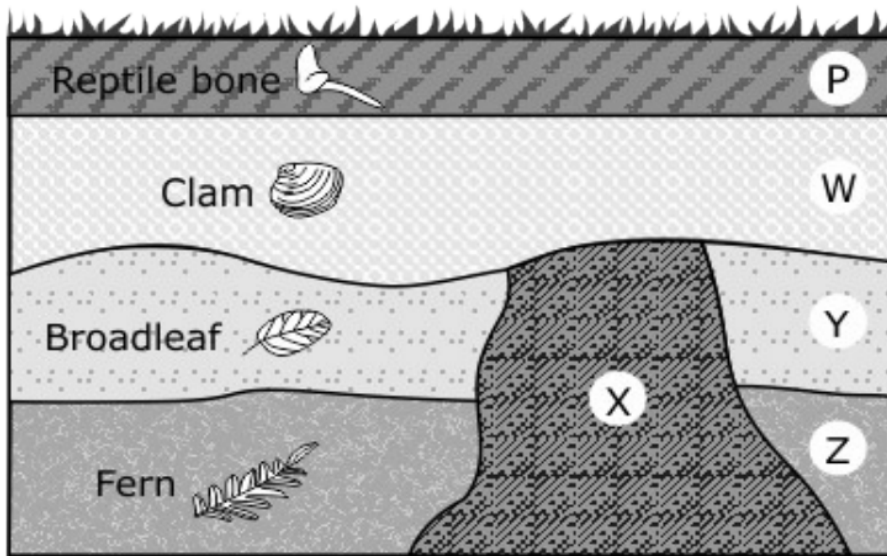
Q16: The figure below shows how information about a specific element is represented on the periodic table.

5	← Atomic Number
<b>B</b>	← Atomic Symbol
10.81	← Atomic Mass

If the given atom is neutral, how many electrons does it have?

Answer: \_\_\_\_\_

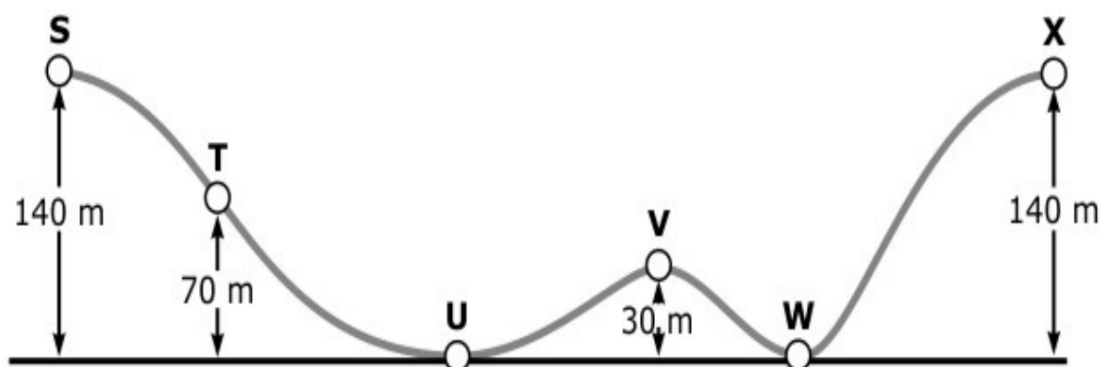
Q17: The diagram below shows fossils and rock features.



Which layer is **younger** than the clam fossil?

Answer: \_\_\_\_\_

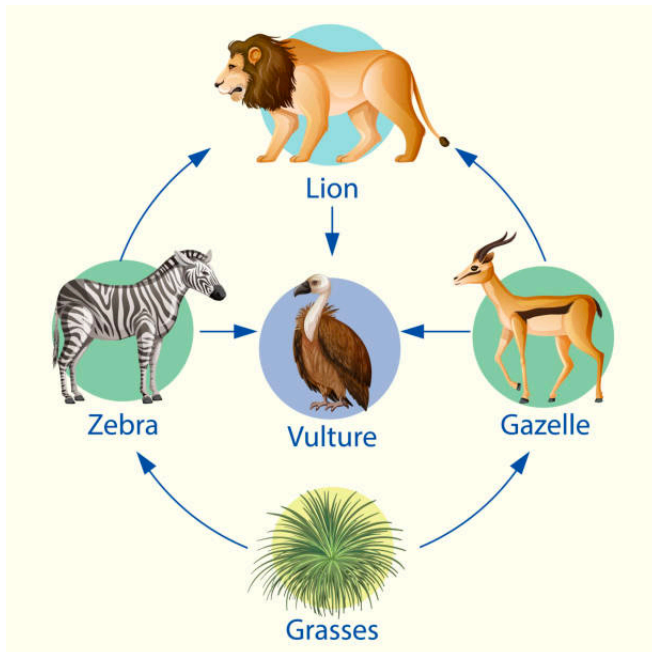
Q18: The diagram below shows the path of an object.



The object is placed on point S and released toward point X. At which point will the object have the same amount of potential energy as it does when it is at point S?

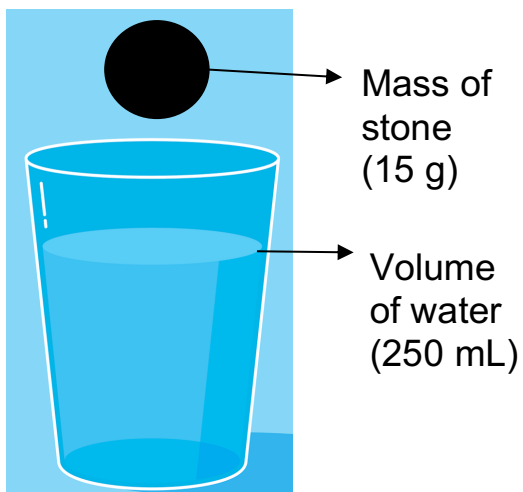
Answer: \_\_\_\_\_

Q19: Which is/are primary consumer(s) in the food chain below? Please write your answer.



Answer: \_\_\_\_\_

Q20: Analyze the given diagram below.



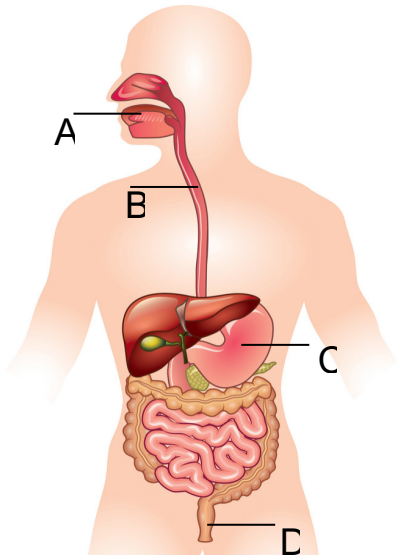
What will happen to the water level and the volume of water when a 15-g stone is dropped into the container with water?

- A. The water level increases but the volume of water remains the same.
- B. The volume of water increases but the water level remains the same
- C. Both the water level and volume of water increase
- D. Both the water level and volume of water remain the same

Q21: Which of the followings shows the correct pathway of food in the human digestive system?

- A. mouth → stomach → intestines → anus
- B. anus → intestines → stomach → mouth
- C. mouth → intestines → stomach → anus
- D. stomach → mouth → anus → intestines

Q22: Study the human digestive system below.



Which two parts —A, B, C, D — have digestive juices?

- A. A and B
- B. A and C
- C. B and C
- D. C and D

Q23: Below is an image of an aquarium ecosystem.



Which is an example of a biotic component?

- A. air
- B. fish
- C. pebbles
- D. water

Q24: Which of the following materials is **not** transported by the blood?

- A. fatty acids
- B. gases
- C. proteins
- D. starch

Q25: This table shows the average surface temperatures of four planets.

Planet	Average Low Temperature / High Temperature
1	-50°F / 20°F
2	38°F / 100°F
3	117°F / 195°F
4	130°F / 320°F

Which planet would **most likely** be able to support life similar to that found on Earth?

- A. Planet 1
- B. Planet 2
- C. Planet 3
- D. Planet 4