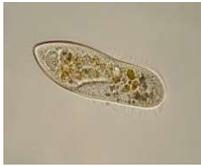


ALL QUESTIONS WORTH 4 POINTS

1. **Protists are small living things. Which of the following is a protist?**



A) Paramecium



B) Fir tree



C) Bacteria

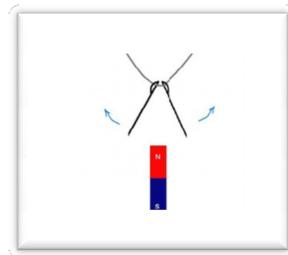


D) Mushroom



E) Seaweeds

2. **A thread is passed through the eyes of two sewing needles, then a magnet approaches them as shown in the image. We can say that:**



- A) The thread was magnetized
- B) As the magnet approaches, its poles are reversed
- C) The ends of the needles repel because both are negatively charged
- D) The ends of the needles are magnetized, both ends becoming of the same polarity
- E) The needles become permanent magnets

3. **The vertebral column protects the spinal cord. Which of the following animals has a vertebral column?**

- A) Beetle
- B) Frog
- C) Spider
- D) Starfish
- E) Octopus

4. **Which of the following statements is true about the mass and the volume of an aluminum bar that has been heated?**

- A) both the mass and the volume of the bar increase
- B) both the mass and the volume of the bar remain unchanged
- C) the mass of the bar remains unchanged and the volume increases
- D) the mass of the bar increases and the volume remains unchanged
- E) both the mass and the volume of the bar decrease

5. Reptiles are a group of vertebrate animals that have all the following characteristics, except:



- A) thick skin B) short limbs C) gills for breathing
D) egg reproduction E) vertebral column
6. One cyclist travelled a certain distance in 3 seconds, moving uniformly with a speed $v_1=9m/s$, and another travelled the same distance in 9 seconds. The speed v_2 of the second cyclist is:

- A) $V_2 = 6 m/s$ B) $V_2 = 3 m/s$ C) $V_2 = 9 m/s$
D) $V_2 = 27 m/s$ E) $V_2 = 12 m/s$

7. The beetle and the spider have the following common characteristic:



- A) They are insects B) They have articulated legs
C) They move by flying D) They live in the aquatic environment
E) They have an internal skeleton
8. The weather forecast announced that the temperature in Paris, at 8:00, is $t_1 = -2^\circ\text{C}$. In Bernard's room the thermometer showed $t_2 = +21^\circ\text{C}$. What is the difference between the temperature in the room and the one outside?

- A) 23°C B) 19°C C) 300°K
D) 292°K E) 20°C

9. Select the correct association between the microorganisms and their importance:

- A) Mushrooms -used in yogurt production B) Bacteria - used for making bread
C) Plants - synthesize nutrients D) Animals - produce diseases
E) Bacteria - decompose organic waste

10. Oil has a lower density than water. For this reason:

- A) The volume of 1 kg of oil is less than the volume of 1 kg of water
B) The mass of 1 l of oil is greater than the mass of 1 l of water
C) The volume of 1 kg of oil is greater than the volume of 1 kg of water
D) If water and oil are placed in the same vessel, the water will float on the surface of the oil
E) If water and oil are placed in the same vessel, water and oil will mix because they are miscible substances

11. Select the correct association between microorganisms and the diseases they cause:



- A) Bacteria - tooth decay B) Virus - typhoid C) Bacteria - influenza
D) Virus - cholera E) Worm - chickenpox

12. The terms "hot" and "cold" describe:

- A) the state of aggregation of bodies B) the thermal state of bodies
C) the state of motion of the body D) the state of electrification of bodies
E) the state of magnetization of bodies

13. Which of the following methods cannot prevent the human body diseases:

- A) Washing fruits and vegetables before eating them
B) Destruction of germs by red blood cells
C) Washing hands after using the toilet
D) Destruction of germs by white blood cells
E) Vaccination, to increase immunity

14. Water Cycle means:

- A) the water circuit in the city sewer
- B) the transfer of water from wet bodies to nature and its return by condensation
- C) the water exchange between soil and plants
- D) only the evaporation of water from the surface of plants and animals by perspiration
- E) only the process in which water changes form liquid to a gas and vice versa

15. Which of the following is a non-biodegradable pollutant?

- A) Paper
- B) Wood
- C) Plastic
- D) Food waste
- E) Leaves

16. Which of the following statements is true about gases?

- A) The distance between the component particles of gas is greater than in liquids and smaller than in solids
- B) The interaction forces between the component particles are weak and for this reason the gases cannot be compressed
- C) The motion of the gas particles is directed in one direction only
- D) The gas molecules are so small that they cannot interact
- E) The weak interaction forces between the component particles explain why gases do not have definite shape and volume

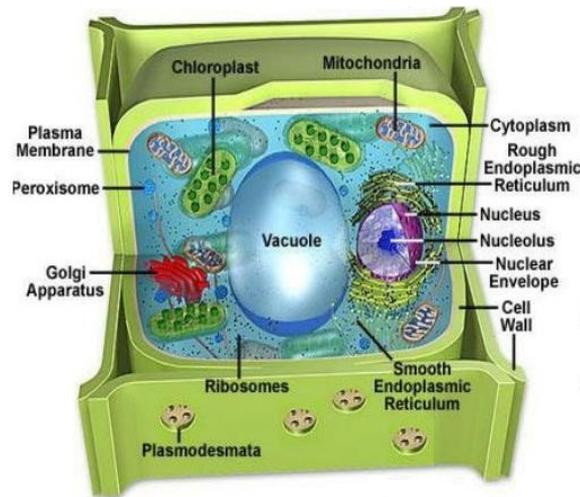
17. Which of the following statements is true about oxygen?

- A) It is consumed by plants in photosynthesis
- B) It is produced by animals in photosynthesis
- C) It is consumed by animals in photosynthesis
- D) It is produced by plants in photosynthesis
- E) Its amount increases during the winter

18. There is no friction in the case of:

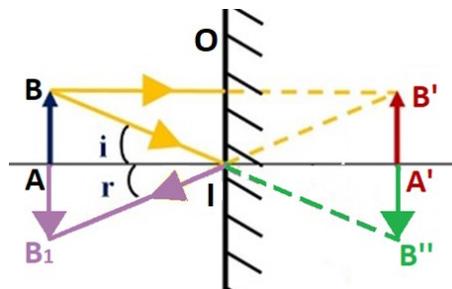
- A) a submarine moving underwater
- B) a flying plane
- C) a nail that penetrates a board
- D) the interaction between two magnets
- E) drawing with chalk on a pavement

19. A cell is the basic unit of a living organism. The cell below may belong to the following group of living things:



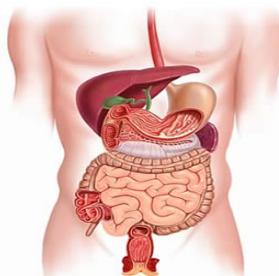
- A) Bacteria B) Protists C) Fungi
D) Plants E) Animals

20. Which of the following is the image of object *AB*, formed by the flat mirror *O*?



- A) *AB* B) *AB*₁ C) *A'B'*
D) *A'B''* E) Point *I*

21. The organ in the digestive system that can extend and store food is:



- A) The oral cavity B) The esophagus C) The stomach
D) The small intestine E) The large intestine

22. Which of the following is a natural source of light?

- A) Lava of an erupting volcano
- B) The TV screen when it is on
- C) The filament of a light bulb that is on
- D) The filament of a light bulb that is off
- E) The flame of a match

23. Which of the following gives the correct path for the light rays entering the human eye?

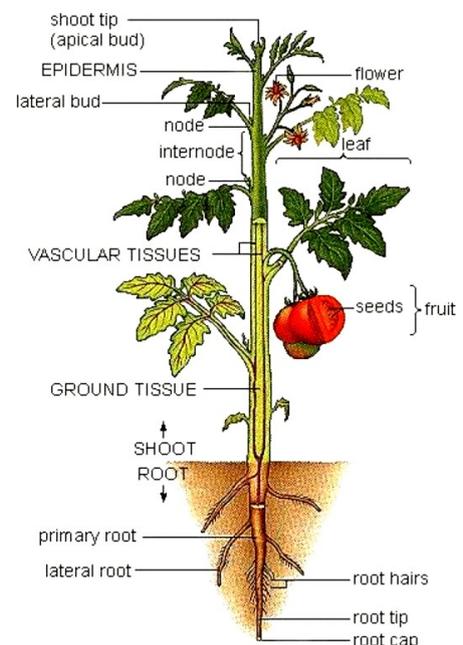
- A) Cornea => aqueous humor => iris => vitreous humor => retina
- B) Cornea => aqueous humor => lens => vitreous humor => retina
- C) Lens => aqueous humor => pupil => vitreous humor => retina
- D) Cornea => vitreous humor => lens => aqueous humor => retina
- E) Iris => aqueous humor => lens => vitreous humor => retina

24. Which one is true about solids? They:

- A) have a well-defined shape but not their own volume
- B) usually evaporate at room temperature
- C) are the only ones that pass from one state of aggregation to another
- D) have the longest distance between the component particles
- E) show the strongest interaction force between particles

25. Chloroplasts contain chlorophyll and are found in the following parts of the plant:

- A) Leaf lamina
- B) Wooden vessels
- C) Root epidermis
- D) Leaf vein
- E) Root hairs



26. Which of the following statements is true about eclipses?

- A) They are due to the force of interaction between the Sun, the Moon and the Earth
- B) They are due to the rectilinear propagation of light
- C) They appear because light propagates at a very high speed
- D) They occur due to the friction with the air during the Earth's rotation
- E) They occur when the Sun is between the Moon and the Earth

27. Associate the reaction below with the process during which it takes place:

(sunlight)

Carbon dioxide + water-----→ glucose and oxygen

(chlorophyll)

- A) Breathing
- B) Sweating
- C) Photosynthesis
- D) Conduction
- E) Absorption

28. The gravitational force:

- A) exerted on a kilogram of sugar is higher on the Moon than on Earth
- B) is stronger at the Equator than at the Pole
- C) is exerted by the Earth only on the objects on its surface
- D) does not exert on climbing objects
- E) exerted by the Moon and the Sun on the water of the seas and oceans, determines the formation of tide and flow of water

29. Deforestation has the following effect on the environment:



- A) It decreases the carbon dioxide levels
- B) It generates the lack of feed for animals
- C) It decreases the risk of landslides
- D) It increases the oxygen levels
- E) It reduces the risk of flooding

30. Choose the correct statement about sounds.

- A) They have the lowest speed of propagation in the air
- B) They have the same value of the speed of propagation in the air both in winter and in summer
- C) They are not transmitted in solid media because the interaction forces between molecules are very high
- D) They travel with the same speed in air and in water
- E) Humans can hear any sound as long as it has a sufficiently high intensity

