

ALL QUESTIONS WORTH 4 POINTS

1. In order to catch an animal, a hunting dog uses its smell to reconstitute the animal's:

- A) color
- B) trajectory
- C) mass
- D) temperature
- E) volume

2. Protists are small beings that cannot easily be classified as animals or plants. A protist which is covered with hair-like threads called cilia is:



- A) Amoeba
- B) Paramecium
- C) Euglena
- D) Chlamydomonas
- E) Spirogyra

3. Fungi are plants which do not contain the green matter chlorophyll. Which of the following is a fungus?

- A) Mushroom
- B) Seaweeds
- C) Spirogyra
- D) Volvox
- E) Chlorococcum

4. The fundamental International System of units for mass, length and time, respectively, are:

- A) newton, meter, minute
- B) kilogram, meter, second
- C) pound, foot, hour
- D) pound, foot, second
- E) kilogram, centimeter, hour

5. Chlorophyll is the green substance in the plant that makes possible the photosynthesis process. Which of the following organs does not contain chlorophyll?



- A) Wheat strains
- B) Rose leaves
- C) Tomato sepals
- D) Carrot root
- E) Pea fruit

6. Which of the following phenomena illustrates the concept of action at a distance:

- A) the ball hitting B) the car braking C) the tide formation
D) the carpet beating E) the speed increase of a car

7. The spine protects the spinal cord. Which of the following animals have a spine?

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



8. Regarding the interaction between two bodies we can say that:

- A) the reaction occurs only if the interaction is achieved through direct contact
B) the reaction occurs only if the interaction is achieved through remote contact
C) the reaction is greater than the action
D) action is always accompanied by reaction
E) the reaction occurs after the action is taken

9. Skin is the organ that protects the bodies of animals from various aggressions. Which of the following structures cannot be produced by the skin of vertebrates?

- A) Fish scales B) Parrot feathers C) Snake scales
D) Horse hooves E) Dolphin hair

10. When the motion is rectilinear and uniform:

- A) the speed of the object is equal to its average speed at any moment
B) the initial speed is twice the average speed
C) the object travels different distances in equal time intervals
D) the velocity magnitude remains the same, but its direction changes
E) the velocity direction remains the same, but its magnitude changes

12th INTERNATIONAL KANGAROO SCIENCE CONTEST 2019

Benjamin Level (Class 5 & 6)

Time Allowed: 90 minutes

11. Bacteria are micro-organisms that can be either useful or harmful. Some bacteria cause diseases such as:

- A) Ringworm B) Influenza C) Tuberculosis
D) Malaria E) Cancer

12. The shape of the distance-time graph of a uniform linear motion is:

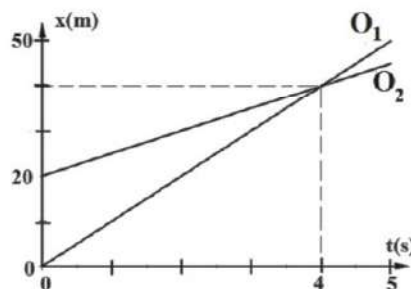
- A) a horizontal line for any value of the speed of the body
B) a horizontal line if the object is at rest
C) a line that necessarily passes through the origin of the system
D) a line and any two lines representing the motion graphs of two objects having the same speed intersect each other
E) can never be a horizontal line

13. Mosses and ferns are plants which share the following character:

- A) have strains B) form spores
C) have roots D) form seeds
E) have leaves



14. The distance(x) – time (t) graph regarding the motion of two objects O_1 and O_2 is shown in the next image. What information can be deduced from this graph?



- A) The two objects are moving with the same speed
B) The two objects start from the same place
C) The two objects have different speeds, and the speed of O_2 is greater than the speed of O_1
D) The two objects travel the same distance till the meeting point
E) The two objects meet 4s after their departure

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15. John prepared for germination 30 seeds of bean and put them in a vessel covered with a cork. After one day, he introduces in the vessel a lit candle and he observes that the candle stops burning. The candle flame is extinguished because of:
- A) carbon dioxide consumption during seed germination
 - B) carbon dioxide production during seed germination
 - C) nourishing substances consumption during seed germination
 - D) oxygen production during seed germination
 - E) oxygen consumption during seed germination
16. Over a layer of hot water $t_1= 50^\circ$, a layer of cold water with $t_2= 4^\circ$ is poured. In these conditions:
- A) the hot water floats on the surface of the cold water
 - B) the cold water sinks to the bottom because it has a lower density than the hot water
 - C) the liquids can occupy any position, since they have the same density
 - D) the cold water sinks to the bottom, by inertia, then it floats to the surface
 - E) the cold water floats on the surface of the hot water
17. The pollination is important for the flower to form seeds and fruits. It can be done by insects, wind, water or even by humans. Select the right association between the plant and the corresponding method of pollination:

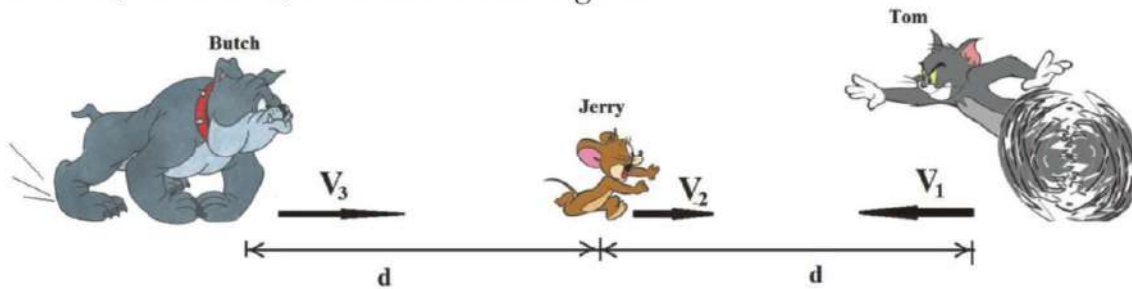


- A) Maize-Insects
- D) Guava- Wind

- B) Sunflowers-Wind
- E) Cherry-Insects

- C) Rose-Wind

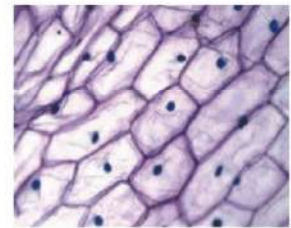
18. Jerry is midway between Tom and Butch. Instantly, all three start moving with the speeds V_1 , V_2 and V_3 , as shown in the figure.



Knowing that the speeds of Tom and Jerry are V_1 and V_2 , respectively, at what minimum speed V_3 should Butch run in order to catch Jerry before Tom?

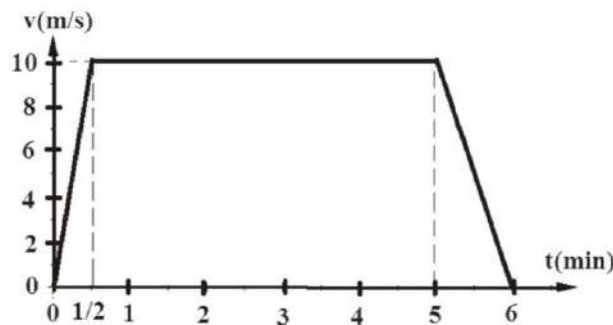
- A) $V_3 = V_1 + V_2$ B) $V_3 = V_2 + 2V_1$ C) $V_3 \geq V_1 + 2V_2$
 D) $V_3 = 2(V_1 + V_2)$ E) $V_3 = \frac{V_1 + V_2}{2}$

19. Anca used a microscope to observe the cells of various organisms. The cells in the image belong to the following organism:



- A) Amoeba B) Onion
 C) Euglena D) Chlamydomonas E) Snake

20. The time-speed graph of a bus motion between two stations is shown in the figure. It is not true that:

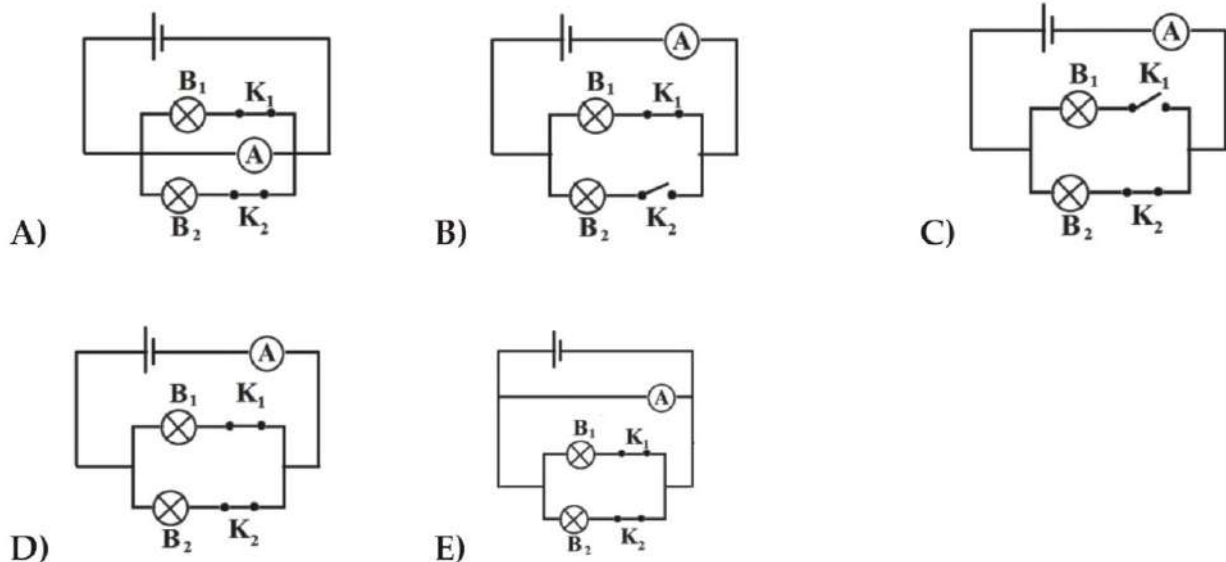


- A) the bus motion is uniform and linear
 B) the distance traveled by the bus is 3150 m
 C) the average speed of the bus is 8.75 m/s
 D) the time of acceleration is lower than the one of braking
 E) the traveled distance during the acceleration is lower than the one traveled during the braking

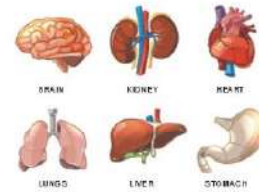
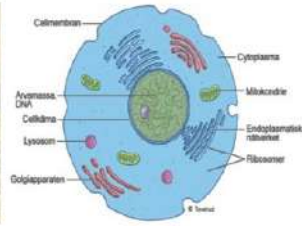
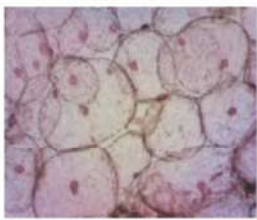
21. During science class, Diana introduced several cells from an onion bulb into a solution containing 30g of sugar and 70g of water. After 10 minutes she noticed that:



- A) the cell volume increases
 B) the cell nucleus is destroyed
 C) the cell volume decreases
 D) the chloroplasts are destroyed
 E) the cell does not change its size
22. The spectacle lenses used to view the eclipses are:
- A) opaque
 B) mate
 C) translucent
 D) perfect reflectors
 E) transparent
23. Green plants produce organic substances they feed themselves with. Select the correct statement about the relationship between plant organs and their role:
- A) The strain has root hair that absorbs water and minerals
 B) The root contains chloroplasts where photosynthesis occurs
 C) The leaf contains stomata through which the water comes out by sweating
 D) The strain drives minerals absorbed by phloem
 E) The leaf contains stomata where the oxygen used in photosynthesis enters
24. In which of the next images the ammeter indicates the current through consumer B1?



25. Living beings consist of one or more cells. Determine the correct order of the components of a mammal:



- A) organism - organs - tissue – cell
 B) organism – tissue - organs-cell
 C) organs – organism – cell – tissue
 D) organs – organism – tissue – cell
 E) tissue – organism – organs – cell
26. The property of bodies to oppose change in the state of a uniform rectilinear motion is due to:

- A) the gravitational interaction
 B) the contact interaction
 C) the inertia
 D) the existence of friction
 E) the existence of elasticity

27. Select the correct statement about the ear - the organ of hearing and equilibrium:



- A) Outer ear, middle ear and inner ear contain air
 B) the ear canal is part of the outer ear and leads the sounds to the eardrum
 C) Ossicles transmit/carry vibrations from the oval window to the eardrum
 D) Sounds are perceived by the receptors in semicircular canals
 E) Bacteria can pass through Eustachio's tube from the larynx into the middle ear
28. If we double the volume of a body using the same material, the following will not change:

- A) the body mass
 B) the body inertia
 C) the body density
 D) the weight force
 E) the place occupied by the body in space

29. The mistletoe is a hemiparasitic plant that lives on the stem of other trees, and the cuscus infests/parasites the strain of some crop plants. Select the common character of the 2 plants:



- A) They are incapable of photosynthesis
B) They have modified roots which penetrate the host plants
C) They are incapable of breathing
D) They have a reduced number of reproduction organs
E) They restrain organic substances from the body of the host
30. When comparing a tennis ball, a car, a train, an airplane, and the Moon, the one with the highest inertia is:
- A) the tennis ball B) the car C) the train
D) the airplane E) the Moon

