

ix) Question number 23 and 24 are based on OTBA and are five mark questions. Question number 25 to 33 in section B are multiple choice questions based on practical skills and carry one mark each. You are to choose one most appropriate response out of the four provided to you. Question no. 34 to 36 carry two marks each.

SECTION- A

1. Define law of constant proportion.
2. The atomic number of an element is 12. What is its valency?
3. Write an expression showing relation between the commercial unit of energy and S.I unit of energy.
4. Write the chemical formulae of the following.
 - (a) Magnesium chloride
 - (b) Calcium oxide
 - (c) Aluminium chloride
 - (d) Calcium carbonate.
5. What do you mean by acute disease and chronic disease. Give an example of each.
6. Why is it difficult to hold a schoolbag having a strap made of a thin and strong string?
7. Convert into mole.
 - (a) 12 g of oxygen gas

- (b) 20 g of water
- (c) 22 g of carbon dioxide.

8. How will you find the valency of the following:-

- a) Chlorine, ($Z=17$)
- b) Sulphur ($Z=16$)
- c) Magnesium ($Z=12$)

9. Give three differences between amphibians and reptiles?

10. What are the different means by which infectious diseases are spread?

Name and explain three means of spreading of infectious diseases with example.

11. Sachin and Suhaas are friends and they study in the same class. Sachin brings home made food as lunch whereas Suhaas eats Burger, chips and French fries during lunch break from school canteen. During a routine check up in the school, doctor finds Suhaas overweight to his age. Both Sachin and Suhaas have read that overweight leads to diabetes and cardiovascular disease. Both of them want to help other students so that no one suffers from overweight.

- a) What value is shown by Sachin and Suhaas?
- b) What should Suhaas do now to keep his weight under control?
- c) How can the two boys help other students?

12. a) What do you mean by Archimedes' principle?

b) The volume of a 500 g sealed packet is 350 cm^3 . Will the packet float or sink in water if the density of water is 1 g cm^{-3} ? What will be the mass of the water displaced by this packet?

13. a) When do we say that work is done?

b) Define 1 J of work.

c) Write an expression for the work done when a force is acting on an object in the direction of its displacement.

14. a) What is power?

b) Define 1 watt of power.

c) A lamp consumes 1000 J of electrical energy in 10 s. What is its power?

15. a) Give the difference between Kinetic energy and Potential energy.

b) Write the expressions for both.

16. a) Write an experiment to show that sound needs a material medium for its propagation.

b) Explain with the help of a diagram.

17. a) Write the full form of SONAR.

b) A ship sends out ultrasound that returns from the seabed and is detected after 3.42 s. If the speed of ultrasound through seawater is 1531 m/s , what is the distance of the seabed from the ship?

18.a) Establish the relationship between speed of sound, its wavelength and frequency.
b) Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen, why?

19.a) Compare proposed models of an atom given by J.J Thomson, Ernest Rutherford and Neils Bohr.

b) What are isotopes? Explain with examples.

c) Give two uses of isotopes.

20. (i) a) Who proposed binomial nomenclature?

b) What are the components of a scientific name?

c) What is the scientific name of human?

(ii) a) Give two differences between monocots and dicots.

b) Give one example of each.

21. a) Explain the basis for grouping organisms into five kingdoms.

b) What are the major classes in Phylum Vertebrata? Name them and write their characteristics.

22.(i) a) What do you mean by an Echo?

b) What is the minimum distance required for the production of an echo at 22°C ?

(ii) Why are the ceilings of concert halls curved?

(iii) Explain how bats use ultrasound to catch a prey.

23.a) Name four different causes of occurrence of drought.

b) Who is called "Waterman of India". Explain his action plan in the district of Rajasthan.

24. What steps would you keep in mind while preparing a mitigation plan for drought prone areas. Explain in detail.

SECTION B

25. The weight of barium chloride and sodium sulphate solution is noted down. A white precipitate is formed on mixing the solutions. The weight of products is –

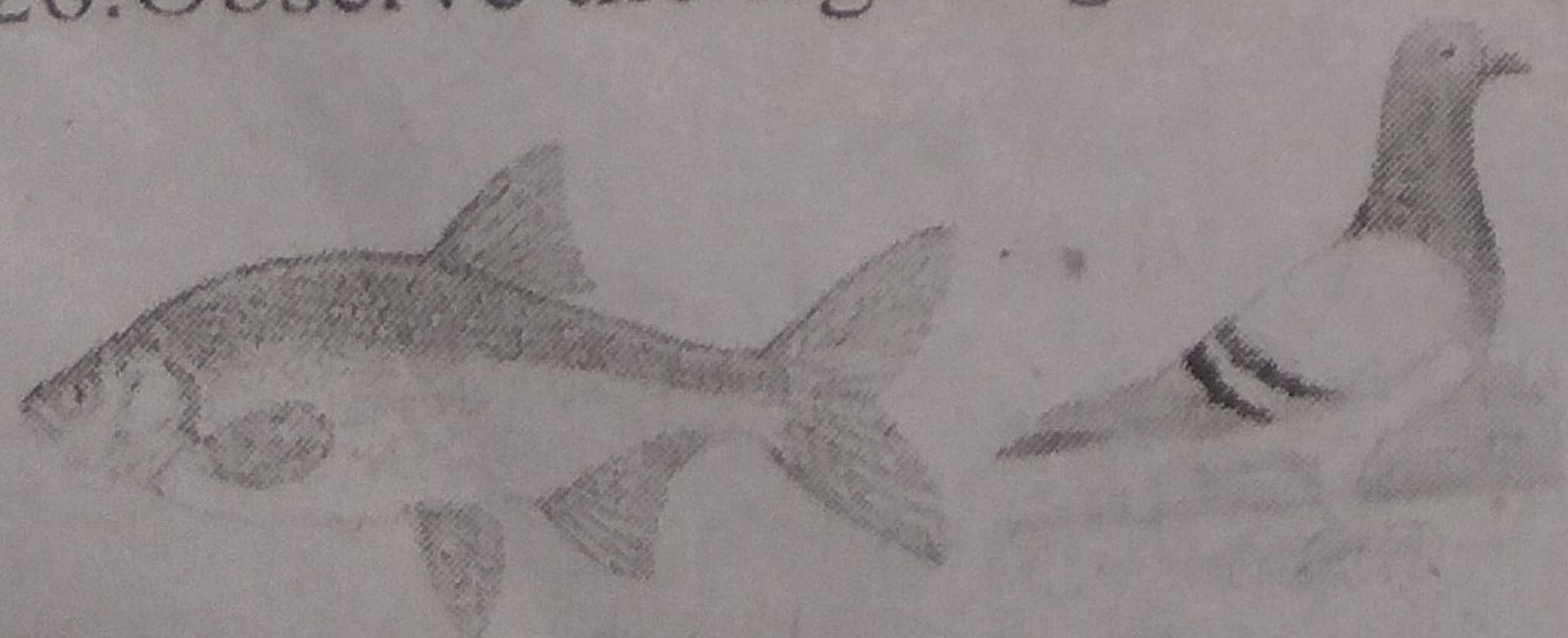
~~(a)~~ equal to the weight of reactants

(b) less than the weight of reactants.

(c) cannot say

(d) less than the weight of reactants.

26. Observe the figure given below. The organisms belong to:



~~(a)~~ Phylum-chordata

(b) Phylum-porifera

(c) Phylum-coelentrata

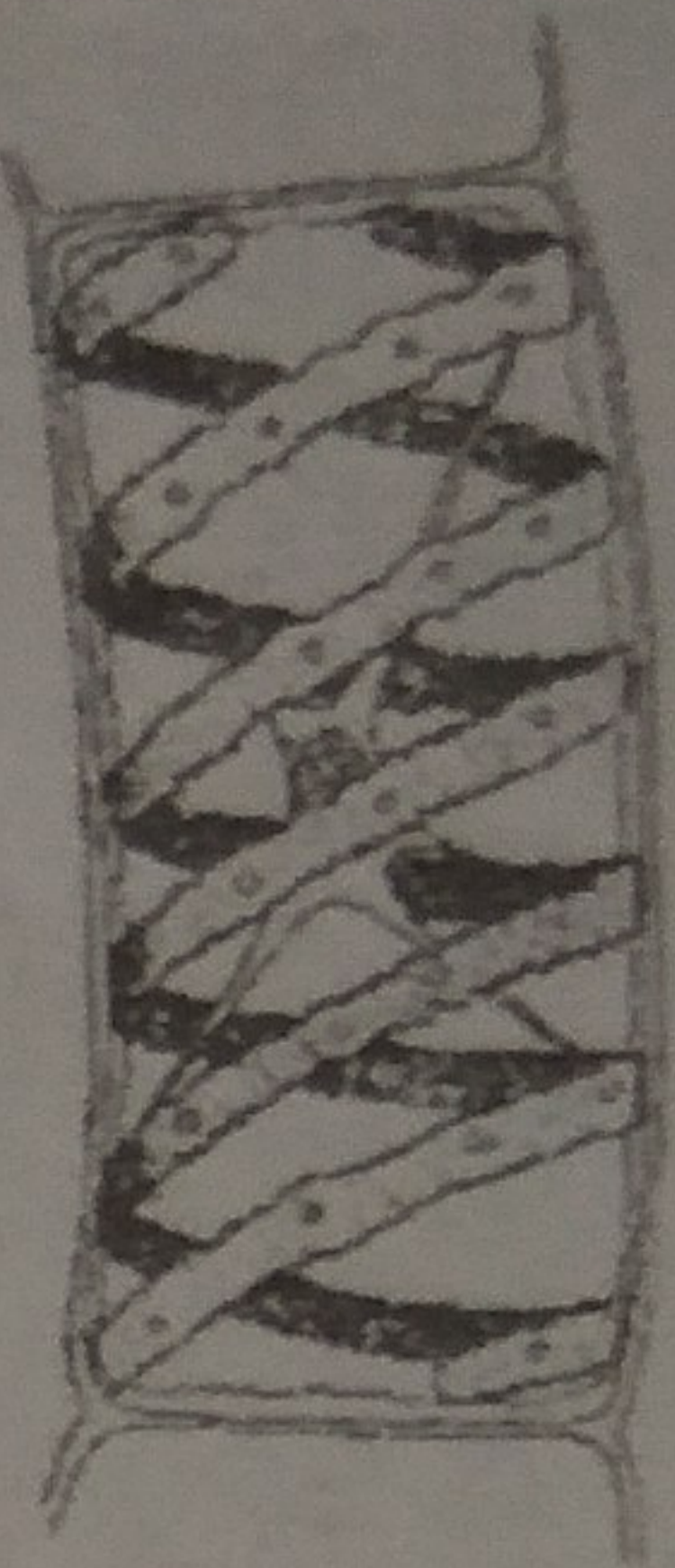
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(d) Phylum-echinodermata

27. Four students A, B, C, and D observed the roots and leave of a maize plant and reported their observations as:

- (a) It has fibrous roots and reticulates venation
- ~~(b) It has fibrous roots and parallel venation~~
- (c) It has tap roots and parallel venation
- (d) It has tap roots and reticulate venation

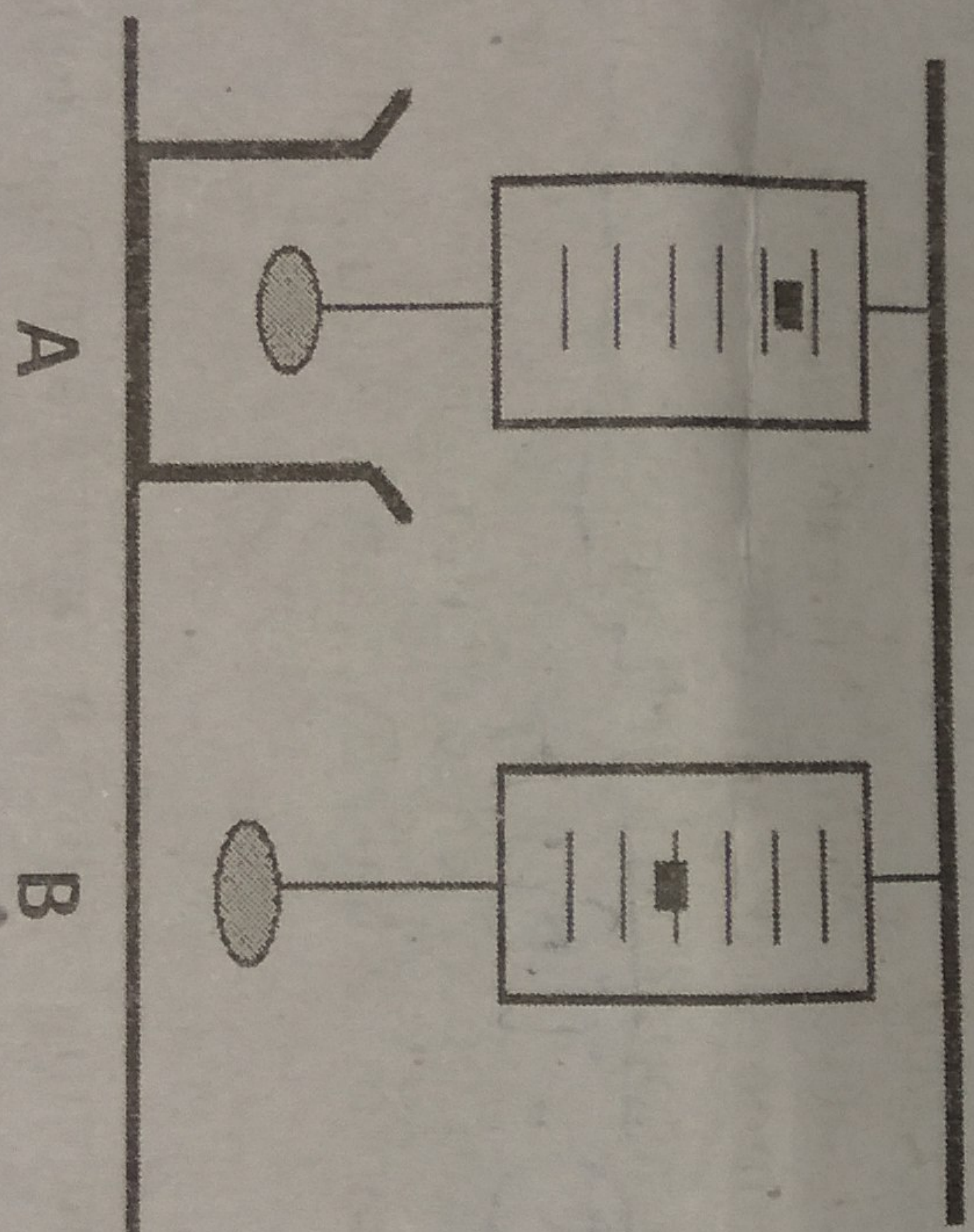
28. A student carefully observed the plant given below and classify the plant as:



- (a) bryophyte
- (b) thallophyte
- (c) Angiosperm
- (d) Gymnosperm

29. In which case the bob feels heavier

Archimedes' Principle

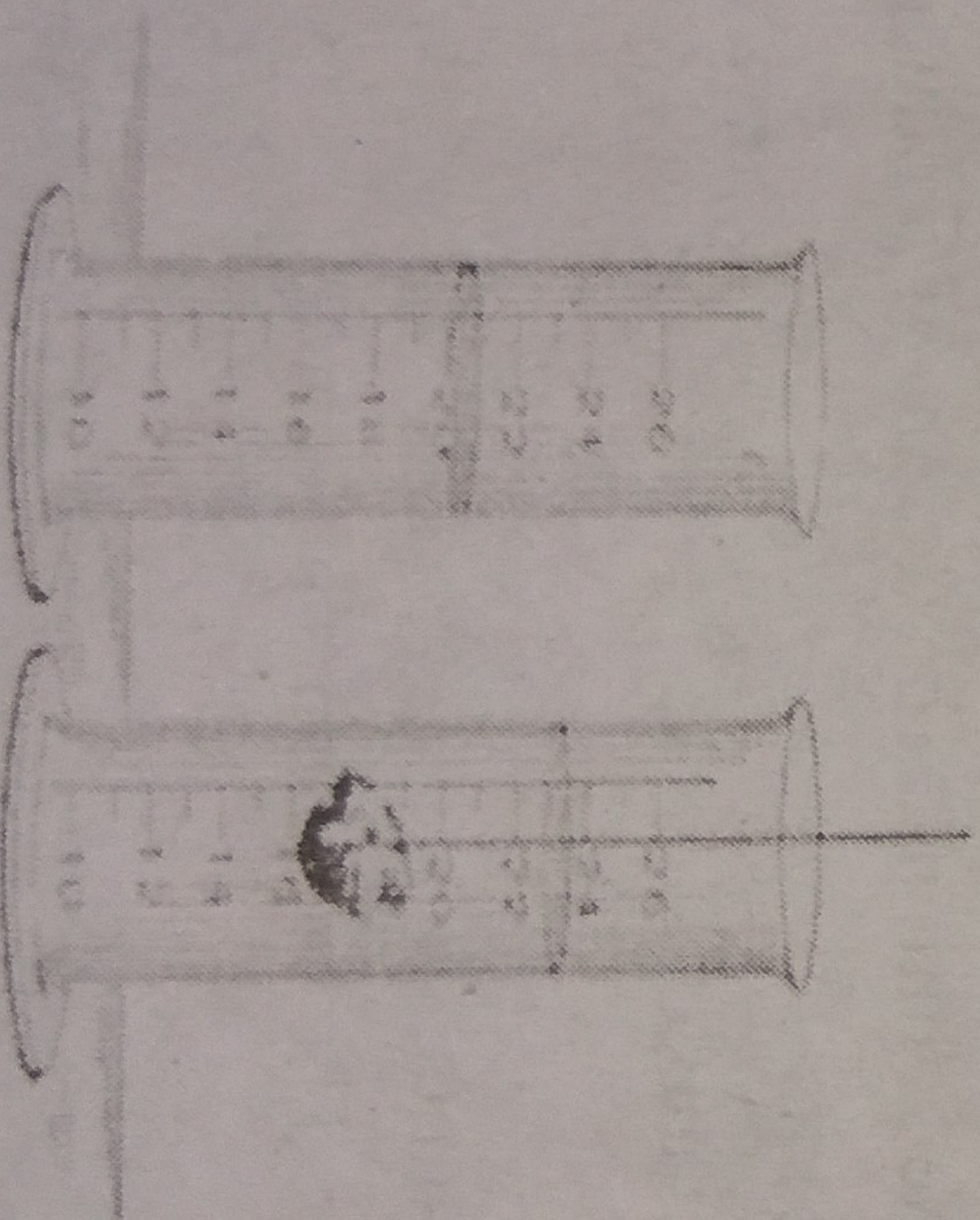


a) A

b) B

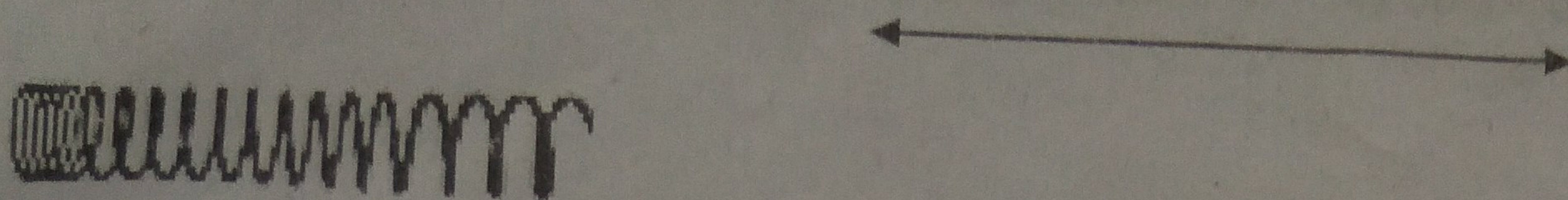
- c) Both will weigh equal
- d) None will weigh heavy

30. The volume of the stone in the figure given below is :-



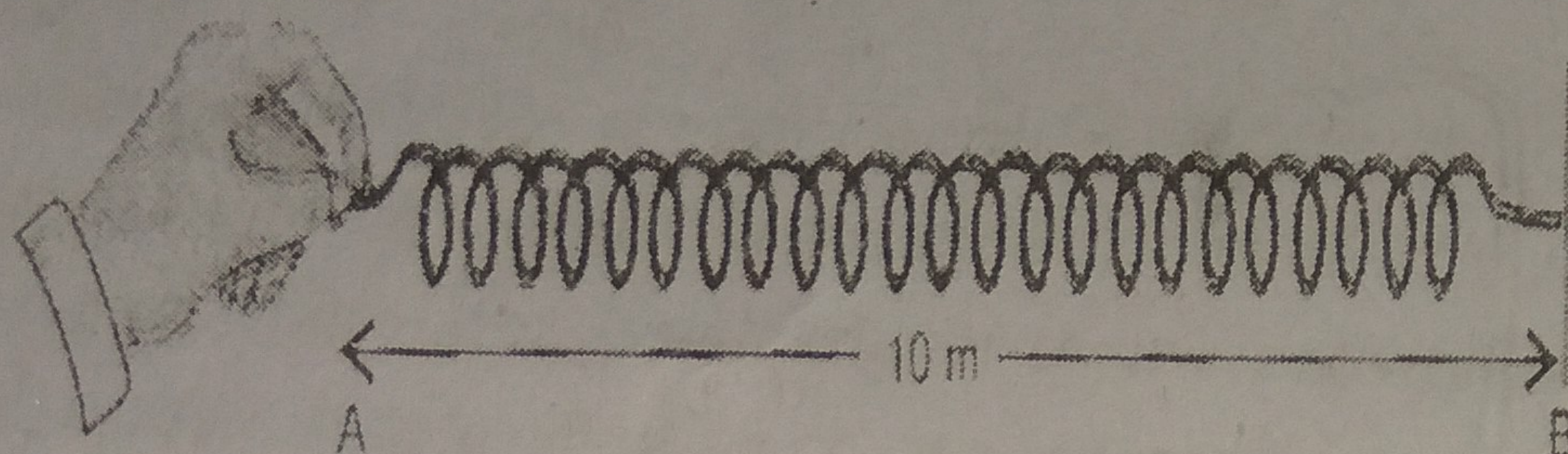
- a) 3 c.c
- b) 2 c.c
- c) 5 c.c

- d) 10 c.c
31. A wave is generated in slinky as shown. The type of wave



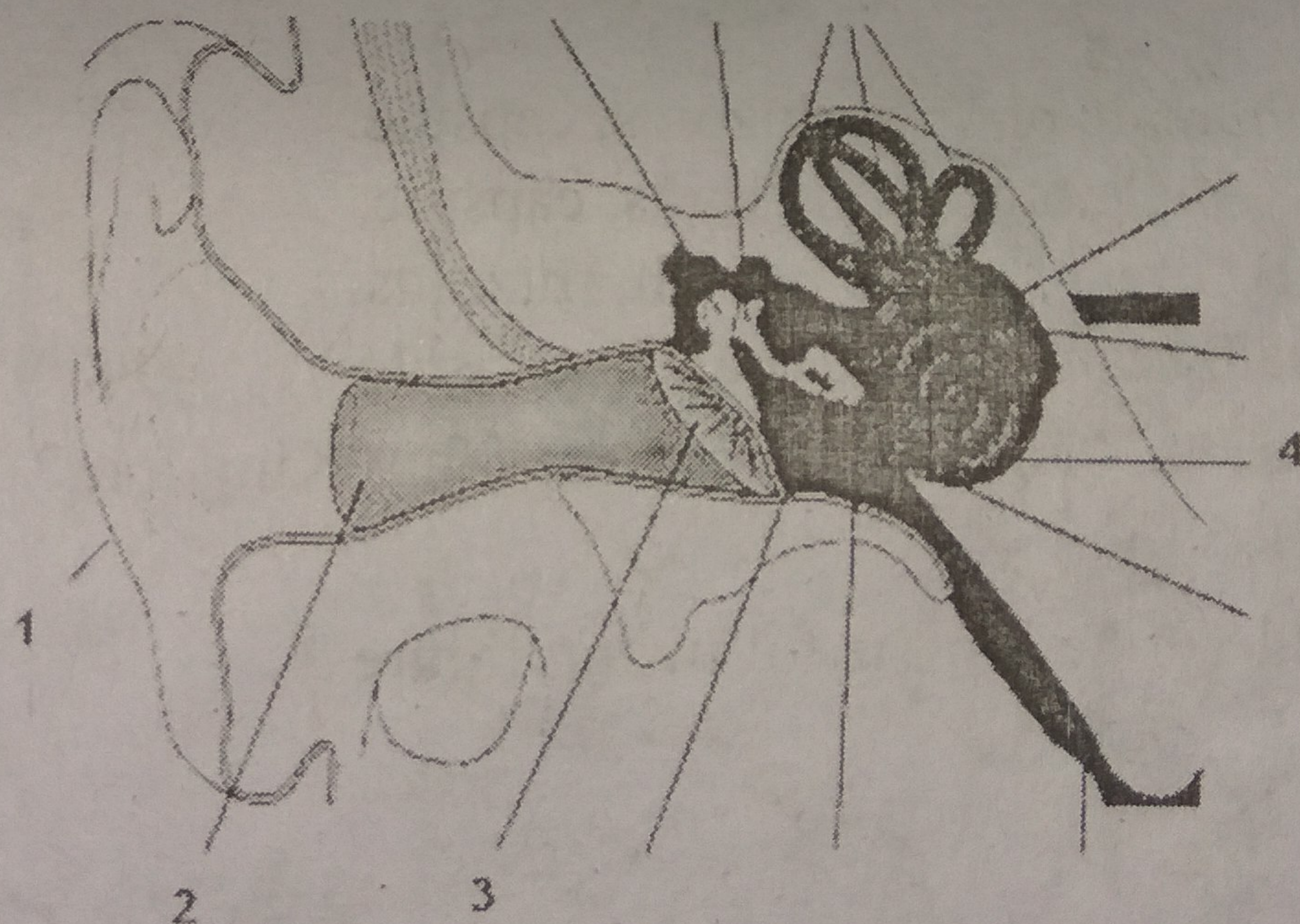
- (a) Longitudinal
- (b) transverse
- (c) combination of both
- (d) none of these.

32. What is the velocity of the pulse of the slinky indicated in the figure given below?



Given that pulse took 2 sec to travel from A to B and then back to A:

- a) 5 m/s
 - b) 10 m/s
 - c) 2 m/s
 - d) 20 m/s.
33. The parts marked 1, 2, 3 and 4 are correctly labelled in that order as :



- a) Cochlea, pinna, auditory canal and Tympanic membrane
- b) Pinna, auditory canal, Tympanic membrane, and cochlea
- c) Auditory canal cochlea, Tympanic membrane and pinna
- d) Pinna, cochlea, auditory canal and Tympanic membrane

34.(i) For the verification of the law of conservation of mass in a chemical reaction four students A, B, C and D performed the following reactions:-

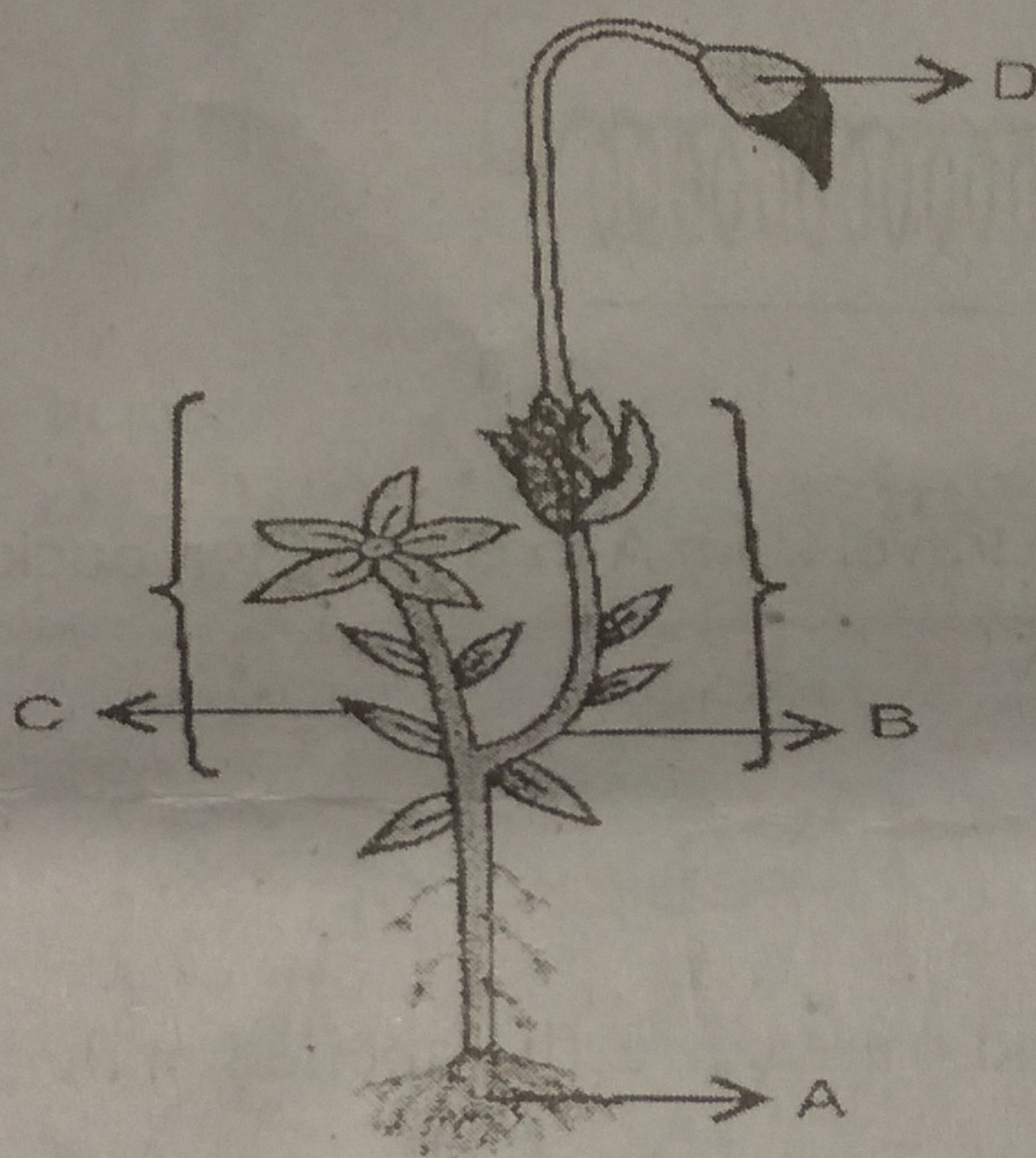
- A) Added calcium oxide to water.
- B) Heated ferrous sulphate crystals in a test tube.
- C) Dipped iron nails in copper sulphate solution.

D) Added barium chloride (aq) to sodium sulphate (aq).
The student who is likely to get best result is:-

- a) A
- b) B
- c) C
- d) D

(ii) Give the names of the elements present in Baking soda.

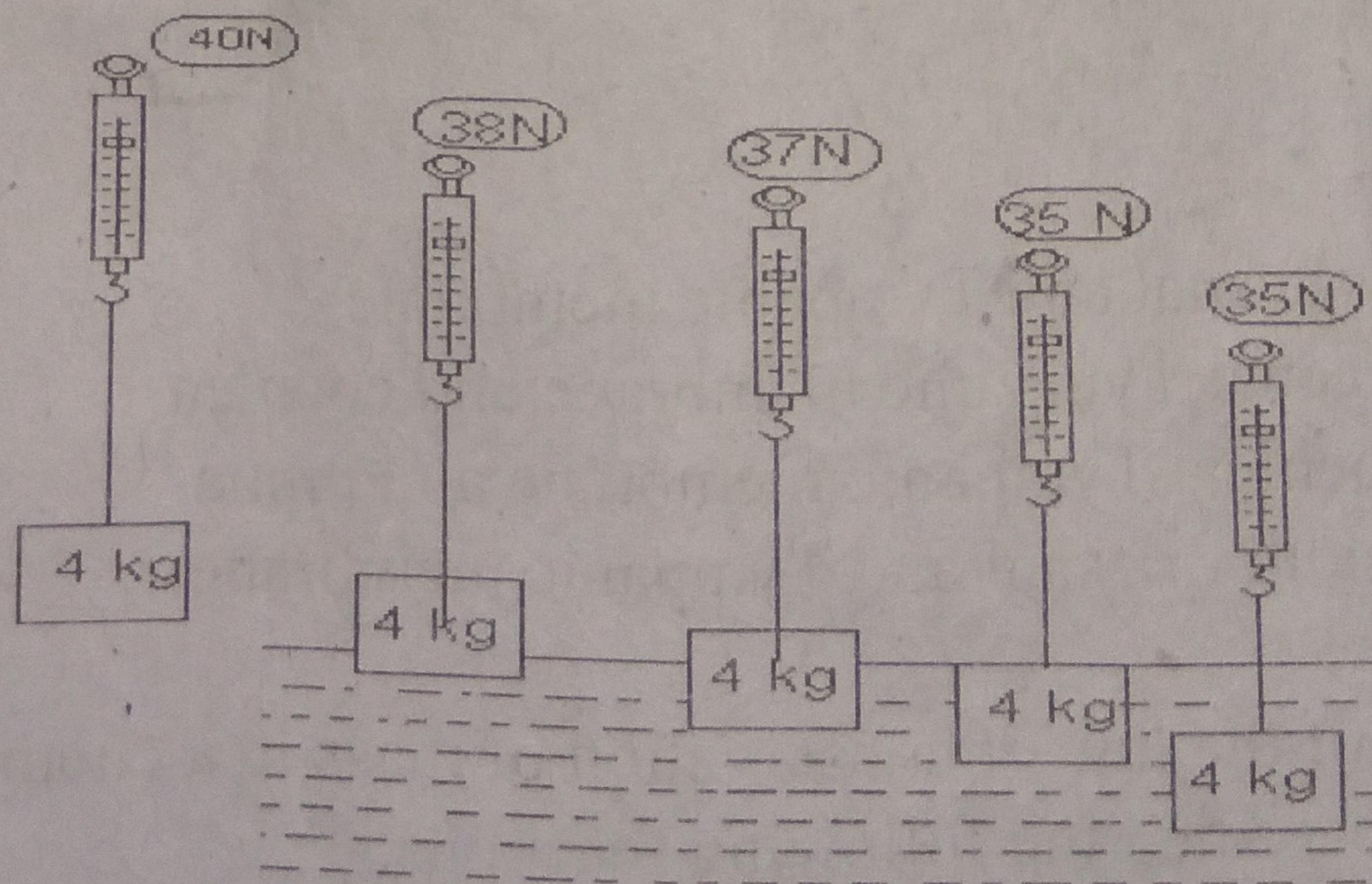
35. (i) The diagram given below illustrates a saprophyte attached to gametophyte in Moss. Its parts have been labelled as A, B, C, D by a student. Correct labeling of parts A, B, C, and D are:-



- a) Female branch, male branch, rhizoids, capsule.
- b) Male branch, female branch, rhizoids, capsule.
- c) Capsule, female branch, male branch, rhizoids.
- d) Rhizoids, female branch, male branch, capsule

(ii) Why are Bryophytes called “amphibians” of the Plant Kingdom?

36.(i) Which principle is described in the following figure ?



(ii) Why does the weight keep decreasing as we move from left to right in the figure?