

# 9th Extrascoring Science Question By Sunil Sir

Express the following temperatures in Kelvin scale.

- (i)  $25^{\circ}\text{C}$  and (ii)  $373^{\circ}\text{C}$

When a carpet is beaten with a stick, dust comes out of it, why?

Name the cell organelle which is able to destroy a damaged cell.

What is meant by a saturated solution? What happens when a saturated solution is heated?

The gravitational force between two objects is  $F$ . How will this force change when:

- (i) the distance between them is reduced to half?  
(ii) The mass of one of the objects becomes four times?

How do substances like  $\text{CO}_2$  and water move in and out of the cell?

List any two differences between structure and location of striated and unstriated muscles.

"We can easily move our hand in air, but not through any solid material." Justify the statement giving any three possible reasons.

Elements are classified as metals, non metals and metalloids. Give any one property of each. Also give one example of each.

Define 'average speed'. An object moves with a uniform speed of  $10\text{ m/s}$  for  $5\text{ s}$  and then with a uniform speed of  $5\text{ m/s}$  for  $10\text{ s}$ . Find its average speed.

An object experiences a net zero external unbalanced force. Is it possible for the object to be moving with a non-zero velocity? If yes, state the conditions that must be placed on the magnitude and direction of the velocity. If no, provide a reason.

A body is thrown vertically upwards with an initial velocity of  $100\text{ m/s}$ . Find:

- (i) Time taken to reach maximum height  
(ii) Maximum height reached  
(iii) Velocity after 5 seconds

Take  $g = 9.8\text{ m/s}^2$

Two objects of masses  $100\text{ g}$  and  $200\text{ g}$  are moving along the same line and direction, with velocities of  $2\text{ ms}^{-1}$  and  $1\text{ ms}^{-1}$ , respectively. They collide, and after the collision, the first

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object moves at a velocity of  $1.67 \text{ ms}^{-1}$ . Determine the velocity of the second object.

- (a) Distinguish between mass and weight of an object.
- (b) How will the weight of a body of mass 100g change if it taken from equator to the poles? Give reason for your answer.

Explain how the bark of a tree is formed. How does it act as protective tissue?

Name the liquid matrix of the blood. What does it contain? List any two functions of blood.

- (a) Name the organelle which provide turgidity and rigidity to the plant cell. Name any two substances which are present in it.
- (b) How are they useful in unicellular organisms?

(a) Define macro nutrients?

(b) Pick out micro nutrients from the list given below :

Zinc, Calcium, iron, nitrogen, potassium,

(c) Name any three processes in plants which are affected by deficiency in nutrients.

What are weeds? Give two examples of weeds. Explain why is the removal of weeds necessary from the cultivated fields? Name any two methods to control weeds.

(a) To make a saturated solution, 36g of sodium chloride is dissolved in 100g of water at 293 K. Find its concentration at this temperature.

(b) What is the effect of temperature on the solubility of a solid in liquid?

(c) Why is it possible to distinguish the particles of solute from those of solvent in a suspension?

OR

(a) How much water should be added to 15g of salt to obtain 15% salt solution?

(b) What is the main difference between aqueous solution and non-aqueous solution?

(c) Why does solution of sodium chloride not show Tyndall effect where as the mixture of water and milk shows?

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- (a) Differentiate between three states of matter on the basis of following properties.
- (i) intermolecular forces. (ii) Arrangement of molecules.
- (b) Liquids generally have lower density compared to solids. But you must have observed that ice floats on water. Give reason.

OR

- (a) Explain giving one example for each factor, how rate of evaporation of water depends on each of them.
- (b) Explain which one will cause more severe burns - boiling water at  $100^{\circ}\text{C}$  or steam.
- (a) In a high jump event the athletes are made to fall on a sand bed or on a cushioned bed. Why?
- (b) Define momentum. State its S.I. unit.
- (c) An object of mass 10 kg is accelerated uniformly from rest to a velocity of  $8\text{m/s}$  in 6 s, calculate the final momentum of the object.

OR

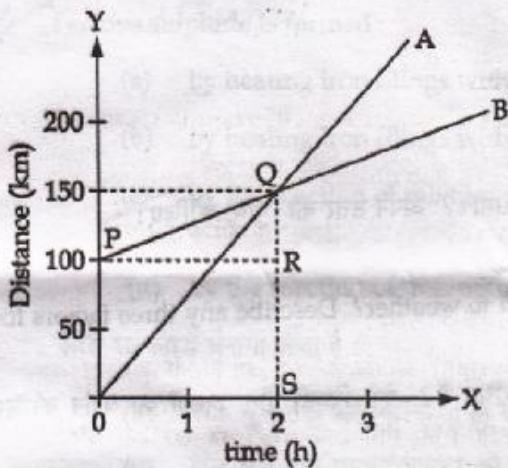
- (a) When a motor car makes a sharp turn at a high speed, we tend to get thrown to one side. Why?
- (b) State Newton's 1<sup>st</sup> and 3<sup>rd</sup> law of motion.
- (c) A force of 5N gives a body of mass 'm' an acceleration of  $10\text{m/s}^2$ , Calculate the mass of the body in grams.
- (a) Derive the equation of motion  $v = u + at$ , using graphical method
- (b) A train starting from rest attains a velocity of  $72\text{ km/h}$  in 5 minutes. Assuming the acceleration is uniform, find

- (i) The acceleration
- (ii) The distance travelled by the train for attaining this velocity.

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OR

The distance - time graph of two trains are given below. The trains start simultaneously in the same direction.



- How much ahead of A is B when the motion starts ?
- What is the speed of B ?
- When and where will A catch B ?
- What is the difference between the speeds of A and B ?
- Is the speed of both the trains uniform or non uniform ? Justify your answer.

How are cultivation practices and crop yield related to weather? Describe any three factors for which variety improvement is done.

OR

- What is lactation period ? Name two breeds of cattle which are selected for their long lactation period. Why are they crossed with local breeds ?
- What are roughage and concentrates ?

## Section B

25. A well-stirred and filtered solution of egg albumin in water forms :

- |                        |                |
|------------------------|----------------|
| (a) true solution      | (b) suspension |
| (c) colloidal solution | (d) emulsion   |

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26. Which of the following pass through filter paper unchanged ?

- (a) soil and water                      (b) common salt and water  
(c) both (a) and (b)                      ~~(d) none of them~~

Ferrous sulphide is formed :

- (a) by heating iron filings with sulphuric acid  
(b) by heating iron filings with sulphur  
~~(c) by the reaction of mixture of iron filings and sulphur with dilute hydrochloric acid~~  
(d) by the reaction of iron with hydrogen sulphide gas

What is observed when iron nails are added to copper sulphate solution ?

- (a) the solution becomes pale green and reddish brown deposit is seen on the nails.  
(b) the solution becomes colourless.  
(c) there is no reaction.  
(d) the solution becomes pale green and no change is observed in the iron nails.

Which of the following precautions should be observed while determining the boiling point of water ?

- (a) The bulb of the thermometer should remain dip in water.  
(b) The bulb of the thermometer should touch the pumice stone pieces.  
~~(c) The bulb of the thermometer should be 2-3 cm above the water surface.~~  
(d) The bulb of the thermometer should touch the bottom of the flask

A student set up an apparatus for finding the melting point of ice. When half the ice melted, the temperature shown by thermometer is :

- ~~(a) more than 0°C~~                      (b) less than 0°C  
(c) zero degree celsius                      (d) none of the above

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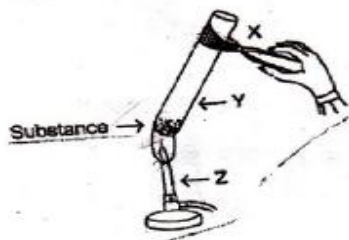
Sublimation can be used to separate :

- (a) volatile liquids from non - volatile liquids solids
- (b) volatile solids from non - volatile
- (c) volatile liquids from non - volatile solid.
- (d) all of these

What is observed when zinc granules are added to dil sulphuric acid in a test tube ?

- (a) zinc granules change to powder.
- (b) colour of zinc changes from grey to white.
- (c) the size of the zinc granules keeps decreasing.
- (d) the surface of zinc metal becomes bright.

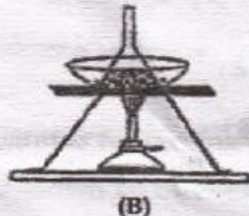
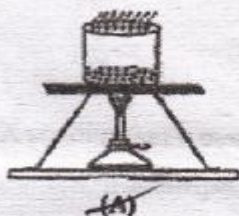
What is the correct description of X, Y and Z in the following figure with the heating of substance ?



- (a) X = Test tube, Y = Burner, Z = Test tube holder
- (b) X = Test tube holder, Y = Burner, Z = test tube
- (c) X = Test tube holder, Y = test tube, Z = Burner
- (d) X = Test tube, Y = Test tube holder, Z = Burner

Which one of the following figures describes the process ?

Solid  $\xrightarrow{\text{heat}}$  Vapours



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

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A student put five raisins each in two beakers A and B. Beaker A contained 50 mL of distilled water and beaker B has 50 mL of saturated sugar solution. After some time the student would observe that :

- (a) raisins in beaker A were more swollen than those in beaker B.
- ~~(b)~~ raisins in beaker B were more swollen than those in beaker A.
- (c) raisins in both beakers A and B were equally swollen.
- (d) raisins in beaker A did not swell up at all.

Cheek cells after observing under a microscope may be classified as :

- (A) glandular epithelial cells.
- (B) squamous epithelial cells.
- ~~(C)~~ cuboidal epithelial cells.
- (D) columnar epithelial cells.

To test the presence of starch in a food sample we generally use a chemical. Select the chemical :

- ~~(a)~~ iodine
- (b) methylene blue
- (c) sodium hydroxide
- (d) dilute hydrochloric acid

Following are five steps for testing Metanil yellow in arhar dal :

- (i) make powder of 5 g of arhar dal,
- (ii) put dal powder in a test tube,
- (iii) add 2-4 drops of conc. HCl and observe the change in colour
- (iv) filter the content and keep the filtrate separately,
- (v) add 10 mL of water and shake it well.

The correct sequence is :

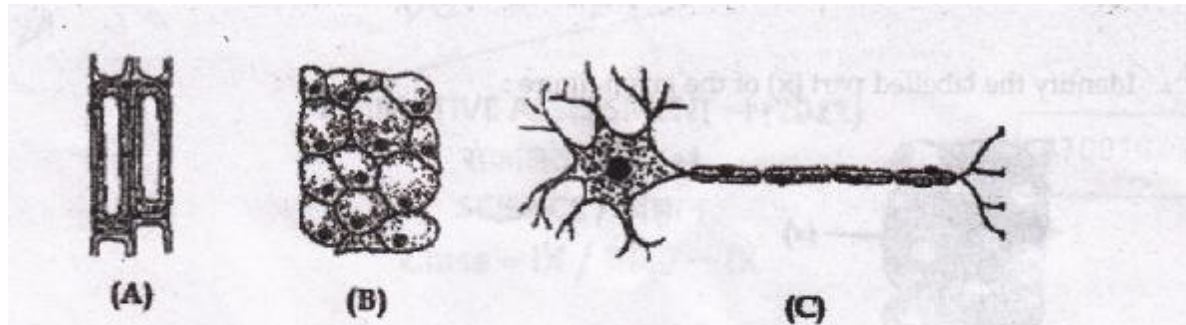
- (a) (i), (ii), (iii), (iv), (v)
- (b) (i), (iv), (v), (ii), (iii)
- (c) (i), (iii), (iv), (v), (ii)
- ~~(d)~~ (i), (ii), (v), (iv), (iii)

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Cells are stained to :

- (A) make the cell turgid
- (B) nourish the cell
- (C) help in cell multiplication
- (D) highlight the cell organelle

Identify the following slides in the correct order based on the features :



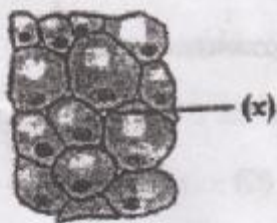
(A) (B) (C)

- (a) Nerve cell, Parenchyma, Sclerenchyma
- (b) Sclerenchyma, Nerve cell, Parenchyma
- (c) Sclerenchyma, Parenchyma, Nerve cell
- (d) Parenchyma, Sclerenchyma, Nerve cell

A student soaked 10 g raisins in 75 mL of distilled water in two beakers A and B. He maintained beaker A at 20°C and beaker B at 40°C. After an hour, the percentage of water absorbed will be :

- (a) Same in beaker A and B
- (b) more in A than in B
- (c) more in B than in A
- (d) twice as much in B as in A

Identify the labelled part (x) of the given figure :



- (a) Air cavity
- (b) Intercellular space
- (c) Intracellular space
- (d) Vacuole