

# MAHESH TUTORIALS

Eng. Medium  
9<sup>th</sup> GSEB  
Batch :

**SUBJECT : Science & Technology**  
**Chemistry : 1, 2, Biology : 5, 6, Physics : 8, 9**  
**Question Papers**

**Test -**  
Date:  
Time: 2 Hrs  
Marks : 50

## **SECTION - A** **OBJECTIVE [10 MARKS]**

1. Name the different types of Osmosis
2. Momentum of a body depends on \_\_\_\_\_ and \_\_\_\_\_ .
3. In which of the following substances, weakest intermolecular force is expected:  
H<sub>2</sub>O, CH<sub>3</sub>OH, Al, He.
4. \_\_\_\_\_ remains constant in uniform circular motion.
5. Name the two types of plant tissues.
6. The arrangement of particles is less ordered in the \_\_\_\_\_ state. However, there is no order in the \_\_\_\_\_ state.
7. **Tyndall effect will be shown by a**  
(a) solution (b) true solution  
(c) mixture (d) colloidal solution
8. **The initial velocity of a body is u. It is under uniform acceleration a. Its 'v' at any time t is given by**  
(a)  $v = u + at^2$  (b)  $v = u + \frac{1}{2} at^2$   
(c)  $v = u + at$  (d)  $v = u$
9. Expand ATP. Where it is produced?
10. Displacement is a Vector Quantity. True or False ?

## **SECTION - B**

**Answer the following questions : [2 Marks Each]**

11. Define speed, state its formula and SI unit.
12. Explain the term boiling on the basis of kinetic theory of gases.  
**OR**
12. Explain the term melting on the basis of kinetic theory.
13. Why do you fall in the forward direction when a moving bus brakes to a stop and fall backwards when it accelerates from rest ?
14. How does the water kept in an earthen pot (matka) become cool during summer?
15. Distinguish between prokaryotic cell and Eukaryotic cell.  
**OR**
15. Differences between plant cell and animal cell.
16. What is the difference between speed and velocity?  
**OR**
16. What can be said about the motion of body if :  
(a) its distance - time graph is a straight line.  
(b) its distance - time graph is a curve.  
(c) its speed - time graph is a straight line.  
(d) its speed - time graph is not a straight line.  
(e) its speed - time graph is a straight line parallel to the x - axis.
17. **Fill in the blanks**  
(a) A colloid is a \_\_\_\_\_ mixture and its components can be separated by the technique known as \_\_\_\_\_.

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- (b) When light is passed through water containing a few drops of milk, it shows a bluish tinge. This is due to the \_\_\_\_\_ of light by milk and the phenomenon is called \_\_\_\_\_. This indicates that milk is a \_\_\_\_\_ solution.
18. Describe stomata.

**SECTION - C**

**Answer the following questions : [3 Marks Each]**

**12**

19. A bullet of mass 10 g travelling horizontally with a velocity of  $150 \text{ ms}^{-1}$  strikes a stationary wooden block and comes to rest in 0.03 s. Calculate the distance of penetration of the bullet into the block. Also calculate the magnitude of the force exerted by the wooden block on the bullet.

**OR**

19. An object of mass 1 kg travelling in a straight line with a velocity of  $10 \text{ ms}^{-1}$  collides with, and sticks to, a stationary block of mass 5 kg. Then they both move off together in the same straight line. Calculate the total momentum just before the impact and just after the impact. Also calculate the velocity of the combined object.

20. Rani and her little sister wanted to go out to play while it was raining outside. But their mother prevented them from going. Rani obeyed her mother's instructions and agreed to stay back home. While her little sister started crying. In order to distract her little sister, Rani took her to the window and started drawing pictures and smileys on the window, which had tiny droplets over it.

(i) Why do we see water droplets on the window ?

(ii) Comment on Rani's behaviour.

21. What is Parenchyma tissue and explain its function ?

22. Comment upon the following: rigidity, compressibility, fluidity, filling a gas container, shape, kinetic energy and density

**SECTION - D**

**Answer the following questions : [4 Marks Each]**

**12**

23. Derive the three equations of motion by graphical method.

**OR**

23. A truck starts from rest and rolls down a hill with a constant acceleration. It travels a distance of 400 m in 20s. Find its acceleration. Find the force acting on it, if its mass is 7 tonnes (Hint: 1 tonne = 1000kg.)

24. Calculate the mass of sodium sulphate required to prepare its 20% (mass percent) solution in 100g of water ?

25. You are provided with a mixture containing sand, iron filings, ammonium chloride and sodium chloride. Describe the procedures you would use to separate these constituents from the mixture ?

**★★★★ Best of Luck ★★★★★**