

**O. P. JINDAL SCHOOL, SAVITRI NAGAR  
HALFYEARELY EXAMINATION (2019 –20)**

**Class: IX  
Subject: Science**

**MM: 80  
Time: 3 Hours**

**General Instructions:**

- i. All questions are compulsory.
  - ii. Question numbers 1 to 10 are MCQ type questions ,carrying one mark each.
  - iii. Question numbers 11 to 20 are very short answer type questions ,carrying one mark each.
  - iv. Question numbers 21 to 30 are short answer type questions ,carrying three marks each.
  - v. Question number 31 to 36 are long answer type questions ,carrying five marks .
  - vi. There is no overall choice. However, an internal choice has been provided in some questions.
  - vii. Use of calculators is not permitted. However, you may use log tables ,if necessary
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**SECTION-A(1 MARK)**

1. The weight of a 10 kg mass object on the surface of earth is:  
(a) 9.8N                      (b) 98N                      (c) 0.98N                      (d) 1 N
  2. Which of the following is a pure substance?  
(a) Air                      (b) Distilled water                      (c) Steel                      (d) Brass
  3. Acceleration of a freely falling object is:  
(a)  $20 \text{ m/s}^2$                       (b)  $98 \text{ m/s}^2$                       (c)  $9.8 \text{ m/s}^2$                       (d) 0
  4. The separation technique used to separate the butter from cream is :  
(a) Centrifugation                      (b) Crystallisation                      (c) Sublimation                      (d) Filtration
- OR
- Which of the following substance can not be broken down by chemical method ?
- (a) Ammonia                      (b) Helium                      (c) Methane                      (d) Water
5. The odometer of an automobile measures :  
(a) Speed                      (b) Distance                      (c) Acceleration                      (d) Force

6. The chlorophyll containing parenchyma tissue called:

- (a) collenchyma      (b) chlorenchyma      (c) aerenchyma      (d) sclerenchyma

OR

The husk of coconut is made up of:

- (a) collenchyma      (b) parenchyma      (c) sclerenchyma      (d) aerenchyma

7. The area occupied by a velocity-time graph gives :

- (a) Distance      (b) Acceleration      (c) Velocity      (d) Time

8. Which of the following is the site of protein synthesis ?

- (a) Lysosomes      (b) Golgi apparatus      (c) Ribosomes      (d) Vacuoles

9. The life supporting zone of the earth (ie, where life is possible) is:

- (a) biosphere      (b) lithosphere      (c) atmosphere      (d) hydrosphere

10. The decreasing order of kinetic energy of particles is :

- (a) Solid>Liquid>Gas      (b) Gas>Liquid>Solid  
(c) Liquid>Solid>Gas      (d) Gas>Solid>Liquid

OR

A few substances are arranged in the increasing order of force of attraction between their particles. Which one of the following represents a correct arrangement?

- (a) water < air < wind      (b) air < sugar < oil  
(c) Oxygen < water < sugar      (d) salt < juice < air

#### SECTION-B (1 MARK)

11. What can you say about the motion of an object whose distance-time graph is parallel to time axis?

12. What is the significance of plasma membrane ?

OR

Why Lysosomes are known as 'suicidal bag' of cell ?

13. Explain why the dust particles come out when a blanket is beaten with a rod.

14. A substance X has definite volume but no definite shape and can diffuse easily. What is the physical state of the substance X ?

OR

Which characteristic of a gas is used in supplying oxygen cylinders to hospital ?

(IX-SCI-2)

15. What happens to the force between two objects, if the masses of both the objects are doubled?

16. Name the process of conversion of a solid into liquid state on heating .

OR

Why are we able to sip hot tea or milk faster from a saucer than a cup?

17. Why is smooth muscle also called non-striated muscle ?

18. What happens when a beam of light passed through milk solution? Name this phenomenon.

19. How ozone present in the atmosphere is important for sustaining life on the earth.?

OR

What are biogeochemical cycles?

20. A diver is able to cut through water in a swimming pool. Which property of matter does this observation show ?

OR

Why should wet clothes are spread while drying ?

#### SECTION-C(3 MARKS)

21. Name the different types of plastids. Give one function of each type.

OR

Name the scientists responsible for following discoveries:

- (i) Nucleus in cells.
- (ii) All cells arise from pre existing cells.
- (iii) Term protoplasm for fluid substance of the cell.

22. State the universal law of gravitation. Deduce the formula for acceleration due to gravity on the surface of the earth.

23. What is the basis of classifying meristems in plants as apical ,lateral and intercalary?  
Explain with well labeled diagram.

24. Distinguish solids,liquids and gases in a tabular form under the following characteristics:  
(i)Fluidity (ii)Intermolecular space (iii)density

25. State Newton's second law of motion. Prove Newton's first law from second law of motion.

26. How can you obtain different gases from air ? Explain with the help of flow chart

27. Describe how greenhouse effect may cause atmospheric heating. Name any two atmospheric constituents responsible for this.

28. Draw diagram of 'Carbon cycle' in nature.

OR

Draw diagram of 'Nitrogen cycle' in nature.

29. An object is thrown vertically upward with an initial velocity of 40 m/s . taking  $g = 10\text{m/s}^2$  , find the maximum height reached by the object.

30. 30g of sugar was dissolved in 430 g of water to prepare a solution .Calculate the concentration of the solution in terms of mass by mass percentage.

OR

Write the dispersed phase, dispersion medium of following colloids

(i)Fog (ii)Gel (iii) Milk

#### SECTION-D (5 MARKS)

31. (i) State and prove the law of conservation of linear momentum.

(ii) According to Newton's third law of motion, when we push an object, the object pushes us back with equal force. If the object is very massive, it will probably not move even if we apply force on it . Justify the statement.

OR

(i) Which of the following has more inertia?

(a)A rubber ball and a stone of the same size.

(b)A bicycle and a train.

(c)A five rupee coin and a one rupee coin.

(ii) A bullet of mass 20g is horizontally fired with a velocity 150 m/s from a pistol of mass 2 kg. What is the recoil velocity of pistol?

32. What are isotonic, hypotonic and hypertonic solutions? What will happen to a normal cell if it is kept in each type of these solutions ?

OR

(i) Write three differences between prokaryotic cell and eukaryotic cells.

(ii) Mitochondria is known as the 'powerhouse' of the cell. Why?

33. (i) Prove the equation of motion  $v^2 - u^2 = 2as$  by graphical method.  
(ii) A car accelerates uniformly from 18 km/h to 36 km/h in 5 seconds. Calculate the acceleration.

OR

- (i) What do you mean by uniformly accelerated motion? What is the nature of velocity-time graph for a uniformly accelerated motion?  
(ii) A racing car has a uniform acceleration of  $4 \text{ m/s}^2$ . What distance it will cover in 10 s after start?
34. (i) The smell of a hot sizzling food reaches you several meters away but to get the smell from cold food you have to go close. Give reason for this observation.  
(ii) Why does a desert cooler cool better on a hot dry day?  
(iii) Convert the following temperature into Kelvin scale (a)  $150^\circ\text{C}$  (b)  $27^\circ\text{C}$

OR

- (i) At  $373\text{K}$  steam causes severe burn than that of boiling water. Why?  
(ii) How does the water kept in an earthen pot (matka) become cool during summer?  
(iii) Convert the following temperature into Celsius scale (a)  $402\text{K}$  (b)  $108\text{K}$
35. Name various types of epithelial tissues. Describe their structure with diagram and give their functions.

OR

- (i) Name three kinds of permanent tissues found in plants. Write one function of each.  
(ii) What is a protective tissue? Why is epidermis considered as a protective tissue?
36. (i) Distinguish between true solution, suspension and colloid in a tabular form under the following heads: (a) Stability (b) Filterability (c) Type of mixture (d) Transparency  
(ii) Write any two differences between Homogeneous mixture and Heterogeneous mixture.

OR

Draw a neat and labeled diagram of the apparatus used to separate two immiscible liquids from a mixture. State and explain the principle involved in this method. Write any two applications of this method.

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