



विद्या सर्वार्थ साधिका

ANANDALAYA
PERIODIC TEST -1
Class : IX

Subject: Science
Date : 13-07-2022

MM : 40
Time: 2 Hours.

General Instructions:

1. There are 17 questions in this question paper. All questions are compulsory.
2. This question paper has four sections: Section A, Section B, Section C and Section D.
3. Section A - Q. No. 1 to 5 are objective type questions and carry 1 mark each.
4. Section B - Q. No. 6 to 10 are short answer questions and carry 2 mark each.
5. Section C - Q. No. 11 to 15 are also short answer questions and carry 3 marks each.
6. Section D - Q. No. 16 and 17 are long answer questions and carry 5 marks.
7. There is no overall choice. However, an internal choice has been provided in one question of three marks and one question of five marks. You have to attempt only one of the choices in such questions.

SECTION A

1. A quantity has a value of -6.0 m/s . It may be the _____ of a particle. (1)
(a) speed (b) velocity (c) position (d) displacement
2. In which way gases are different from liquids? (1)
3. Melting and boiling points of some common substances at sea level are given in the table. (1)
Use the table to answer the following question.

Substance	Melting point ($^{\circ}\text{C}$)	Boiling point ($^{\circ}\text{C}$)
Water	0	100
Table salt	804	1413
Iron	1535	2750
Aluminium	660	1800
Oxygen	-218	-183
Nitrogen	-210	-196

Which substance- oxygen or nitrogen – would freeze first if the temperature were gradually lowered?

4. Name two cell organelles that have the ability to make their own copies. (1)
5. Complete the blanks with appropriate words/ symbols: (1)
Cells are measured by unit called micrometer. One micrometer is equal to _____ meter.
The size range of a prokaryotic cell is _____ micrometer.

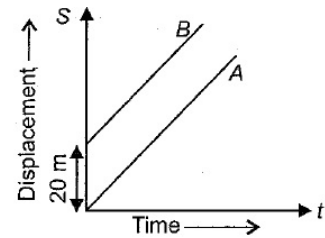
SECTION B

6. A body is moving along a circular path of radius r . What are the values of distance and displacement in half the revolution? (2)
7. Which of the following is true for displacement? Give reason for your answer. (2)
(a) It cannot be zero (b) Its magnitude is greater than the distance travelled by the object.

8. Why do gases expand more than solids for the same increase in temperature? (2)
9. The students were asked to observe and study the onion peel under the microscope which was placed in hypertonic solution for 10 minutes. (2)
- (a) What change/s would they observe in the protoplasm?
- (b) Name and define the process that led to that change.
10. What would happen if: (2)
- (a) Golgi bodies are removed from the cell
- (b) Plasma membrane of plant root cells become impermeable

SECTION C

11. The displacement-time graph of two bodies A and B are shown in figure. Observe the graph carefully and answer the following questions : (3)
- (a) Calculate the acceleration of A and B?
- (b) What is the ratio of speed A to speed B?
- (c) Without actual calculation, can you infer which body is travelling faster ?



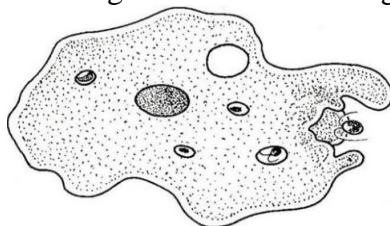
(OR)

A car accelerates uniformly from 5 m/s to 10 m/s in 5 second. Calculate (i) the acceleration and (ii) the distance covered by the car in that time.

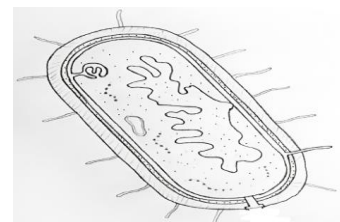
12. Draw and label the graph you would expect to produce if water at 100 °C was allowed to cool to -5 °C. (3)
13. (a) When a jar of coffee is opened, people in all parts of the room soon notice the smell. Use the kinetic theory to explain how this happens. (3)
- (b) Use the particulate model to explain what keeps car or bicycle tyres in the right shape when they are pumped up to high air pressure.
14. Answer the following questions by using the data provided in the table. (3)
- (a) If a steel rod of 10 meters in length was heated so that its temperature rose by 10° C, how long would the rod become?
- (b) Why is pyrex, rather than soda glass, used in cooking glassware such as casserole dishes and saucepans?
- (c) Concrete is often reinforced with steel bars or mesh to make it stronger. Why is steel a better choice than another metal, such as aluminium or lead?

Expansion of materials	
Substance	Expansion (mm) of 100 m length when temperature increases by 10 °C
Steel	11
Platinum	9
Concrete	11
Glass — soda	9
Glass — Pyrex	3
Lead	29
Tin	21
Aluminium	23

15. The figure of organisms A and B are given below: (3)



A



B

- (a) Identify the organisms A and B.
- (b) How does the organism A differ from B on the basis of their structural organisation?

SECTION D

16. Draw a velocity – time graph of a uniformly accelerated motion starting from a non-zero initial velocity. (5)

Using the same velocity-time graph derive the following equations of motion:

(i) $v = u + at$ and (ii) $s = ut + \frac{1}{2}at^2$ where symbols have their usual meanings.

17. Draw an eukaryotic cell showing only detailed structure of nucleus and label the parts based on the physiological importance mentioned below: (5)

(a) Unit of heredity

(b) Cell organelles that forms an endomembrane system

(c) Site of protein synthesis

(d) Facilitates movement of substances between cytoplasm and nucleus.

(OR)

An eukaryotic cell has membrane bound organelles. Mitochondria and chloroplast are the semi autonomous cell organelles present in an eukaryote.

(a) Which cells have both the cell organelles?

(b) Why are they called semi autonomous organelles?

(c) Draw the structure of chloroplast and label any of its two parts

(d) Write one difference between these cell organelles.