



ITL PUBLIC SCHOOL
PERIODIC TEST 2 (2024-25)

Date: 17.09.24

Class: IX

SCIENCE (086)-SET B

Time: 3hrs

M. M: 80

General Instructions:

- > This question paper consists of 39 questions in 5 sections.
- > All questions are compulsory. However, choice is provided in some questions.
- > Section 'A' consists of 20 objective type questions carrying 1 mark each.
- > Section 'B' consists of 6 Very Short Answer type questions carrying 02 marks each.
- > Section C consists of 7 Short Answer type questions carrying 03 marks each.
- > Section D consists of 3 Long Answer (LA) type questions carrying 05 marks each.
- > Section 'E' consists of 3 source based/case-based units of assessment (04 marks each) with sub-parts

SECTION - A

- 1 Draw the distance – time graph to represent uniform retardation. 1
- ~~2~~ A horizontal force of 520 N acts on a wooden cabinet moving across a floor with constant velocity. What is the force of friction that is exerted on the cabinet? 1
- ~~3~~ A boy is whirling a stone tied with a string in a horizontal circular path. What will be the path followed by the stone if the string breaks? 1
- 4 "As plants grow older a new tissue cork starts developing". Name the chemical present in cork tissue. 1
- ~~5~~ Why a sugarcane plant keeps on growing even if its tip is removed? 1
- ~~6~~ What is the form of energy released by mitochondria? Write its full form. 1
- ~~7~~ Raw papaya fruits are green in colour, later their colour change to yellow. Which cell organelle is responsible for this? 1
- 8 Cells of meristematic tissue lack vacuoles. Why? 1

OR

Mention the location of meristematic tissue in plant body.

- ~~9~~ Which kind of plastid is more common in 1
a) roots of the plant b) fruits
- 10 Branches of trees can move and bend freely without getting broken. Which tissue is responsible for this and why? 1
- 11 A student is asked to make a homogeneous mixture. He is provided with the following substances. 1

- | |
|---------------------|
| A. Water |
| B. Soil |
| C. Milk |
| D. Chocolate powder |
| E. Salt |

- Which two substances should the student mix to form a homogeneous mixture?
- ~~12~~ Name the following: 1
a) a soft metal
b) a liquid non metal
- ~~13~~ Liquid 'X' boils at 100°C whereas liquid 'Y' boils at 80°C. Which is more volatile? 1
- 14 Complete the Analogy: 1
Alloys: Homogenous:: Suspension:

- 15 A student pours 20 mL flavored water in a glass containing plain water and notices that the taste of the water changes. The students repeat the activity for 10 times and reports that the water still has some flavor. Which property of matter is explained by this activity? 1
- 16 A student learns that the speed of the formation of a solution increases when the heat is supplied. How does heat affect the formation of the solution? 1

OR

Kinetic energy of particles of water in three vessels A, B and C are E_A , E_B and E_C respectively and $E_A > E_B > E_C$. Arrange the temperatures, T_A , T_B and T_C of water in the three vessels in increasing order.

Question No.17, 18,19 and 20 consist of two statements – Assertion (A) and Reason (R).

Answer these questions selecting the appropriate option given below:

- a). Both A and R are true and R is the correct explanation of A.
 b). Both A and R are true and R is not the correct explanation of A.
 c). A is true but R is false.
 d). A is False but R is true.

17 Assertion (A) – Mass is a measure of inertia of the body in linear motion. 1

Reason (R) – Greater the mass, greater is the force required to change its state of rest or uniform motion.

18 Assertion (A) – Organisms with cells without a nuclear membrane are called prokaryotic cells. 1

Reason (R) – Prokaryotic cells contain membrane bound organelles.

19 Assertion (A) – Aerated drinks are gas in liquid solutions. 1

Reason (R) – These contain carbon dioxide as solvent and water as solute.

20 Assertion (A) – The speedometer of an automobile measures the instantaneous speed of the automobile. 1

Reason (R) – Average velocity is equal to total displacement per total time taken.

SECTION - B

21 Give reason for the following and name the law involved. 2

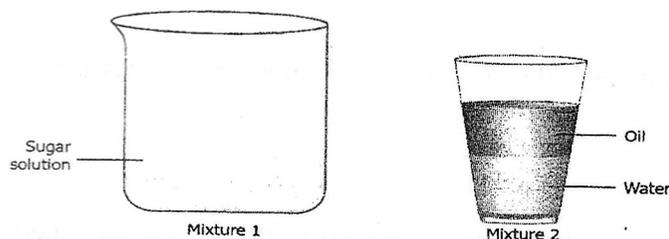
- a) A karate player can break a pile of tiles in a single blow.
 b) A fire fighter has to hold the hose pipe firmly when it directs a powerful stream of water

OR

Show that Newton's first law of motion is contained in Newton's second law of motion.

22 What is meant by uniform and non uniform motion? 2

23 The image shows two solutions. 2



- a) Classify mixture 1 and 2 as homogeneous and heterogeneous.
 b) What differentiates a homogeneous mixture from a heterogeneous mixture?

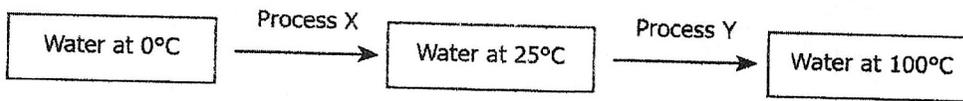
OR

A student listed some items in a table as shown.

- | |
|--|
| 1. iron block
2. oxygen
3. chlorine
4. gold
5. silicon
6. germanium |
|--|

Classify the given items as metal, non-metal, and metalloids.

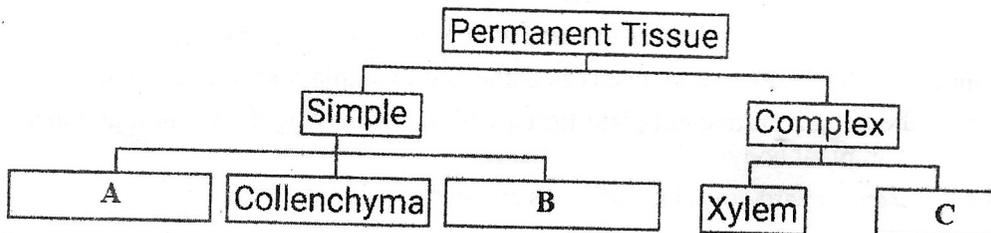
24. a) The image shows two changes.



Identify Process X and Y.

b) Clothes do not dry quickly when there is more humidity in air. What explains the phenomenon?

25. Table shows the classification of plant tissues:



a) Fill the names of tissues in A, B and C.

b) Mention the role of tissue B in plants.

26. Name the cell / cell component with following feature:

- | | |
|--|---|
| a) Control centre of the cell | b) an organelle with grana |
| c) cell with membrane bound organelles | d) packaging and dispatching unit of cell |

SECTION - C

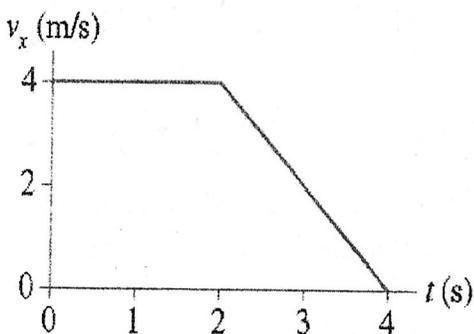
27. Draw velocity-time graphs for the following cases when object has

- uniform velocity.
- uniform acceleration
- non-uniform acceleration

28. A boy walks from point A to point B along a straight path and returns back from B to A along the same path. If distance from A to B is 400m and he takes 5 minutes to complete the journey, find his average speed.

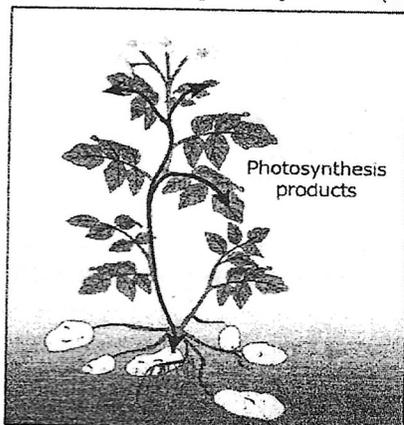
29. The v-t graph of an object of 3 kg is given. Calculate for 0-4 seconds its

- initial momentum
- final momentum
- change in momentum



30

Transport of products of photosynthesis(food) through phloem is shown in following diagram. 3



- a) Which element of phloem is responsible for such type of conduction?
 b) Name the dead elements of this tissue.
 c) What are the main parts of plants towards which the food is transported?
- 31 a) "Plant tissues have low energy needs as compared to animal tissues." Explain. 3
 b) Identify the simple permanent plant tissue with the following description and also mention their function in plant body:
 i). Tissue present in hard coverings of seeds and nuts
 ii). Tissues which provides buoyancy to plant parts.
- 32 Give reasons: 3
 a) Our palm feels cold when we put a drop of acetone or perfume on it.
 b) We see water droplets on the outside of a glass containing ice cold water.
 c) Light coloured cotton clothes are preferred during summers
- 33 a) Naphthalene balls disappear without leaving a residue. Why? 3
 b) What produces more severe burns, boiling water or steam and why?
 c) Convert the following temperatures to degree Celsius:
 i) 293K ii) 475K

SECTION - D

- 34 a) State the universal law that explains the motion of planet around the sun 5
 b) What are the SI units of universal gravitational constant?
 b) The force of gravitation between two masses is 200N. Show mathematically that what will be the new force if
 i) both the masses are tripled
 ii) distance between them is doubled
- OR**
- a) Define the universal gravitational constant.
 b) Two objects of mass 70 kg and 50 kg are placed 0.5 m apart, then what will be the gravitational force exerted between them?
 c) Mention two examples to highlight the importance of the universal law of gravitation,
- 35 a) A solution contains 50g of common salt in 350g of water. Calculate the concentration in terms of mass by mass percentage of the solution. 5
 b) Smoke and fog both are aerosols. In what way are they different?
 c) Why does a mixture of milk and water shows Tyndall effect whereas salt solution does not show Tyndall effect?

7, 9, 24, 26, 30, 33
 36, 37, 38

36

- a) Draw a well labelled diagram of animal cell.
- b) Differentiate between mitosis and meiosis on the basis of:
- number of daughter cells formed
 - Number of chromosomes in daughter cells.
- c) Which cell organelle detoxifies drugs and poisons in liver cells of vertebrates?

5

OR

- a) Draw a well labelled diagram of nucleus.
- b) How Endoplasmic reticulum helps in membrane biogenesis?
- c) Why are plastids considered as semiautonomous organelles?

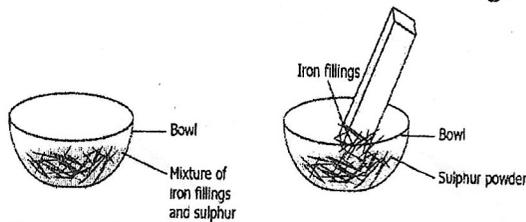
SECTION-E

37

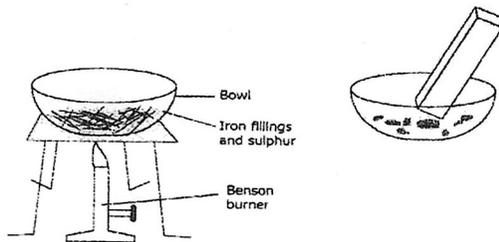
A student performed following activities in laboratory

4

Case I- He added 10 g iron filings and 10 g sulphur powder in a bowl. He brought a magnet over the bowl and noticed that iron filings were picked up by the magnet



Case II- He put Sulphur powder and iron filings back into the bowl and put it on heat. After some time he brought the magnet over it again. This time, the iron filings were not attracted to the magnet.



- a) Name the product formed in case II.
- b) Why the magnet is not able to attract iron filings in second case, whereas it attracts the iron filings in first case?
- c) What will happen if dilute hydrochloric acid is added to mixture of Sulphur and iron filings in case I.
- d) substance formed in case II.

38

Read the following paragraph and answer the questions that follow:

4

Large and complex cells including cells from multicellular organisms, need a lot of chemical activities to support their complicated structure and function. To keep these activities separate from each other, these cells use membrane bound little structures called cell organelles. All eukaryotic cells have a nucleus which contains genetic material in the form of DNA.

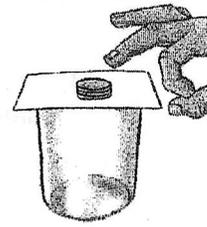
The table lists functions performed by some parts of a cell.

Organelle	Function
M	It helps digest the foreign particles in the cells.
N	It produces food in the cell.

- a) Name the organelles M and N.
- b) Inner mitochondrial membrane is highly folded. Justify.
- c) Write the full form of DNA and mention its function in the cell.

39 Rajiv took an empty glass tumbler and placed it on a table. He covered the glass tumbler with a smooth but stiff card as shown in the figure and then kept a five rupee coin on the card. He gave a quick and sharp flick to the card with his finger.

- a) What will be his observation for the card and the coin after the flick?
- b) Which property is being demonstrated in the activity?
- c) Name and state the law of motion is involved in the above case?



4