Roll No. | | | | | | | |

DAV PUBLIC SCHOOLS, ODISHA ZONE
PERIODIC ASSESSMENT-III, 2023-24

- Please check that this question paper contains **4** printed pages.
- Check that this question paper contains **19** questions.
- Write down the Serial Number of the question in the left side of the margin before attempting it.

CLASS-IX
SCIENCE

Time Allowed: 1hour 30 Minutes **Maximum Marks-40**

General Instructions:

(i) *The question paper comprises five sections A,B,C,D and E. There are **19 questions** in the question paper. All questions are compulsory.*

(ii) Section–A - question no. 1 to 10 - all questions are of one mark each. These questions contain multiple choice questions (MCQs) and assertion - reason type questions.

(iii) Section–B - question no. 11, 12 and 13 are very short answer type questions, carrying 2 marks each.

(iv) Section–C - Question no. 14 and 15 short answer type questions, carrying 3 marks each.

(v) Section–D – Question no. 16 and 17 are long answer type questions carrying 5 marks each.

(vi) Section E – Question no. 18 and 19 are case based/source based questions carrying 4 marks each with sub-parts.

SECTION – A

Select and write the most appropriate option out of the four options given for each of the questions 1 to 10 . There is no negative marks for incorrect response.

1. An element **M** forms the oxide M_2O_3. The formula of its carbonate will be **(1)**

(a) M_2CO_3 (b) $M_2(CO_3)_3$ (c) MCO_3 (d) $M(CO_3)_2$

2. Identify the divalent polyatomic ion from the following **(1)**

(a) OH^{--} (b) NO_3^{--} (c) S^{2--} (d) SO_4^{2---}

3. Which of the following is not correct about cathode rays? **(1)**

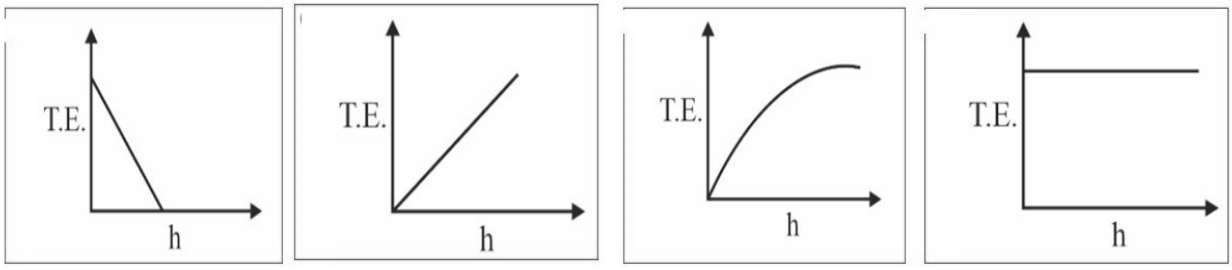
(a) Cathode rays travel in straight line

(b) Cathode rays produce heating effect

(c) Cathode rays produce X rays when they strike on a surface of hard metal

(d) Cathode rays are chargeless and massless radiations

4. A graph of the total energy**(T.E)** of a freely falling body with height **(h)** is given by **(1)**
(total energy = mechanical energy)

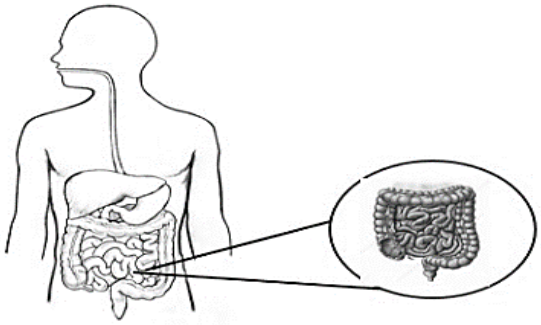


(a) (b) (c) (d)

5. A force of 20N acts on an object. But the object is displaced through a distance of 50m, but opposite to the direction of force. The work done by the applied force is **(1)**

(a) zero (b) positive (c) negative (d) both (b) and (c)

6. The given image shows a type of epithelial tissue and its location in human body. Based on its location, identify the type and function of the tissue. **(1)**



(a) Ciliated epithelial tissue , Absorption

(b) Columnar epithelial tissue, Movement

(c) Columnar epithelial tissue, Absorption

(d) Cuboidal epithelium, Mechanical support

7. Survival of plants in terrestrial environment has been made possible by the presence of **(1)**

(a)intercalary meristem (b) conducting tissue

(c) apical meristem (d) parenchymatous tissue

8. The conversion of energy that takes place in a dry cell is : (**1)**

(a) heat energy to chemical energy

(b) electrical energy to sound energy

(c) chemical energy to electricaal energy

(d) electrical energy to chemical energy

Question numbers 9 and 10, consists of two statements - Assertion (A) and Reason (R), answer these questions selecting the appropriate option given below:

(a) Both assertion (A) and reason (R) are true, and reason (R) is the correct explanation of the assertion.

(b) Both assertion (A) and reason(R) are true, but reason (R) is not the correct explanation of the assertion.

(c) Assertion (A) is true, but reason (R) is false.

(d) Assertion (A) is false, but reason (R) is true.

9. **Assertion(A):** Atomic mass of Magnesium is 24u. **(1)**

Reason(R): An atom of Magnesium is 12 times heavier than $1/12^{th}$ of the mass of carbon-12 isotope.

10. **Assertion(A):** If a light body and a heavy body possess the same momentum, the lighter body will possess less kinetic energy. **(1)**

Reason(R): The kinetic energy of a body is directly proportional to mass of the object and square of the velocity of the object.

SECTION – B

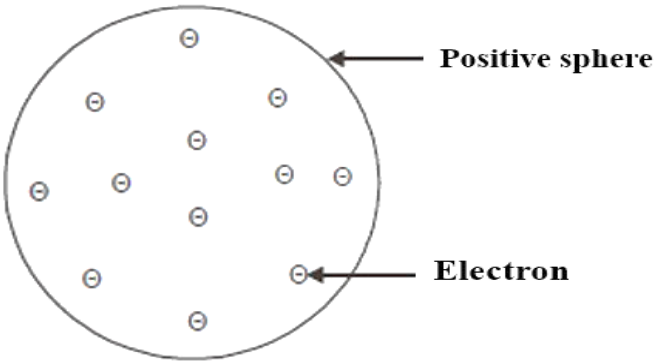
Question no. 11 to 13 are very short answer questions

11. (a) Define a Molecule. **(2)**

(b) Identify the number of atoms present in

(i) Phosphorus molecule (ii) Phosphate ion

12. Name the atomic model represented by the following figure. Write the postulates of the model. **(2)**

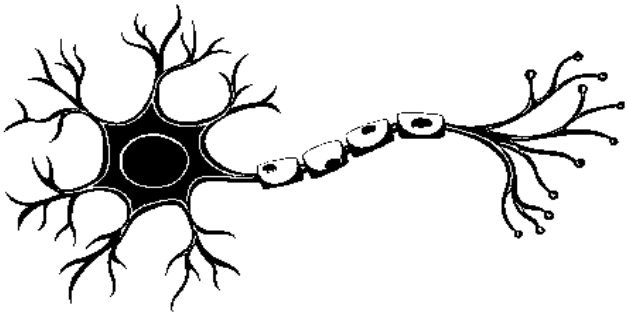


13. A man whose mass is 50 kg climbs up a staircase of 30 steps in 30s. If each step is 20 cm high, calculate the power of the man used in climbing the stairs. [Take g = 10 ms^{-2}] **(2)**

SECTION – C

Question no. 14 and 15 are short answer questions

14. **(3)**



(a) The above tissue is called as messenger of the body . Justify the statement.

(b) Differentiate between nerve and nerve impulse.

15. (a) The velocity of a body moving in a straight line is increased by applying a constant force **F,** for some distance in the direction of the motion. Prove that the increase in the kinetic energy of the body is equal to the work done by the force on the body**.** **(3)**

(b) Armaan can run with a speed of 12 ms^{-1} against the frictional force of 15 N and Karan can run with a speed of 10 ms^{-1} against the frictional force of 18 N. Compare the power of both the athletes.

SECTION – D

Question no. 16 and 17 are long answer questions

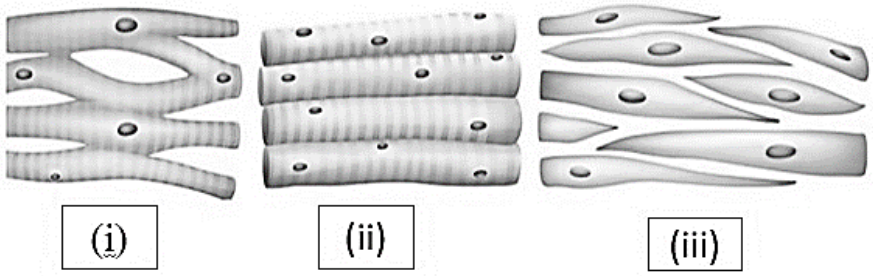
16. (a) Define formula unit mass. **(5)**

(b**)** Identify the cation and anion present in each of the following compounds:

(i) CH_3COOK (ii) NH_4Cl

(c) Write the names of the elements present in (i) Magnesium sulphide (ii) Ammonia

17. **(5)**



(a) Identify (i) and (iii).

(b) Write one similarity between (i) and (iii) on the basis of their nature and structure.

(c) Justify the statement "Voluntary muscles are also called skeletal muscles."

(d) What will happen if the muscle (ii) contracts rapidly for longer duration?

SECTION – E

Question no. 18 and 19 are case based / data based questions with 2 to 3 short sub-parts. Internal choice is provided in one of this sub-parts.

18. Read the following paragraph and answer the following questions. **(4)**

Connective tissues, as the name implies, support and connect different tissues and organs of the body. They are widely distributed in every part of the body. Connective tissues that are found in our body are areolar, adipose, tendon, ligament, bone, cartilage, blood and lymph. They perform different functions in our body.

(a) Matrix of connective tissue varies from each other. Give reason.

(b) Name the tissue that helps in repairing.

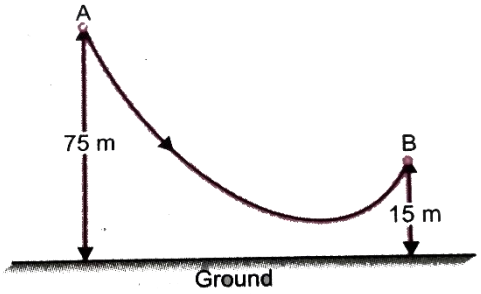
(c) Differentiate between bone and cartilage. (any two points)

OR

(c) Differentiate between tendon and ligament on the basis of connections and strength.

19. Read the following paragraph and answer the following questions. **(4)**

A skier of mass 60 kg stands at **A** at the top of the ski-jump. He moves from A to B and takes off for his jump at **B**. ($g=10m/s^2$) **[**during motion fractional force and air resistance are neglected**]**



(a) Find the ratio of his potential energies at positions **A** and **B**.

(b) Determine the change in gravitational potential energy of the skier when he moves from **A** and **B**.

(c) Calculate the speed at which the skier arrives at B if the change in potential energy is completely converted into kinetic energy.

OR

(c) At what height the potential energy of the skier will be half of the kinetic energy possessed by him during his motion from **A** to **B**.