Final Examination
(2023-2024)
Class –IX
Science

RIMT WORLD SCHOOL

Date: 11.03.2024 **Roll No.:**

Time: 3 Hrs **M.M:80**

General Instructions:

i. This question paper consists of 39 questions in 5 sections.

ii. All questions are compulsory. However, an internal choice is provided in some questions.

iii. Section A consists of 20 objective type questions carrying 1 mark each.

iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.

v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers tothese questions should be in the range of 50 to 80 words.

vi. Section D consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.

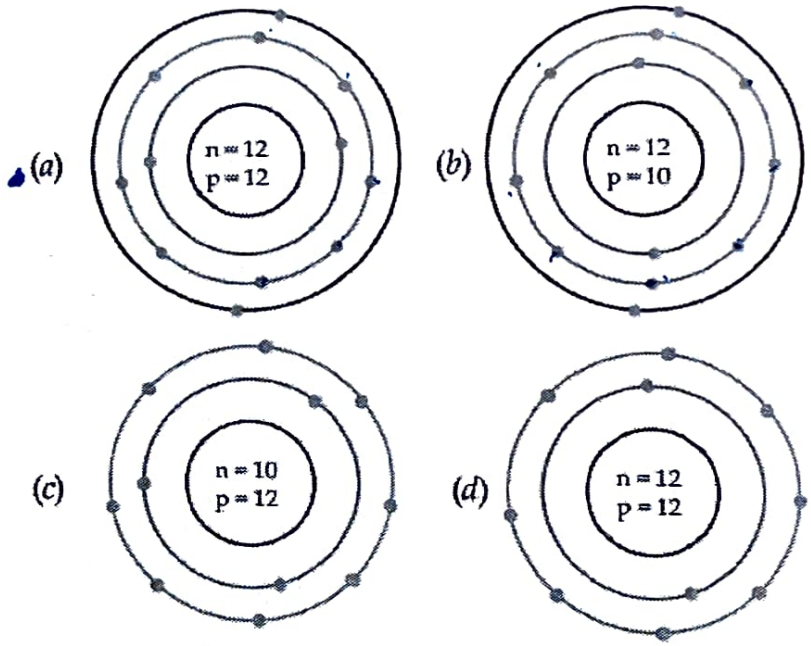
vii. Section E consists of 3 source-based/case-based questions of 04 marks each with sub-parts.

Section-A

Select most appropriate option out of the four options given for each of the questions 1 - 20.

1. Dalton's atomic theory successfully explained
   i) Law of conservation of mass
   ii) Law of constant composition
   iii) Law of radioactivity
   iv) Law of multiple proportion
   a) (i), (ii) and (iii) b) (i), (iii) and (iv)
   c) (ii), (iii) and (iv) d) (i), (ii) and (iv)

2. Identify the Mg^{2+} ion from the given figures where, n and p represent the number of neutrons and protons respectively



3. Iron exhibits the valency of
   a) +1 b) +2
   c) +3 d) +2 and +3

4. Which of the following is a triatomic molecule ?
   a) carbon dioxide b) ammonia

5. The boiling point of a gas is − 80°C. This temperature is equivalent to

a) -193 K b) 193 K

c) 353 K d) -353 K

6. In which of the following the dispersion medium is liquid?

a) Emulsion b) Gel

c) Aerosol d) Alloy

7. When heat is supplied constantly by a gas burner with a small flame to melt ice, then the temperature of ice during melting.

a) Increases slowly to form water

b) Remains constant

c) First remains constant and then decreases

d) Decreases very slowly

8. We get proteins, carbohydrates, fats, vitamins from……

a) DNA b) RNA

c) Food d) Water

9. Newspapers made from……

a) Proteins b) Cellulose

c) Carbohydrates d) Vitamins

10. Rice, maize, sorghum, provides us …… for energyrequirement

a) Proteins b) Carbohydrates

c) Vitamins d) Aminoacids

11. …… cell carry message in our body to brain and brain to body

a) Liver cell b) Ovum

c) Nephron d) Nerve cell

12. In plants, ... tissues conduct food and water from one part of the plant to other parts

a) Transport b) Circulatory

c) Vascular d) None of them

13. Phloem and muscles are all example of .....

a) Cells b) Tissues

c) Organ d) None of them

14. Sound travels in air if

a) particles of medium travel from one place to another

b) there is no moisture in the atmosphere

c) disturbance moves

d) both particles as well as disturbance travel from one place to another.

15. Two particles are placed at some distance. If the mass of each of the two particles is doubled, keeping the distance between them unchanged, the value of gravitational force between them will be

a) 1/4 times b) 4 times

c) 1/2 times d) unchanged

16 A body is falling from a height h. After it has fallen a height h/2, it will possess

a) only potential energy

b) only kinetic energy

c) half potential and half kinetic energy

d) more kinetic and less potential energy

Assertion-Reason Type Questions: For below questions two statements are given one labelled as Assertion and the other labelled as Reason. Select the correct

answer to these questions from the codes: (i), (ii), (iii) and (iv) as given below:

a) Both 'A' and 'R' are true and 'R' is correct explanation of the assertion.

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

c) 'A' is true but 'R' is false.

d) 'A' is false and 'R' is true

17. **Assertion (A):** A gas can easily be compressed by applying pressure.

Reason (R): Since the inter-particle spaces between gases are very large, they can decrease by applying pressure. A)

18. **Assertion :** An object may acquire acceleration even if it is moving at a constant speed.

Reason : With change in the direction of motion, an object can acquire acceleration. A)

19. **Assertion :** A cell swells up when present in a hypotonic solution.

Reason : More water molecules enter the cell than they leave. A)

20. **Assertion :** Parenchyma cells help in storage of food.

Reason : Parenchyma cells are the main sites of photosynthesis.

Section-B

21. Which phenomenon occurs during the following changes :

a) Drying of wet clothes

b) Decrease of size of naphthalene balls

c) Formation of clouds

d) Conversion of solid carbon dioxide into carbon dioxide gas

22. Name the tissues for the following:

a)Present at the tip of root and stem.

b) Divides and re-divides to grow in plants.

c) Kidney shaped cell on epidermal layer of leaf.

d) Covers the external surface of animal body.

OR

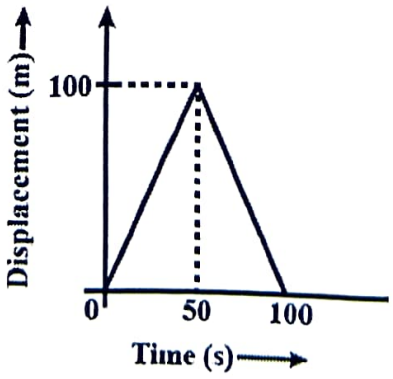
Name and give the function of each cell of xylem.

23. Why lysosomes are called

a. Natural scavengers of the cell?

b. Suicidal bags of the cells?

24. A girl walks along a straight path to drop a letter in the letterbox and comes back to her initial position. Her displacement-time graph is shown in figure. Plot a velocity-time graph for the same.



OR

A car starts from rest and moves along the x-axis with constant acceleration 5 m/s^2 for 8 seconds. If it then

continues with constant velocity, what distance will the carcover in 12 seconds since it started from the rest?

25. A bullet fired against a glass window pane makes a hole in it, and the glass pane is not cracked. But on the other hand, when a stone strikes the same glass pane, it gets smashed. Why is it so?

26. Neem and turmeric powders are often used in grain storage?
    i)What are they called?
    ii) What is the purpose of using neem and turmeric?
    iii) What is herbicide?

Section-C

Question No. 27 to 33 are short answer question

27. a) What mass of potassium sulphate (K_2SO_4) would be needed to prepare a saturated solution in 250 g of water at 60°C ?(Given that mass percentage of $K_2SO_4$is 10%).

    b)Give one example each of :
    i) Aerosol ii) Solution

OR

You are given an element ${}_8Z^{16}$. Find out
i) Protons, electrons and neutrons in Z.
ii) Write its electronic configuration.
iii) Valency of Z.
iv) Write the formula of the compound when Z reacts with hydrogen and carbon.

28. a) 1.2 g of copper powder on heating gave 6.0 g of copper oxide. In another experiment copper oxide

contained 80% oxygen. Show that these results illustrate the law of constant composition.

(b) Write the formulae of the following molecular compounds :

i) Sulphur trioxide ii) Dinitrogen trioxide

iii) Ammonia iv) Carbon tetrachloride

29. State the differences between simple tissues of plants.

OR

With the help of diagram show the difference between striated muscle fibre, smooth muscle fibre and cardiac muscle fibre.

30. Name the organelles which show the analogy written as under:

a. Transporting channels of the cell

b. The powerhouse of cell

c. Packaging and dispatching unit of the cell

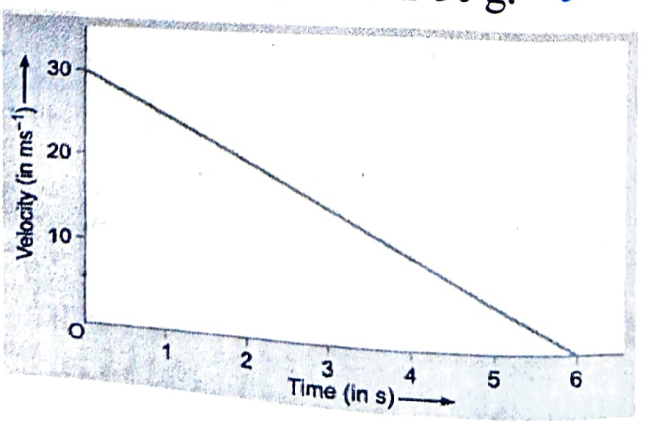
d. Digestive bag of the cell

e. Storage sacs of the cell

f. Kitchen of the cell

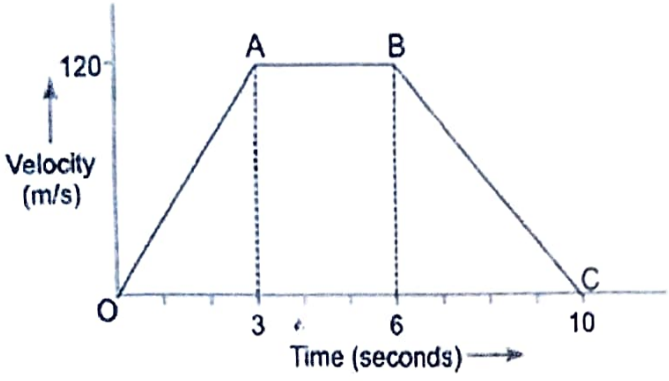
g. Control room of the cell

31. The velocity-time graph of a ball moving on the surface of a floor is shown in the figure. Find the force acting on the ball if the mass of the ball is 50 g.



or

The velocity-time graph of an object of mass m = 50 g is shown in figure. Observe the graph carefully and answer the following questions.



a) Calculate the force on the object in time interval 0 to 3 s.

b) Calculate the force on the object in the time interval 6 to 10 s.

c) Is there any time interval in which no force acts on the object? Justify your answer.

32. State Newton's second law of motion and derive the mathematical relation of Newton's second law of motion.

33. a) Define average power.

b) A athlete weighing 60kg runs up a staircase having 10 steps each of height1m in 30 seconds. Calculate power (g =9.8 m/s) 20

c) What will happen to the kinetic energy of a body if its velocity is halved? 2

Section-D

Question No. 34 to 36 are long answer questions.

34. *a*) In Rutherford experiment of scattering of alpha particles can we take foil of any other metal instead of gold ?Give suitable reason behind it.

b) Name the subatomic particles present in an atom of i) hydrogen (ii) sodium

c) In the atom of an element X, 6 electrons are present in the outermost shell. If it acquires noble gas configuration by accepting requisite number of electrons, then what would be the charge on the ion so formed?

OR

a) Complete the following table:

Particle	Mass number	Atomic number	Protons	Neutrons	Electrons
O	16	8	8	8	8
Al	27	13	13	14	13
Cl^-	35	17	17	18	18
Mg^{2+}	24	12	12	12	10

b) One electron is present in the outermost shell of the atomof an element X. What would be the nature and value ofcharge on the ion formed if this electron is removed from the outer most shell? X^+

35. a)How are chromatin, chromatid and chromosomes related to each other?

b)Draw a labelled diagram of mitochondria. Write the functions of mitochondria.

OR

a) What is active transport? Differentiate between active and passive transport.

b) How is bacterial cell different from onion peel?

36. a)Define acceleration due to gravity. Derive an expression for acceleration due to gravity in terms of mass of the earth (M) and universal gravitational constant (G).

b) On the earth, a stone is thrown from a height in a direction parallel to the earth's surface while another stone is simultaneously dropped from the same height. Which stone would reach the ground first and why?

c) What is reverberation? How it can be reduced?

OR

a) Derive the minimum distance to hear a distinct echo by the obstacle from the source. (Take speed of sound in air is 344 m/s)

b) A person standing between two vertical cliffs and 640 m away from the nearest cliff shouted. He heard the first echo after 4 seconds and the second echo 3 seconds later. Calculate (i) the velocity of sound in air and (ii) the distance between the cliffs.

SECTION – E

37. **Read the passage carefully and answer the given questions:**

A group of students took an old shoe box and covered it with a black paper from all sides. They fixed a source of light (a torch) at one end of the box by making a hole in it and made another hole on the other side to view the light. They placed a milk sample contained in a beaker/tumbler in the box as shown in the adjacent figure. They were amazed to see that milk taken in the tumbler was illuminated. They tried the same activity by taking a salt solution but found that light simply passed through it.

a) Explain why the milk sample was illuminated. Name the phenomenon involved.

b) Same results were not observed with a salt solution. Explain.

c) Can you suggest two more solutions which would show the same effect as shown by the milk solution?

OR

c) Which type of Compounds shows the Tyndall's effect and why?

38. **Read the passage carefully and answer any four questions:**

Honey is widely used and therefore bee keeping for making honey has become an agricultural enterprise. Since bee-keeping needs low investments, farmers use it as an additional income generating activity. In addition

to honey, the beehives are a source of wax which is used in various medicinal preparations. The local varieties of bees used for commercial honey production are *Apisceranaindica*, commonly known as the Indian bee, A. dorsata, the rock bee and A. florae, the little bee. An Italian bee variety, A. mellifera, has also been brought in to increase yield of honey.

The Italian bees have high honey collection capacity. They sting somewhat less. They stay in a given beehive for long periods, and breed very well. For commercial honey production, bee farms or apiaries are established. The value or quality of honey depends upon the pasturage, or the flowers available to the bees for nectar and pollen collection. In addition to adequate quantity of pasturage, the kind of flowers available will determine the taste of the honey.

1) Which species of bee is commonly known as the Indian bee?

a) Apisceranaindica *b) Apisdorsata*

c) Apismellifera *d) Apis florae*

2) Which species of bee is commonly known as the rock bee?

a) Apisceranaindica *b) Apisdorsata*

c) Apismellifera *d) Apis florae*

3) Which species of bee is commonly known as the little Bee?

a) Apisceranaindica *b) Apisdorsata*

c) Apismellifera *d) Apis florae*

4) Identify the correct statements

Statement 1 – Beehives are a source of wax which is used in various medicinal preparations.

Statement 2 – *Apisceranaindica* is commonly known as the Indian bee

Statement 3 – *Apisdorsata* is known as the rock bee

Statement 4 -The quality of honey depends upon the flowers available for nectar and pollen collection.

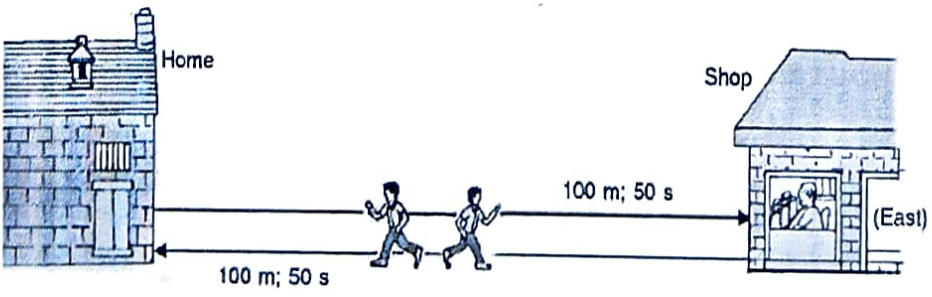
a) Both 1 & 2 b) Both 3 & 4

c) Only 1 d) All of the above

5) Enlist the local varieties of bees used for commercial honey production.

39. **Read the passage carefully and answer any four questions:**

Suppose the boy first runs a distance of 100 metres in 50 seconds in going from his home to the shop in the East direction, and then runs a distance of 100 metres again in 50 seconds in the reverse direction from the shop to reach back home from where he started (see Figure).



i) Find the average speed of the boy.

a) 1 m/s b) 2m/s

c) 3m/s d) None of these

ii) Find the average velocity of the boy.

a) 1 m/s b) 2m/s

c) 3m/s d) None of these

iii) A boy is sitting on a merry-go-round which is moving with a constant speed of 10m/s. This means that the boy is:

a) At rest

b) Moving with no acceleration

c) In accelerated motion

d) Moving with uniform velocity

iv) In which of the following cases of motion, the distance moved and the magnitude of displacement are equal?

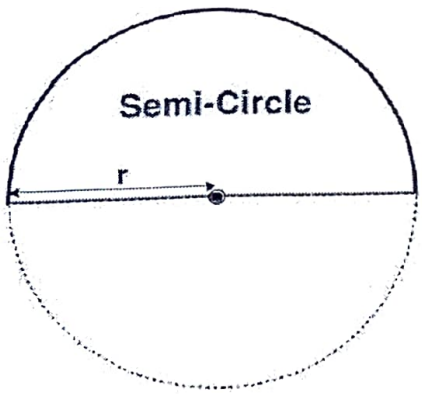
a) If the car is moving on straight road

b) If the car is moving on circular road

c) If the pendulum is moving to and fro

d) If a planet is moving around the sun

v) A particle is moving in a circular path of radius r. The displacement after half a circle would be:



a) 0 b) πr

c) $2r$ d) $2\pi r$