



BGS INTERNATIONAL PUBLIC SCHOOL
SECTOR-5, DWARKA, NEW DELHI
FINAL EXAMINATION (2023-2024)

CLASS: IX

SCHOOL CODE: 25279

SUBJECT: SCIENCE (CODE 086)

MM: 80

SET: 1

TIME: 3 Hrs

General Instructions

- 1) The question paper has five sections-A, B, C, D and E. You are to attempt all sections.
- 2) All questions are compulsory. Internal choice has been given in sections B, C, D and E.
- 3) Questions 1 to 20 in Section A are one mark questions.
- 4) Questions 21 and 26 in Section B are two marks questions.
- 5) Questions 27 to 33 in Section C are three marks questions.
- 6) Questions 34 to 36 in Section D are five marks questions.
- 7) Questions 37 to 39 in Section E are case based questions of four marks.
- 8) Draw neatly labelled diagrams where necessary.

SECTION A

- Q1. Rusting of an article made of iron is called
- a) Corrosion and it is a physical as well as a chemical change.
 - b) Dissolution and it is a physical change.
 - c) Corrosion and it is a chemical change.
 - d) Dissolution and it is a chemical change. (1)

- Q2. Which of the following substances will not dissolve in water?

- a) Sugar.
- b) Sodium chloride.
- c) Copper sulphate.
- d) Carbon. (1)

- Q3. Early Indian philosophers classified matter into _____ forms.

- a) Five.

b) Three.

c) Four.

d) Six.

(1)

Q4. The first atomic theory was put forward by

a) Newton.

b) John Dalton.

c) Lavoisier.

d) Democritus.

(1)

Q5. The chemical formula of a molecular compound is determined by

a) Alphabetical sequence of the element.

b) Atomic mass of the element.

c) Reactivity of the element.

d) Valency of each element.

(1)

Q6. Oxygen was earlier taken as a reference substance for measuring atomic masses of elements because

a) Oxygen reacted with a large number of elements to form compounds.

b) This gave masses of most of the elements as whole numbers.

c) Oxygen is a gas at room temperature.

d) (a) and (b).

(1)

Q7. The number of electrons in an atom of an element X is 15 and the number of neutrons is 16. Which of the following is the correct representation of the element?

a) $^{31}\text{X}_{15}$

b) $^{31}\text{X}_{16}$

c) $^{16}\text{X}_{15}$

d) $^{15}\text{X}_{16}$

(1)

Q8. In the formation of male gamete, which type of cell division occurs?

a) Mitosis

b) Meiosis

c) Amitosis

d) Both a) and b)

(1)

- ✓ Q9. Which of the following movement is exclusively a biological process-
- a) Brownian movement
 - b) Diffusion
 - c) Osmosis
 - d) None of these (1)
- ✓ Q10. ATP synthesis takes place in-
- a) Mitochondria
 - b) Chloroplast
 - c) Ribosome
 - d) SER (1)
- ✓ Q11. *Apis mellifera* is an example of-
- a) Broiler
 - b) Layers
 - c) Honey bee
 - d) Finned fishes (1)
- ✓ Q12. What collective name is given for herbicides, insecticides and fungicides?
- a) Weedicide
 - b) Fumigation
 - c) Vermicomposting
 - d) Pesticides (1)
- ✓ Q13. What is the relation between mass and weight?
- a) Weight of the body is always less than the mass of the body.
 - b) Weight of the body is same as that of the mass of the body.
 - c) Weight of the body is inversely proportional to the mass of the body
 - d) Weight of the body is directly proportional to the mass of the body. (1)
- ✓ Q14. What force will change the velocity of a body of mass 1kg from 20m/s to 30m/s in 2s?
- a) 1N
 - b) 5N
 - c) 10N
 - d) 25N (1)

Q15. While doing work and running, you move your organs like hands, legs etc. Which among the following is correct?

- a) Smooth muscles contract and pull the ligament to move the bones.
- b) Smooth muscles contract and pull the tendon to move the bones.
- c) Skeletal muscles contract and pull the ligaments to move the bones.
- d) Skeletal muscles contract and pull the tendon to move the bones. (1)

Q16. The dead element present in the phloem is

- a) Companion cells
- b) Phloem fibres
- c) Phloem parenchyma
- d) Sieve tube. (1)

Direction: In the following questions, two statements are given – one labelled Assertion(A) and the other labelled Reason(R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below:

- (a) If both Assertion & Reason are True & the Reason is a correct explanation of the Assertion.
- (b) If both Assertion & Reason are True but Reason is not a correct explanation of the Assertion.
- (c) If Assertion is True but the Reason is False.
- (d) If both Assertion & Reason are false.

Q17. **Assertion:** A sponge is the solid matter which we can easily compress by our hand.

Reason: Sponge has minute hole which is full of air and by pressing it the air is further absorbed in hole. (1)

Q18. **Assertion:** Muscle fibres are contractile in nature.

Reason: Cells of muscle tissue can shorten forcefully and again return to the relaxed state. (1)

Q19. **Assertion:** On Moon, man feels lighter than Earth.

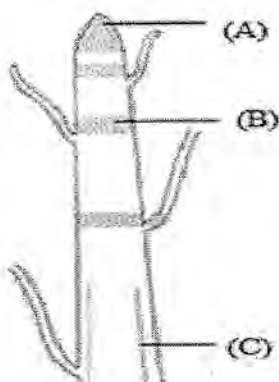
Reason: Due to more gravitational force exerted by Moon on man. (1)

Q20. **Assertion:** Legumes increases the soil fertility.

Reason: Microbes in the root nodules of leguminous plants fix atmospheric nitrogen. (1)

SECTION B

- Q21. a) Why do we keep ether and acetone in cool places?
b) Classify the following into osmosis/diffusion:
i) Earthworm dying on coming in contact with common salt.
ii) Spreading of virus on sneezing. (2)
- Q22. If the organization of a cell is destroyed due to some physical and chemical influence, what will happen? (2)
- Q23. Observe the given diagram and answer the questions followed by it.



- a) Identify (A) and write its function.
b) Label (B) and (C) and mention how (B) plays an important role in absence of (A)?

OR

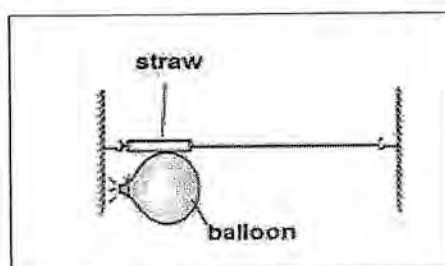
Compare skeletal muscle and cardiac muscle. (2)

- Q24. What is an echo? State two conditions for a distinct echo to be heard?

OR

What are sound boards? What is the principle behind it? (2)

- Q25. Observe the following diagram and answer the questions given below:



- i) In which direction does the balloon move when the thread tied to its neck is removed and why?

- Q26. ii) State the conclusion drawn from this activity. (2)
- i) Differentiate broilers and layers.
- ii) Name an indigenous and an exotic species of poultry bird. (2)

SECTION C

- Q27. a) Identify the elements from the following substances:
- i) Sulphur, brine, hydrochloric acid
- b) Name a non metal which is required for combustion.
- c) Mention the dispersed phase and dispersing medium in cheese.

OR

- a) How will you determine if a given sample of water is pure or not?
- b) Write two differences between compounds and mixtures. (3)
- Q28. a) As per Rutherford's experiment it has been concluded that a small part in the centre of the atom is hard. Support this conclusion with the relevant observation.
- b) Complete the following table:

Atomic number	Mass Number	No. of neutrons	Name of atomic species
7	-----	7	-----

- c) If bromine atom is available in the form of say, two isotopes $^{79}\text{Br}_{35}$ (59%) and $^{81}\text{Br}_{35}$ (41%) calculate the average atomic mass of bromine atom. (3)

- Q29. What happens due to deficiency of nutrients in plants? Why should farmer consider green manure for their crop field? Mention the nutrients plants obtain from green manure.

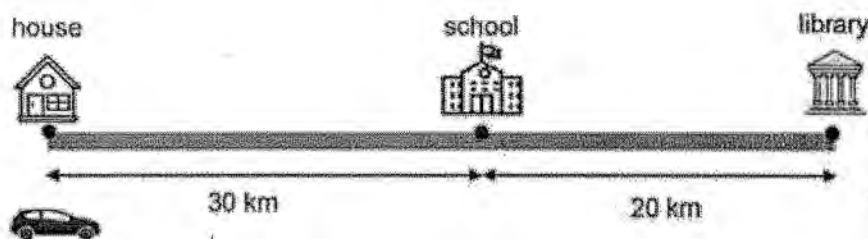
OR

Enumerate the advantages of cross breeding in cattle. Write the scientific name of cow and buffalo. (3)

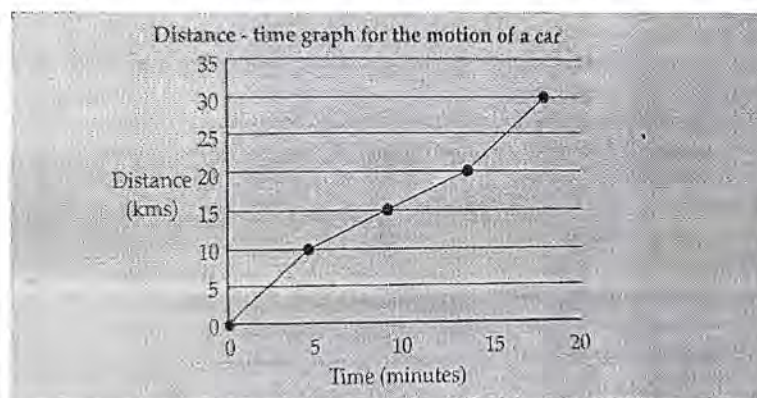
- Q30. Give scientific reason for the following.

- a) Plant parts like branches or leaves can be bent easily without breaking them.
- b) Desert plants have a thick cuticle.
- c) Blood is red in colour. (3)

- Q31. The figure shows the motion of a car along a straight path. The car moves from house to school and then back to school from library.



- What is the net displacement of the car?
- What is the total distance travelled by the car?
- The graph below shows how the car travelled from house to school.



Did the car move with uniform motion from house to school? Explain your answer.

(3)

- Q32. A person standing near the cliff fires the gun and heard the echo after 1.5 seconds. The speed of sound in air is 340 m/s, then how far is the person from the cliff?
- Calculate the wavelength of a sound wave whose frequency is 220 Hertz and speed is 440 m/s in a given medium. (3)
- Q33. Name the two forces acting on an object immersed in a liquid.
- Mention the directions in which they act.
- List one factor each on which the magnitude of this force depends. (3)

SECTION D

- Q34. What is the number of electrons in S atom and S^{2-} ion?
- Write the atomicity of Sulphur and Phosphorus.

- c) Determine the elements present in Lead Nitrate.

OR

- a) Calculate the molecular mass of sodium oxide. (Na-23u, O-16u)
- b) Write the formula of the following:
- i) Calcium hydroxide
- ii) Magnesium hydride
- c) The atomic number of two elements A and B are 9 and 13 respectively. Which of them will form a cation and why?
- d) How many electrons are there in the L shell of chlorine atom? (5)

- Q35. Discuss the factors that cause loss of stored grains? How do they affect the market price of these produce?

OR

What is integrated fish farming and composite fish farming? Mention the major challenges of composite fish farming. How can it be resolved? (5)

- Q36. State the law of conservation of energy. Illustrate the law of conservation of energy by discussing the energy changes which occur when we draw a pendulum bob to one side and allow it to oscillate. (with diagram)

OR

- a) Define work. Give SI unit of work done. Write an expression for positive work done.
- b) Calculate the work done in pushing a cart through a distance of 50 meter against the force of friction which is equal to 250 N. Also state the type of work done.
- c) What will be the work done if displacement of the object is perpendicular to the direction of force?
- d) When an object moves on a circular path, what will be the work done? (5)

SECTION E

- Q37. Read the following passage and answer the questions followed.

Atoms consist of three basic sub atomic particles: protons, electrons and neutrons. The nucleus of the atom consists of protons and neutrons. The outermost regions of the atom are called electron shells and contain electrons.

- a) Who gave the concept of fixed energy levels around the nucleus?
- b) Which element does not have any neutrons in its nucleus?
- c) How is the Bohr's model of atom different from Thomson's model of the atom?
- d) Name the source of alpha particles in Rutherford's scattering experiment.

OR

- d) Write an application of isotopes. (4)

Q38. Read the following passage and answer the questions followed.

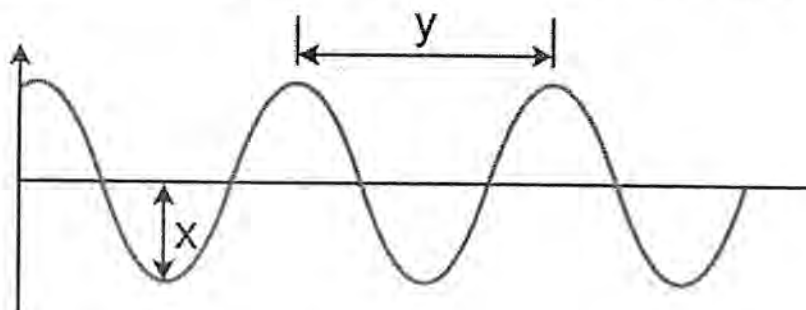
Plants and animals are made up of millions of cells and these cells have several similarities and differences. Structurally, plant and animal cells are very similar because they are both eukaryotic cells. They both contain membrane bound organelles such as the nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, lysosomes and vacuoles.

- a) Unlike animal cells, plant cells have cell wall. Why?
- b) Why is mitochondria known as the powerhouse of the cell?
- c) How is chloroplast different from leucoplast? Give any two points.

OR

- c) Write the functions of the vacuoles in a living cell. (4)

Q39. A sound wave travelling in a medium is represented as shown in the figure.



- a) Which letter represents the amplitude of the sound wave?
- b) Which letter represents wavelength of a wave?
- c) What is the frequency of the source of sound if the vibrating source of sound makes 360 oscillations in two minutes?

OR

Calculate the time period of the source of sound in the above case. (4)