ANNUAL EXAMINATION 2025-26
SCIENCE (086) (SET-1)
MARKING SCHEME

Class: IX | Time: 3 hours
Date: 12/02/26 | Max Marks: 80

	Section-A (Biology)	Marks
1	**b) Ribosomes**	1
2	**b) Plant cells only**	1
3	**b) Phloem**	1
4	**c) Skeletal muscle**	1
5	**b) Amoeba**	1
6	**c) Osmosis**	1
7	**Answer: A**	1
8	**c) Nitrogen**	1
9	**c) Crop rotation**	1

10 2

Differences between prokaryotic and eukaryotic cells:

- Prokaryotic: No true nucleus
- Eukaryotic: True nucleus present
- Prokaryotic: No membrane-bound organelles
- Eukaryotic: Membrane-bound organelles present

11 2

Meristematic tissue: Tissue with actively dividing cells.
Types: Apical, Lateral, Intercalary

12 3

Mitochondria:
Structure: Double membrane, inner folds called cristae, inner matrix.
Function: Produces ATP during respiration.

13 3

Three methods of crop improvement:

- Hybridisation
- Genetic engineering
- Selection

OR

Biotic factors – pests, weeds, and diseases

Abiotic factors – temperature, rainfall, soil fertility

Agricultural practices – irrigation, fertilizers, crop protection

14 4

(i) Because meristematic tissue is present only in specific regions.
(ii) Apical meristem (lengthwise), Lateral meristem (girth).
(iii) Simple: one type of cell (Parenchyma); Complex: many cell types (Xylem).

OR

Meristematic cells differentiate into permanent tissue (e.g., Parenchyma).

15 **Agricultural practices:** 5

Preparation of soil, Sowing, Manuring, Irrigation, Weeding, Harvesting, Storage.

OR

Crop variety improvement:
Improving crops for better yield, quality, resistance, and adaptability.

Section-B (Chemistry)

16 (b) Boiling point 1

17 (c) Molecules in steam 1

18 (b) Centrifugation 1

19 (c) Distilled water 1

20 1

(c) $2N_2$

21 (c) 3 1

22 (c) It contains 12 neutrons. 1

23 1

A. Both A and R are true, and R is the correct explanation of A.

24 2

Physical properties of metals (Any four):

1. Lustrous: Metals have a shiny surface.
2. Malleable: Metals can be beaten into thin sheets.
3. Ductile: Metals can be drawn into thin wires.
4. Good Conductors: They conduct heat and electricity efficiently.
5. Sonorous: They produce a ringing sound when struck.

25 3

Isotopes : Same atomic number and different Mass Number and two example .

Isobars : Same Mass number and different atomic number Number and two example

26 3

Element with configuration 2, 8, 7:

(a) Atomic Number = 17.

(b) Group: It belongs to Group 17 (The Halogens).

(c) Nature: It is a Non-metal (Chlorine), as it tends to gain 1 electron to complete its octet.

OR

Aluminium Atom

Nucleons: 27 (Nucleons = Mass Number = Protons + Neutrons).

Electrons: 13 (Equal to Atomic Number in a neutral atom).

Neutrons: 27 - 13 = 14 neutrons.

OR

(c) Atoms are electrically neutral because the number of positively charged protons in the nucleus is exactly equal to the number of negatively charged electrons revolving around it.

27 4

Case Study:

a) Number of neutrons = Mass Number - Atomic Number =23 - 11 = 12.

b) Valency of atomic number 16 (Config: 2, 8, 6): It needs 2 electrons to complete the shell. Valency is 2.

c) Atomic Number 7:

Electronic Configuration: 2, 5

Valence Shell: L shell (2nd shell).

28 5

. (a) Molecular Formula and Mass:

(i) Sulphuric Acid: H_2SO_4

Mass = (2 x1) + 32 + (4x16) = 2 + 32 + 64 = 98 u

(ii) Calcium Carbonate: $CaCO_3$

Mass = 40 + 12 + (3x16) = 40 + 12 + 48 =100 u

(b) Atomicity:

Atomicity Definition: The number of atoms constituting a molecule.

(i) Phosphorus: Formula is P_4. Atomicity = 4 (Polyatomic).

(ii) Nitrogen: Formula is N_2. Atomicity = 2 (Diatomic).

OR

(a) Names of Compounds:

(i) Aluminium sulphate

(ii) Calcium chloride

(iii) Potassium sulphate

(iv) Sodium nitrate

(b) Elements Present:

(i) Quick lime : Calcium, Oxygen.

(ii) Potassium nitrate: Potassium, Nitrogen, Oxygen.

(iii) Baking soda : Sodium, Hydrogen, Carbon, Oxygen.

Section-C (Physics)

29 (c) 2r 1

30 (d) becomes 4 times 1

31 (C). A is true but R is false. 1

32 2

Speed is the distance travelled per unit time. It is a scalar quantity (has magnitude only).	Velocity is the displacement per unit time. It is a vector quantity (has both magnitude and direction).

OR

Distance travelled
= 4460 − 4200 = 260 km

Time taken
= 4 h 20 min
= 4+20/60
= 4.33 h (approx)

Average speed=Total distance/Total time=260/4.33≈60 km/h

33 2

A **sharp knife** is more effective than a **blunt knife** because:
Pressure =Force/Area
A sharp knife has a **very small area of contact** at its edge.
For the same applied force, it produces **greater pressure**, making cutting easier.
A blunt knife has a larger area of contact, so it produces less pressure.

34 **Reverberation** is the **persistence of sound in an enclosed space** even after the source of sound has stopped. 2

It happens because sound waves keep **reflecting from walls, ceilings, and other hard surfaces**, reaching our ears again and again.

Methods to reduce Reverberation

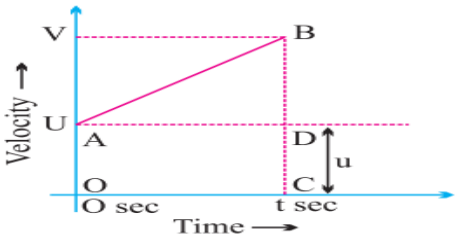
Covering walls and ceilings with sound-absorbing materials like acoustic panels, fibre boards, or foam

Using heavy curtains, carpets, and cushioned seats

False ceilings made of soft materials (acoustic tiles)

Rough or porous surfaces instead of smooth, hard ones.

35 3



For such a body there will be an acceleration.

$$a = \frac{\text{Change in velocity}}{\text{Change in time}}$$

$$a = \frac{OB - OA}{OC - 0} = \frac{v - u}{t - 0}$$

$$a = \frac{v - u}{t}$$

$$v = u + at$$

$s = ut + \frac{1}{2}at^2$

Distance travelled by object

= Area of OABC (trapezium)

= Area of OADC (rectangle) + Area of ΔABD

$= OA \times AD + \frac{1}{2} \times AD \times BD$

$= u \times t + \frac{1}{2} \times t \times (v - u)$

$= ut + \frac{1}{2} \times t \times at$

$\left(\because \frac{v - u}{t} = a\right)$

$s = ut + \frac{1}{2}at^2$

36 $v^2 = u^2 + 2as$

$s = \text{Area of trapezium OABC}$

$s = \frac{(OA + BC) \times OC}{2}$

$s = \frac{(u + v) \times t}{2}$

$s = \left(\frac{u + v}{2}\right) \times \left(\frac{v - u}{a}\right)$ 3

Or

$\left(\because \frac{v - u}{t} = a\right)$

$s = \frac{v^2 - u^2}{2a}$

Or

$v^2 = u^2 + 2as$

$400 = 0 + \frac{1}{2} \times a \times 400$

$200\ a = 400$

$a = \frac{400}{200}$

$a = \mathbf{2\ m/s^2}$

We know that,

Force = mass × acceleration 3

Given,

Mass = 7 metric tonnes

= 7 × 1000 kg

= 7000 kg

Acceleration = $2m/s^2$

f = m xa = 7000 X 2= 14000N

37 (a) Reduce by 9 times.

(b) Increase by 4 times

(c) No change

38 (i) Gravitational Potential energy 4

(ii) PE= mgh= 2 X 10X 10= 200J

(iii) mass, height, gravitational acceleration

(iv) This energy converts into kinetic energy.

39 (a) The wave speed is equal to the product of its frequency and wavelength. 2

(b) 3

Answer: The answer is 2m.
Explanation:
Velocity = Wavelength × Frequency
v = λ × n
Given that,
v = 440 m/sec
n = 220 Hz
λ = ???

We have to find the wave length
v = λ × n
440 = λ × 220
= λ = 440 / 220
= λ = 2

The wave length (λ) = 2 m

OR

(a) An **echo** is the repetition of sound heard after reflection from a distant surface.

Conditions for echo:

1. Minimum distance of the reflecting surface should be **17 m** from the source.
2. The time gap between original sound and reflected sound should be **at least 0.1 s**.
3. The reflecting surface should be large and hard.

Echoes are commonly heard in mountains, caves, and large halls.

(b) **Ultrasonic sound:** Frequency > 20,000 Hz

Uses: Medical imaging, SONAR, cleaning delicate instruments

Infrasonic sound: Frequency < 20 Hz

Uses: Earthquake detection, communication by animals like elephants. Humans cannot hear either ultrasonic or infrasonic sounds.

**********ALL THE BEST**********