

# ANSWER KEY AND MARKING SCHEME

**SERIES:**

SUBJECT: SCIENCE

MARCH 2026

GRADE: 9

SUBJECT CODE:

N 1 0 3 1

( ACCEPT ANY OTHER VALID ANSWERS FOR ALL THE QUESTIONS )

| Q. No. | ANSWERS                                                                                                                                                                                                                                                                                                                                                                                     | Text Book PAGE NO. Edition 2024 | Ch. No.    | MARKS      | TOTAL MARKS |
|--------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------|------------|------------|-------------|
| 1      | (D) Separating Funnel                                                                                                                                                                                                                                                                                                                                                                       | 2.3.3 pg19                      | 2          | 1          | 1           |
| 2      | (B) 2 <sup>-</sup>                                                                                                                                                                                                                                                                                                                                                                          | 3.4 pg 35                       | 3          | 1          | 1           |
| 3      | (B) Note                                                                                                                                                                                                                                                                                                                                                                                    | 12.2.3pg 158                    | 12         | 1          | 1           |
| 4      | (B) Aerosol                                                                                                                                                                                                                                                                                                                                                                                 | 2.2.3 pg 17                     | 2          | 1          | 1           |
| 5      | (B) Fractional Distillation                                                                                                                                                                                                                                                                                                                                                                 | 2.3.7 pg 21                     | 2          | 1          | 1           |
| 6      | (D) Rohus                                                                                                                                                                                                                                                                                                                                                                                   | 15.2.3pg202                     | 15         | 1          | 1           |
| 7      | (D) Homogenous Mixture                                                                                                                                                                                                                                                                                                                                                                      | 2.2 pg 14                       | 2          | 1          | 1           |
| 8      | (D) Cross Pollination                                                                                                                                                                                                                                                                                                                                                                       | 15.2.4pg203                     | 15         | 1          | 1           |
| 9      | (D) Kilowatt hour                                                                                                                                                                                                                                                                                                                                                                           | 11.3.1pg 149                    | 11         | 1          | 1           |
| 10     | (B) Crop Rotation                                                                                                                                                                                                                                                                                                                                                                           | 15.1.2pg197                     | 15         | 1          | 1           |
| → 11   | (C) 3.33 To be awarded 1 m ; No correct option is provided. Pg 198                                                                                                                                                                                                                                                                                                                          | 2.2.1 pg 16                     | 2          | 1          | 1           |
| 12     | (A) (i) and (iii)                                                                                                                                                                                                                                                                                                                                                                           | 15.1.2pg196                     | 15         | 1          | 1           |
| 13     | (D) Both sublime on heating                                                                                                                                                                                                                                                                                                                                                                 | 2.3.4 pg 19                     | 2          | 1          | 1           |
| 14     | (A) 20 kg                                                                                                                                                                                                                                                                                                                                                                                   | 11.2.2pg144                     | 11         | 1          | 1           |
| 15     | (C) Protons + Neutrons                                                                                                                                                                                                                                                                                                                                                                      | 4.5.2 pg 49                     | 4          | 1          | 1           |
| 16     | (C) Cu(NO <sub>3</sub> ) <sub>2</sub>                                                                                                                                                                                                                                                                                                                                                       | 3.4 pg35                        | 3          | 1          | 1           |
| 17     | (B) Both A and R are true and R is not the correct explanation of A                                                                                                                                                                                                                                                                                                                         | 4.2 pg 46                       | 4          | 1          | 1           |
| 18     | (A) Both A & R are true, and R is the correct explanation of A                                                                                                                                                                                                                                                                                                                              | 3.5.3 pg 38/39                  | 3          | 1          | 1           |
| 19     | In the forest <u>must</u> contains tiny droplets of water which act as particles of colloid dispersed in air. Hence the tyndall effect. * mist                                                                                                                                                                                                                                              | 2.2.3pg17                       | 2          | 1          | 2           |
|        | <div>Solutions<br/>-Are homogenous mixtures.<br/>-Particles cannot be seen with a naked eye.<br/>-The particles being small, Do not scatter a beam of light passing through the solution<br/>(Any one)</div> <div>Suspension<br/>-Are heterogeneous mixtures.<br/>-Particles can be seen with a naked eye<br/>-The particles of suspension scatter a beam of light passing through it</div> | 2.2 pg15/16                     | 2          | 1          |             |
| 19     | OR<br>Some solids decompose or some get charred on heating to dryness. / Some impurities may remain dissolved in the solution even after filtration. On evaporation they contaminate the solution. (Any one)<br>By Evaporation                                                                                                                                                              | 2.3.8 pg 22<br><br>2.3.1 pg 18  | 2<br><br>2 | 1<br><br>1 | 2           |

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| 20     | The number of atoms constituting a molecule is known as atomicity.<br>Calcium Carbonate – $\text{CaCO}_3$                                                                                                                                                                                                                                                                                                               | 3.3.1 pg 34<br>3.4.1 pg 36               | 3<br>3     | 1<br>1                               | 2              |
| 21     | (i) Only certain special orbits known as discrete orbits of electrons are allowed inside the atom.<br>While revolving in discrete orbits the electrons do not radiate energy.<br>(Any one)<br>ii) Used in the treatment of cancer.                                                                                                                                                                                      | 4.2.3 pg46<br>4.6 pg50                   | 4<br>4     | 1<br>1                               | 2              |
| 22     | The truck will have more kinetic energy as kinetic energy depends upon both mass and velocity. So if the velocity of two objects is the same, the object with greater mass will have greater kinetic energy.<br>OR<br>Sushma has not done any work as for work to be done there are two conditions to be satisfied. Force has to act and displacement has to take place. In this case, no displacement has taken place. | 11.2.2 pg143/<br>144<br>11.1.2 pg140     | 11<br>11   | 1+1=2<br>2                           | 2              |
| 23     | Ceilings should be curved<br>Cover walls, ceilings with compressed fibreboard or rough plaster<br>Install carpets to prevent reflection of sound<br>Use heavy curtains<br>Seat material should have sound absorbing material<br>(Any 2 points)                                                                                                                                                                          | 12.3 pg160                               | 12         | 2                                    | 2              |
| 24     | Refer to Fig 4.4                                                                                                                                                                                                                                                                                                                                                                                                        | 4.3 pg47                                 | 4          | 1 + 1                                | 2              |
| 25     | i) Power is the rate of doing work.<br>ii) Energy can neither be created or destroyed. It can only be converted from one form to another.                                                                                                                                                                                                                                                                               | 11.3 pg 148<br>11.2.6pg147               | 11<br>11   | 1<br>1                               | 2              |
| 26     | i)Hybridisation refers to the crossing between genetically dissimilar plants.<br>ii) Sun hemp and guar                                                                                                                                                                                                                                                                                                                  | 15.1.1 pg194<br>15.1.2pg196              | 15<br>15   | 1<br>$\frac{1}{2} + \frac{1}{2} = 1$ | 2              |
| 27     | i) Light energy to electric energy<br>ii) Mass, acceleration due to gravity and height                                                                                                                                                                                                                                                                                                                                  | 11.2.5 pg 147<br>11.2.4 pg 146           | 11<br>11   | 1<br>1                               | 2              |

#### NOTE

Q.22. Truck — 1m

Because it has more mass — 1m

OR.

No displacement has taken place / Displacement is zero. — 2m

Q.27. If written as 'm', 'g', 'h' ... to be considered.

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| 28     | Average Atomic mass<br>$= 40 \times \frac{40}{100} + 45 \times \frac{60}{100}$ $= 16 + 27$ $= 43u$                                                                                                                                                                                                                                                                                                                                                                           | 4.6 pg 50                                                            | 4                    | 1<br><br>1                                                         | 2           |
| 29     | The mass of carbon dioxide formed will be 11g. This result is governed by the law of constant proportions                                                                                                                                                                                                                                                                                                                                                                    | 3.1.2 pg30/34                                                        | 3                    | 1 + 1                                                              | 2           |
| 30     | i) To cut of cost of feed, less space for housing<br>ii) For good growth rate and better feed efficiency.                                                                                                                                                                                                                                                                                                                                                                    | 15.2.2 pg201<br>15.2.2 pg201                                         | 15<br>15             | $\frac{1}{2} + \frac{1}{2} = 1$<br>$\frac{1}{2} + \frac{1}{2} = 1$ | 2           |
| 31     | Correct diagram<br>Labelling                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Fig 12.6<br>pg 154                                                   | 12                   | 1<br>$\frac{1}{2} + \frac{1}{2}$                                   | 2           |
| 32     | Avogadro's number $6.022 \times 10^{23}$<br>No. of atoms = $\frac{\text{Given mass}}{\text{Molar mass}} \times \text{Avogadro's number}$<br>$= \frac{69}{23} \times 6.022 \times 10^{23}$ $= 18.066 \times 10^{23}$                                                                                                                                                                                                                                                          | 3.5.3 pg 38                                                          | 3                    | $\frac{1}{2} + \frac{1}{2}$<br>1                                   | 2           |
| 33     | -Used in diagnostic laboratories for blood and urine tests.<br>-In dairies and homes to separate butter from milk<br>-Used in washing machines to squeeze water out of clothes. (Any 2)<br>Boron/Silicon/Germanium<br><b>OR</b><br>i) When no more solute can be dissolved in a solution at a given temperature it is called a saturated solution.<br>The solubility for most salts increases as the temperature increases.<br>ii) Solute -Carbon Dioxide<br>Solvent - Water | 2.3.2 pg19<br><br>2.5 pg24<br>2.2.1 pg15<br>2.2.1 pg 15<br>2.2 pg 15 | 2<br><br>2<br>2<br>2 | 2<br><br>1<br>1<br>1<br>$\frac{1}{2} + \frac{1}{2}$                | 3           |
| 34     | Formula unit mass =<br>$(1 \times \text{AtmassZn}) + (1 \times \text{AtmassS}) + (4 \times \text{AtmassO})$ $(1 \times 65) + (1 \times 32) + (4 \times 16)$ $= 65 + 32 + 64$ $= 161u$<br>ii) Atoms are indivisible particles which cannot be created or destroyed in a chemical reaction<br>iii) $\text{Na}_2\text{CO}_3$ , $\text{Mg}(\text{OH})_2$ (or any other)                                                                                                          | 3.5 pg37<br><br>3.1.2 pg 30<br>3.4 pg35                              | 3<br><br>3<br>3      | 1<br><br>1<br>$\frac{1}{2} + \frac{1}{2} = 1$                      | 3           |

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| 35     | i) SONAR consists of a transmitter and detector attached to the bottom of a ship. The transmitter produces ultrasonic waves which travel through the water. After striking the object they get reflected back and are detected by the detector. | 12.5.1pg163                                                                         | 12          | 1                                                          | 3              |
|        | ii) The trumpet can be placed in a cleaning solution and ultrasonic waves which have a high frequency are passed through the solution. The dirt/grease is thus removed.                                                                         | 12.5 pg 162                                                                         | 12          | 1                                                          |                |
|        | iii)<br>Amplitude<br>Is related to the loudness or intensity of sound determined by the waves maximum displacement                                                                                                                              | Pitch<br>Is related to how high or low a sound is determined by the waves frequency | 12.2.3pg157 | 12                                                         | 1              |
| 36     | i) They cut the root stem and leaf<br>They suck the cell sap from various parts of the plant<br>They bore into stems and leaves<br>(Any 1)                                                                                                      | 15.1.3pg198                                                                         | 15          | 1                                                          | 3              |
|        | ii) Short duration allows farmers to grow multiple rounds of crop and is economical                                                                                                                                                             | 15.1.1pg195                                                                         | 15          | 1                                                          |                |
|        | iii) Ensures maximum utilisation of the nutrients supplied.<br>Prevents pests and diseases from spreading to all the plants belonging to one crop.<br>(Any one)                                                                                 | 15.1.2pg 198                                                                        | 15          | 1                                                          |                |
|        | <b>OR</b><br>i) They have high collection capacity, sting somewhat less stay in the beehive for longer periods and breed very well. (Any one)                                                                                                   | 15.2.4pg203                                                                         | 15          | 1                                                          |                |
|        | ii) Fish are bred in ponds using hormonal stimulation.                                                                                                                                                                                          | 15.2.3 pg202                                                                        | 15          | 1                                                          |                |
|        | iii) Bos indicus and Bos bubalis                                                                                                                                                                                                                | 15.2.1 pg 199                                                                       | 15          | 1                                                          |                |
| 37     | i) A → 31, 15<br>B → 19, 20                                                                                                                                                                                                                     | 4.5 pg 49                                                                           | 4           | $\frac{1}{2} + \frac{1}{2}$<br>$\frac{1}{2} + \frac{1}{2}$ | 4              |
|        | ii) 2, 8, 8                                                                                                                                                                                                                                     | 4.3 pg 47                                                                           | 4           | 1                                                          |                |
|        | iii) 0                                                                                                                                                                                                                                          | 4.4 pg48                                                                            | 4           | 1                                                          |                |

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| 38     | i) The toy car moves because when we wind it's key it gains potential energy which is then converted to kinetic energy as the key unwinds.<br>The energy depends upon the number of windings. The more windings will lead to more potential energy and hence the car will move a longer distance.                      | 11.2.3pg145                              | 11      | 2                                                            | 4           |
|        | ii) Weight = $mg = 350\text{N}$ , $h = 12\text{m}$ , $t = 1\text{min}.10\text{s} = 70\text{s}$<br>Power = $\frac{\text{Work done}}{t} = \frac{mgh}{t} = \frac{350 \times 12}{70} = 60\text{ W}$                                                                                                                        | 11.3 pg148                               | 11      | 1                                                            |             |
|        | iii) $P = 200\text{W}$ , $E = 2400\text{ J}$<br>Energy = Power x Time<br>Time = $\frac{\text{Energy}}{\text{Power}} = \frac{2400}{200}$<br>= 12 seconds                                                                                                                                                                | 11.3.1pg149                              | 11      | 1                                                            |             |
|        | OR<br>i) The potential energy of an object is directly proportional to it's height. So as the height decreases the potential energy decreases.<br>This does not violate the law of conservation of energy as the potential energy gets converted into kinetic energy. So the total mechanical energy remains constant. | 11.2 pg145<br><br>Pg. 147                | 11      | 2                                                            |             |
|        | ii) $m = 78\text{kg}$ , $v = 5\text{ms}^{-1}$<br>$\text{K.E} = \frac{1}{2} mv^2$<br>= $\frac{1}{2} \times 78 \times 5 \times 5 = 975\text{ J}$                                                                                                                                                                         | 11.2.2 pg143/<br>144                     | 11      | $\frac{1}{2} + \frac{1}{2}$                                  |             |
|        | iii) Power = $1200\text{ W} = \frac{1200}{1000} = 1.2\text{kW}$<br>Energy = Power x Time<br>= $1.2 \times 8 = 9.6\text{ kWh}$                                                                                                                                                                                          | 11.3.1 pg149                             | 11      | $\frac{1}{2} + \frac{1}{2}$                                  |             |
| 39     | i) A - Pinna . It collects sound from the surroundings.<br>B – Cochlea – It turns pressure variations into electrical signals.                                                                                                                                                                                         | 12.6 pg164                               | 12      | $-\frac{1}{2} + \frac{1}{2}$<br>$-\frac{1}{2} + \frac{1}{2}$ | 4           |
|        | ii) Frequency = $220\text{ Hz}$ , Wavelength = $25\text{cm} = 0.25\text{m}$<br>Velocity = Wavelength X Frequency<br>= $220 \times 0.25$<br>= $55\text{m/s}$                                                                                                                                                            | 12.2.3pg158                              | 12      | $\frac{1}{2}$<br>$\frac{1}{2}$                               |             |
|        | iii) Speed = $346\text{ ms}^{-1}$ , Time = $5\text{s}$<br>Distance = Speed X Time<br>= $346\text{ ms}^{-1} \times 5\text{ s}$<br>= $\frac{1730}{2}\text{ m}$<br>= $865\text{ ms}^{-1}$                                                                                                                                 | 12.3.1 pg160                             | 12      | $\frac{1}{2}$<br>$\frac{1}{2}$                               |             |
|        |                                                                                                                                                                                                                                                                                                                        |                                          |         |                                                              |             |