

**Goa Board**  
**Class IX Science**  
**Term 2**  
**Sample Paper – 7**

**Time: 3 hrs**

**Total Marks: 90**

---

**General Instructions:**

1. The question paper comprises of **two sections, A and B**. You are to attempt both the sections.
2. All questions are compulsory.
3. All the questions of **Section-A** and **Section-B** are to be attempted separately.
4. Question numbers **1 to 3** in **Section - A** are **one mark** questions. These are to be answered in one word or one sentence.
5. Question numbers **4 to 6** in **section - A** are **two marks** questions, to be answered in about **30 words each**.
6. Question number **7 to 18** in **section-A** are **three marks** questions, to be answered in about **50 words**.
7. Question number **19 to 24** in **section-A** are **five marks** questions, to be answered in about **70 words**.
8. Question numbers **25 to 33** in **section-B** are multiple choice questions based on practical skills. Each question is a one mark question. You are to select one most appropriate response out of the four provided to you.
9. Question numbers **34 to 36** in Section B are questions based on practical skills and are two marks questions.

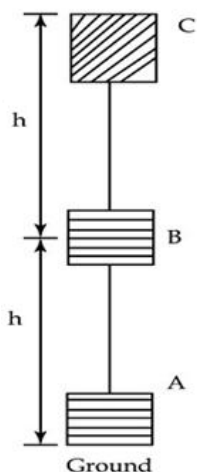
---

**SECTION A**

1. How much work is done in lifting an object of mass 'm' to a height 'h'? [1]
2. What is meant by the term chemical formula? Give an example. [1]
3. At what height is the ozone layer present? [1]
4. [2]
  - (a) Why it is difficult to stand on one foot as compared to standing on two feet for long time?
  - (b) Why does a balloon filled with hydrogen rise up?
5. [2]
  - (a) Bat can fly but still it is placed in mammals. Why? Mention any two points.
  - (b) What do we call the symbiotic association of fungi and algae?

6. Write the chemical formulae of the following compounds: [2]  
(a) Magnesium sulphate  
(b) Ammonium bicarbonate
7. [3]  
(a) Give two examples of biodegradable and non-biodegradable pollutants.  
(b) What is the significance of dissolved oxygen for the aquatic organisms?
8. [3]  
(a) Why can we hear echoes in long galleries and big halls?  
(b) What is the cause of sonic boom?
9. [3]  
(a) A boy strikes one end of a long iron pipe with a stone. Another boy who keeps his ears close to the other end of the pipe hears two sounds in a short interval of time. Explain why does this happen?  
(b) What does the abbreviation 'SONAR' stands for?
10. [3]  
(a) An object of mass 12 kg is placed at a certain height above the ground. If the gravitational potential energy of the object is 480 J, find the height at which the object is with respect to the ground ( $g = 10 \text{ m/s}^2$ ).  
(b) Identify the energy transformation in the following:  
i. Heat engine  
ii. Explosion of a cracker

11. Study the figure given and answer the following questions: [3]



- What is the potential energy of the object of mass ( $m$ ) at point B and C when it is raised from point A to B and then from point B to C?
- Calculate the potential energy of the object when raised directly from point A to C.
- Calculate whether the same amount of work is done against gravity in each case. Write your inference.

12. How are bats able to fly in the darkness of the night without colliding with other objects? [3]

13. How many grams of Sodium will have the same number of atoms as 6 grams of Magnesium? (Given Na = 23 u, Mg = 24 u) [3]

14. Calculate the number of particles in each of the following: [3]

- 46 g of Na atoms
- 8 g of  $O_2$  molecules
- 0.1 mole of carbon atom

15. Differentiate between bilateral symmetry and radial symmetry. [3]

16. What is soil? How is it formed? State the major factor which decides the structure of soil. What role does it play? [3]

17. [3]

- Name any two antibiotics.
- State the main symptoms of jaundice.
- Name the disease caused due to the bite of a dog or a monkey.

- 18.** [3]  
(a) Which diseases can be prevented by using BCG?  
(b) Name any two non-communicable diseases.  
(c) Name the common drug used to treat malarial fever.
- 19.** Why should we wear clean clothes? Write two symptoms of T.B and Typhoid. [5]
- 20.** [5]  
(a) Deduce the expression of kinetic energy of a body.  
(b) State the factors on which the kinetic energy of a body depends?  
(c) What happens to the kinetic of a freely falling body which hits the ground?
- 21.** [5]  
(a) Write the difference between sound waves and light waves.  
(b) Explain the propagation of sound
- 22.** What is electrovalency? Explain the formation of an electrovalent compound with the help of an example. [5]
- 23.** [5]  
(a) Justify "Dust is a pollutant".  
(b) Carbon dioxide is necessary for plants then why do we consider it as a pollutant?  
(c) How are living organisms dependent on soil?
- 24.** [5]  
(a) Why whales are not grouped as fishes?  
(b) What is bilateral symmetry?  
(c)  
i. Which chordate character has evolved as vertebral column in higher vertebrates? Define it.  
ii. Mention any two characteristic feature of phylum Echinodermata.  
iii. Why coelom is absent in diploblastic organisms?

**SECTION B**

25. When a sound wave is allowed to fall normally on a reflecting surface, the intensity of sound will be maximum at \_\_\_\_\_ . [1]
- (a)  $0^\circ$
  - (b)  $60^\circ$
  - (c)  $30^\circ$
  - (d)  $90^\circ$
26. A piece of metal of mass 110 g is dipped in a measuring cylinder containing 24 mL of water. The water level rises and reaches to 38 mL marking. Volume and density of the metal are respectively: [1]
- (a) 14 mL,  $7.85 \text{ g/cm}^3$
  - (b) 14 mL,  $7 \text{ g/cm}^3$
  - (c) 38 mL,  $6 \text{ g/m}^3$
  - (d) 24 mL,  $1.2 \text{ g/cm}^3$
27. A solid ball is hanged by the hook of a spring balance. The reading of the spring balance is noted down when the solid object is freely suspended in the air, completely submerged in tap water and completely submerged in salty water. Which of the following is true about the readings noted by the spring balance? [1]
- (a) Minimum when submerged in tap water.
  - (b) Minimum in air.
  - (c) Minimum when submerged in salty water.
  - (d) Equal in all the cases.
28. The identifying feature/s of a dicot angiosperm is/are [1]
- (a) Tap root system
  - (b) Leaves with reticulate venation
  - (c) Seeds with two cotyledons and enclosed in fruit
  - (d) All the above

29. Identify the leaf on the basis of its venation [1]



- (a) Monocot
- (b) Dicot
- (c) Gymnosperm
- (d) Angiosperm

30. The following apparatus are available in a laboratory: [1]

- i. Thick silk string
- ii. Thin silk string
- iii. Thick cotton string
- iv. Thin cotton thread
- v. A stop clock
- vi. A table clock

The students have to perform an activity to determine the speed of a pulse through a stretched string. So, which of the following apparatus should be chosen?

- (a) i and ii
- (b) ii, v and vi
- (c) iii and v
- (d) iv and vi

31. Loss of weight of a body when immersed in a liquid is [1]

- (a) Equal to the weight of the liquid displaced.
- (b) More than the weight of the liquid displaced.
- (c) Less than the weight of the liquid displaced.
- (d) Zero.

32. In an experiment to verify the laws of reflection of sound, the angle between one pipe and normal is  $\theta$ . The perfect reflection takes place only when the angle between the two pipes is [1]

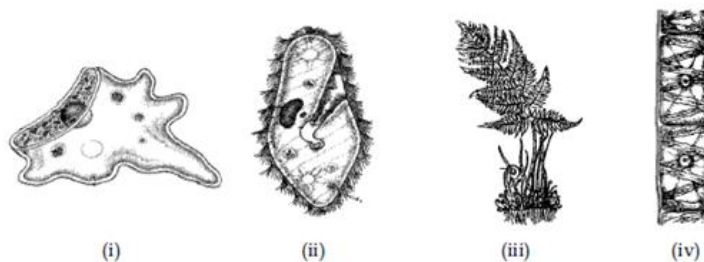
- (a)  $2\theta$
- (b)  $90^\circ$
- (c) Anywhere between  $\theta$  and  $90^\circ$
- (d)  $\theta/2$

**33.** If all the reactants in a chemical reaction are completely used, which of the following statements accurately describes the relationship between the reactants and the products? [1]

- (a) The products must have different physical state than the reactants.
- (b) The total mass of the reactants must equal the total mass of the products.
- (c) The reactants must contain more complex molecules than the products do.
- (d) The density of the reactants must equal the density of the products.

**34.** To study the sound waves, Rajiv stands between a wall and a loudspeaker. The loudspeaker is set to give frequency of 250 Hz. What happens to the air between Rajiv and the loudspeaker? Also, explain how Rajiv receives the sound from the loudspeaker in both his ears? [2]

**35.** Study the figures of organisms and identify the group to which they belong. [2]



Which set of answers given below classifies them correctly?

- (a) (i) Protista, (ii) Monera, (iii) Pteridophyta, (iv) Thallophyta
- (b) (i) Fungi, (ii) Pteridophyta, (iii) Thallophyta, (iv) Protista
- (c) (i) Thallophyta, (ii) Fungi, (iii) Protista, (iv) Pteridophyta
- (d) (i) Protista, (ii) Pteridophyta, (iii) Thallophyta, (iv) Fungi

**36.** Explain with the help of an example that the law of conservation of mass is valid for chemical reactions. [2]