CBSE
Class IX Science
Term 2
Sample Paper – 9

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 numbers 7 to 18 in Section A are **three marks** questions, to be answered in about **50 words**.
7. Question numbers 19 to 24 in Section A are **five marks** questions, to be answered in about **70 words** each.
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 two marks questions based on practical skills. These are to be answered in about **30 words** each.

SECTION A

1. If the velocity of an object is doubled, what is the change in its kinetic energy? [1]

2. Explain the distribution of electrons in sulphur. (Atomic number = 16). [1]

3. What are the different ways in which water gets polluted? [1]

4. [2]

(a) The cutting edge of a knife should be as sharp as possible. Why?

(b) It is easier to swim in sea water than in river water. Why?

5. What is binomial system of nomenclature? [2]

6. Calculate the mass of 0.72 g molecule of CO_2. (At mass of C=12 u, O=16 u) [2]

7. [3]

(a) Some forms of life do not depend upon oxygen. Explain.

(b) What determines the rainfall patterns?

8. [3]

(a) List the two conditions necessary for the work to be done.

(b) Explain with the help of an example, that an object may possess energy even when it is not in motion?

9. [3]

(a) A flash of lightning reaches earlier than the sound of thunder. Why?

(b) Two astronauts cannot hear each other on the Moon. Why?

(c) At a particular temperature, in which of the three media; air, water or steel, does sound travel the fastest? Give reason.

10. [3]

(a) What is the range of frequencies associated with infrasound and ultrasound?

(b) What is SONAR?

(c) A submarine emits a sonar pulse, which returns from an underwater cliff in 1.02 s. If the speed of the sound in salt water is 1531 m/s then, how far is the cliff from the ship?

11. Amit and Nitin were observing a building having two different staircases. One slanting and other vertically spiral. Amit was of the opinion that a person using slanting staircase will be doing more work against gravity but Nitin thought the other way. They started quarrelling. Asif, their friend, explained and gave an entirely different view and pacified them. [3]

(a) What according to you was the explanation given by Asif?

(b) What appreciable values do you see in Asif?

12. [3]

(a) Why sound is known as longitudinal wave?

(b) Sound is produced due to vibrating motion; then, why a vibrating pendulum does not produce sound?

13. Calculate – [3]

(a) The number of molecules of sulphur (S_8) in 16 g of solid sulphur.

(b) Number of moles in 20 g of water.

14. Discuss the salient features of Phylum Protozoa. [3]

15. [3]

(a) If an atom contains two electrons and two protons, will it carry any charge or not?

(b) How does an atom become a cation?

(c) If an atom has 4 electrons, 4 protons and 3 neutrons, what will be the mass no. and atomic number of that atom?

16. [3]

(a) What is the difference between biodegradable and non-biodegradable pollutants?

(b) What is biosphere?

17. How can you differentiate between Bryophyta and Pteridophyta? [3]

18. What are the common symptoms of an anaemic person? Name the cause of anaemia. [3]

19. [5]

(a) What are the general ways of preventing infections?

(b) Under which of the following conditions, is a person most likely to fall sick? Why?

i. When she is recovering from malaria.

ii. When she has recovered from malaria and is taking care of someone suffering from chicken pox.

iii. When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox.

20. [5]

(a) Two identical pointed objects made from iron and wood are allowed to fall on a heap of sand from the same height. The iron object penetrates more into the sand as compared to the wooden object. Which of these objects has more potential energy?

(b) Define 1 joule of work done?

(c) In a tug of war, team A wins and team B loses. Which team does positive work and which team does negative work? Justify your answer.

21. [5]

(a) Define relative density and write its SI unit. Show the relation between its SI and CGS unit.

(b) A wooden block has volume 30 cm^3 and mass 75 g. Calculate the density of water and state whether the object will float or sink? (Density of water = 1 g/cm^3)

22. Explain Rutherford's α-particles scattering experiment with the help of a neat and labelled diagram. [5]

23. [5]

(a) What are three steps involved in nitrogen fixation?

(b) Population explosion is the main cause of pollution. Explain.

(c) Write a note on how forests influence the quality of our air, Soil and water resources.

24. [5]

(a) List any three adaptations in birds which help them to fly.

(b) In which class would you place an organism which has?

i. A scaly exoskeleton and a bony endoskeleton.

ii. A scaly exoskeleton and lays eggs outside water.

(c) What is the advantage of classifying organisms?

SECTION B

25. A pulse was created in a slinky of length 8 m by a group of four students A, B, C, and D. They observed that it returned after reflection at the point of creation 5 times in the duration of 10 s. Each student calculated the speed of pulse through the slinky as follows: [1]

Student	**A**	**B**	**C**	**D**
Speed (m/s)	4.0	8.0	12.0	16.0

Which student calculated the correct result?

(a) A

(b) B

(c) C

(d) D

26. For performing the experiment to verify the laws of reflection of sound, we prefer hollow cardboard tubes because they make the sound waves [1]

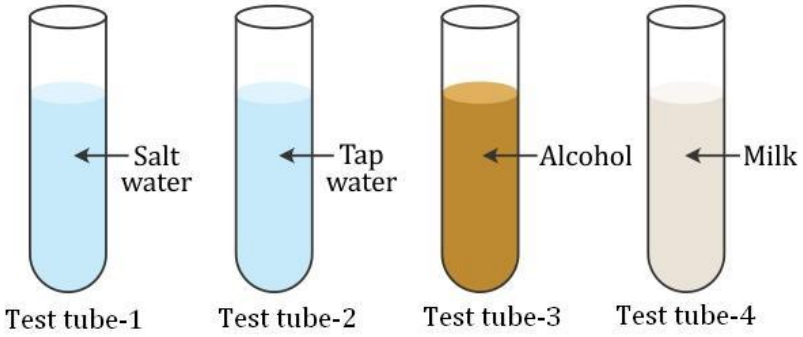
(a) Move in straight lines

(b) Have multiple reflections and prevent spreading of sound

(c) Concentrate into a powerful beam

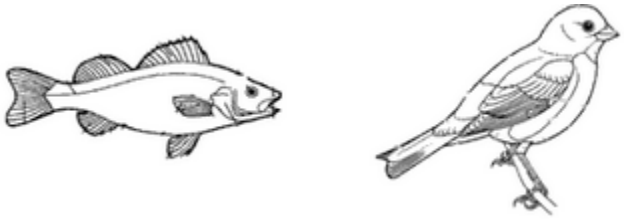
(d) Travel easily

27. Four different liquids are filled in four test tubes as shown in the figure below. An object is immersed in each test tube one by one. When the body is immersed in the test tubes, in which one of the following test tubes, will the maximum loss in weight be observed? [1]



(a) 1
(b) 2
(c) 3
(d) 4

28. The feature that places them in the same phylum is [1]

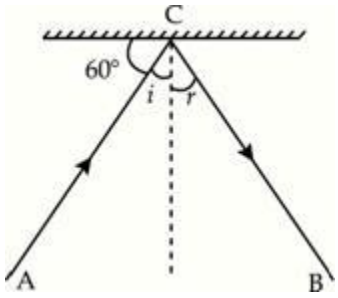


(a) Pointed head
(b) Bulky thorax
(c) Presence of scales
(d) Post anal tail

29. Outer cell wall of spirogyra is made up of [1]

(a) Cellulose
(b) Chitin
(c) Pectin
(d) Protein

30. From the figure given below, what is the measure of the angle of reflection? [1]



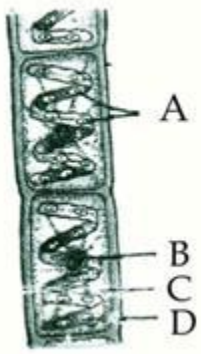
(a) 60°
(b) 120°
(c) 30°
(d) 60°

31. In an experiment to establish the relationship between loss in weight of the solid when immersed fully in a given liquid with the weight of water displaced by it, the volume of the displaced water gives us the: [1]
(a) Volume of the object
(b) Mass of the object
(c) Weight of the object
(d) All of these

32. What happens to the kinetic energy if the speed of an object is doubled? [1]
(a) Double
(b) Four times
(c) One-fourth
(d) Half

33. Which of the following statements is true about 'Law of conservation of mass'? [1]
(a) Substances involved in a chemical reaction can change their state but the total mass of the product will be equal to that of the product.
(b) The elements are always present in a constant proportion in a chemical substance.
(c) If two elements form more than one compound between them, and then, the ratios of the masses of the second element which combine with a fixed mass of the first element will be ratios of small whole numbers.
(d) The rate of reaction is directly proportional to the active mass of reactants.

34. The correct labelling of parts A, B, C and D is [2]



(a) A- Cytoplasm, B- Chloroplast, C- Nucleus, D- Cell wall
(b) A- Chloroplast, B- Nucleus, C- Cytoplasm, D- Cell wall
(c) A- Cell wall, B- Cytoplasm, C- Nucleus, D- Chloroplast
(d) A- Chloroplast, B- Cytoplasm, C- Nucleus, D- Cell wall

35. In an experiment, 15.95 g of copper sulphate reacts with 8.0 g of sodium hydroxide to form 9.75 g of copper hydroxide and 14.2 g of sodium sulphate. Which law of chemical combination is illustrated by this data? Give reason for your choice. [2]

36. Given are some activities. Identify giving reasons whether or not work is done in each case: [2]
(a) A girl pulls a trolley and the trolley moves through a distance.
(b) Suhan is standing on the bus-stop and waiting for the bus.
(c) Ankur is swimming in a pond.
(d) A boy pushes a pebble lying on the ground with his foot and the pebble moves through a certain distance.