



RISE OF NATION ACADEMY

"We Create the Impeccable Creature"

Test Paper CLASS - IX Science (Set-B)

Date – 07/01/2018

Time – 03:00 hrs.

Max. Marks - 80

Min. Marks – 40

GENERAL INSTRUCTIONS

1. This question paper comprises of five sections A, B, C, D and E. you have to attempt all the sections.
2. All questions in this question paper are compulsory.
3. All questions in all sections are to be attempted separately.
4. Question numbers 1 to 2 in Section A are one mark questions. These are to be answered in one word or one sentence.
5. Question numbers 3 to 5 in Section B are two marks questions. These are to be answered in about 30 words each.
6. Question numbers 6 to 15 in Section C are three marks questions. These are to be answered in about 50 words each.
7. Question numbers 16 to 21 in Section D are five marks questions. These are to be answered in about 70 words each.
8. Question numbers 22 to 27 in Section E are based on practical skills. Each question is a two marks question.

Section A

- Q(1).** At which place in the earth, the acceleration due to gravity is zero?
- Q(2).** Which rays are trapped by greenhouse gases?

Section B

- Q(3).** A fan rotates at 100 rpm. Find its angular velocity and linear velocity if tip of its blades is 0.20 m away from its axis of rotation.
- Q(4).** How can you say that water is essential for life?
- Q(5).** Boiling point of hard water is more than that of distilled water at the same atmospheric pressure. Why?

Section C

Q(6).

- (i). What is matter? Write two properties of solids and two properties of liquids.
- (ii). Give reasons for the following.
 - a. Ice at 0°C appears colder in the mouth than water at 0°C .
 - b. Doctors advise to put the strips of wet cloth on the forehead of a person having high fever.

Or

How do you differentiate between solids, liquids and gases on the basis of their melting and boiling points?

Q(7). Why are whales not grouped in fishes?

Q(8). Name the tissue which acts as fat reservoir in our body. How would you differentiate it from the areolar tissue of our body?

Q(9). Fertile soil has lots of humus. Give reasons.

Q(10). A car is moving on a leveled road and gets its velocity doubled. In this process,

- (i). How would the potential energy of the car change?
- (ii). How would the kinetic energy of the car change?
- (iii). How will its momentum change? Give reasons for your answer.

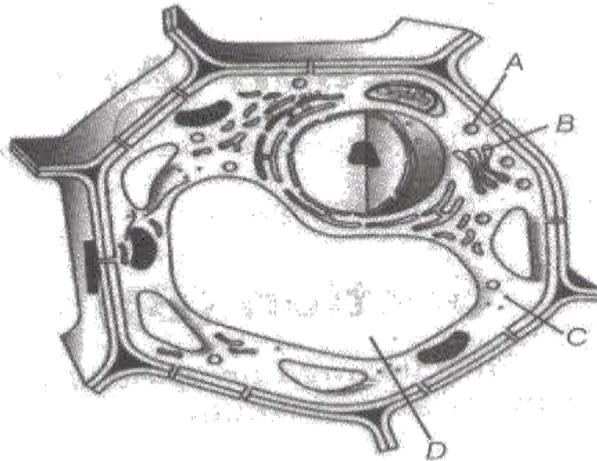
Q(11).

- (i). Why does brass react with dilute hydrochloric acid and is corroded in rainy season to form CaCO_3 , $\text{Cu}(\text{OH})_2$?
- (ii). In an experiment, a student mixed the certain amount of aqueous solution of sodium sulphate with barium chloride. Write the chemical reactions.

Q(12). Name some diseases which are caused by

- (i). Bacteria
- (ii). Protozoan
- (iii). Virus

Q(13). Observe the given figure and answer the following questions.



- (i). Identify the labeled parts A, B, C and D.
- (ii). What will happen if part B is removed from the cell?
- (iii). State two functions of D in cell.

Or

Heart continuously pumps blood all through our body. To perform this function, special types of muscles are present comment.

Q(14). Compare the properties of suspension, colloidal solution and true solution.

Q(15). Rohan was suffering from fever and cold. Doctor has advised blood test to diagnose the disease.

In testing centre, Rohan asked the laboratory person to wear gloves and sterilize the needle before taking his sample.

On the basis of the above example, answer the following questions

- (i). What could happen if the needle was not sterilized?
- (ii). What other precautionary measures one should take to ensure good health?
- (iii). What values are shown by Rohan?

Section D

Q(16).

- (i). Will a sheet of paper fall slower than one that is crumpled into a ball in vacuum?
- (ii). Show mathematically that acceleration experienced by an object is independent of its mass.
- (iii). Show that the value of $g = 9.8 \text{ m/s}^2$

$$\text{GIVEN, } G = 6.7 \times 10^{-11} \text{ N} - \text{m}^2 / \text{kg}^2, \quad M = 6 \times 10^{24} \text{ kg}, \quad R = 6.4 \times 10^6 \text{ m}$$

Q(17). What are the protective tissues in plants? Explain them in detail with suitable examples.

Q(18). What is momentum? Write its SI unit. Interpret force in terms of momentum. Represent the following graphically.

- (i). Momentum versus velocity, when mass is fixed.
- (ii). Momentum versus mass, when velocity is constant.

Q(19).

- (i). The atomic number of chlorine (Cl) is 17 and mass number is 35.
 - a. What would be the electronic configuration of a negatively charged chloride ion Cl^- ?
 - b. What would be the atomic number and mass number of Cl^- ?
 - c. Calculate the valency of Cl^- .
- (ii). List three conclusions drawn by Rutherford from his α -particle scattering experiment.

Or

- (i). What is an octet? How do elements attain an octet?
- (ii). Make a schematic atomic structure of magnesium and phosphorus. (given number of protons of magnesium = 12 and that of phosphorus = 15)

Q(20). Establish the relationship between speed of sound, its wavelength and frequency. If velocity of sound in air is 340 m/s. calculate the

- (i). Wavelength when frequency is 256 Hz.
- (ii). Frequency when wavelength is 0.85 m.

Q(21).

- (i). How many grams of neon (Ne) will have the same number of atoms as 4 g of calcium (Ca)? (atomic masses : Ne = 20 u and Ca = 40 u)
- (ii). Calculate the molar mass of S_8 . (atomic mass of S = 32 u)

Section E

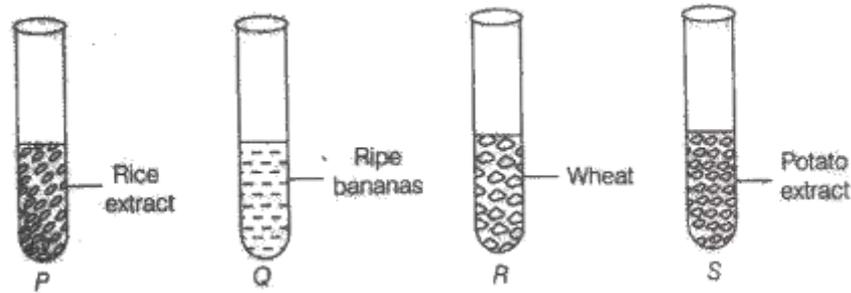
Q(22). A student performed an experiment to verify the conservation of mass. In this experiment, he mixed 5.3 g of sodium carbonate with 6 g of ethanoic acid. The products he observed were 2.2 g of CO_2 , 0.9 g of water and 8.2 g of sodium ethanoate. Verify the law of conservation of mass.

Q(23). Suggest separation techniques one would need to separate the following mixtures.

- (i). Mercury and water
- (ii). Potassium chloride and ammonium chloride
- (iii). Common salt, water and sand
- (iv). Kerosene oil, water and salt

Q(24).

- (i). Four test tubes P, Q, R and S as shown below contain the following.



On adding 2 drops of iodine to each test tube, which will not show blue-black colour?

- (ii). In a food sample taken in a test tube, 2-4 drops of conc. HCl was added by Suman for checking the presence of adulterant in food. The development of which specific colour suggests metanil yellow adulteration?

Q(25). While performing the experiment based on 'Archimedes principle' Rama took a glass stopper of 10 cm³ volume and observed its weight as 40 g using a spring balance. Then, he immersed the glass stopper completely in tap water. What will be the weight of glass stopper now?

Q(26).

- (i). Pranav was conducting an experiment in the laboratory. He added solution A to the tube containing some boiled rice. He observed that the colour changed to B which indicates presence of C in the tube. Identify A, B and C.
- (ii). Among the following food items, select only these which will yield blue black colour on testing with iodine.

Nuts, maize grains, potato slices, mustard seeds, corn starch, moong dal, etc.

Q(27). The persistence of sound in a big hall due to repeated reflections from the walls is called reverberation. So, in order to reduce the reverberation in big hall, suggest any two methods.