

CLASS IX (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-1

Time : 3 Hours

Maximum Marks : 80

General Instructions :

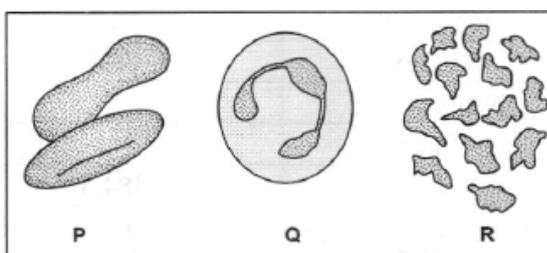
- (i) The question paper comprises of three sections-A, B and C. Attempt all the sections.
- (ii) All questions are compulsory.
- (iii) Internal choice is given in each sections.
- (iv) All questions in Section A are one-mark questions comprising MCQ, VSA type and assertion-reason type questions. They are to be answered in one word or in one sentence.
- (v) All questions in Section B are three-mark, short-answer type questions. These are to be answered in about 50-60 words each.
- (vi) All questions in Section C are five-mark, long-answer type questions. These are to be answered in about 80-90 words each.
- (vii) This question paper consists of a total of 30 questions.

SECTION - A

DIRECTION : For question numbers 1 and 2, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (a), (b), (c) and (d) as given below :

- (a) Both A and R are true and R is correct explanation of the assertion.
- (b) Both A and R are true but R is not the correct explanation of the assertion.
- (c) A is true but R is false.
- (d) Both A and R are false.

- Q1. **Assertion (A) :** The particles of a solution are smaller than 1 nm (10^{-9} metre) in diameter [1]
Reason (R) : Solution can scatter a beam of light passing through it
- Q2. **Assertion (A) :** In solids, molecules are tightly packed. [1]
Reason (R) : Force of attraction between molecules in solids is very weak.
- Q3. Which soil is derived from basaltic rock ? [1]
 (a) Red soil (b) Black soil
 (c) Laterite soil (d) Both A and C
- Q4. A ball is rolling down a slope at a steady speed. Which of the following statements is correct ? [1]
 (a) Frictional force is greater than the forward force.
 (b) There is an unbalanced force downwards.
 (c) There are no forces acting on the ball.
 (d) The forces acting on the ball are balanced.
- Q5. What does the area of a velocity—time graph give ? [1]
 (a) Distance (b) Acceleration
 (c) Displacement (d) None of these
- Q6. Which of the following is/are true about P, Q and R ? [1]



- (a) P-transport food, Q-develops immunity, R-clots blood.
 (b) P-transport carbon dioxide, Q-produces antibodies, R-clots blood.
 (c) P-transport bacteria, Q-eats foreign material, R-clots blood.
 (d) P-transport oxygen, Q-kills bacteria, R-clots blood.

- Q7. The electrons present in the outermost shell are called [1]
 (a) Valency electrons (b) Octet electrons
 (c) Duplet electrons (d) Valence electrons

OR

The nucleons are

- (a) Protons and electrons (b) Neutrons and electrons
 (c) Protons and neutrons (d) None of these

- Q8. What is the alternate name for *Apis cerana indica* ? [1]
 (a) Indian bee (b) Indian buffalo
 (c) Indian cow (d) None of these

- Q9. Which of the following is true for two bodies separated by some distance ? [1]
 (a) When the distance between them is halved, gravitational force becomes 4 times.
 (b) When one of the mass becomes halved, gravitational force becomes halved.
 (c) When the distance between them is increased four times, gravitational force becomes 1/16 times.
 (d) All of the above.

OR

First man who came up with idea of gravity was

- (a) Henry Briggs (b) Isaac Newton
 (c) John Napier (d) Jobst Burgi

- Q10. Name the disease that affects our lungs. [1]
 (a) AIDS (b) Rabies
 (c) Polio (d) Tuberculosis

OR

Penicillin is capable of one of the following. Which one ?

- (a) Interfere in the biological pathway of bacteria.
 (b) An antibiotic that can kill bacteria.
 (c) Both A and B
 (d) None of these

- Q11. Define one watt of power. [1]

- Q12. 1 carat of diamond is equal to [1]

- Q13. Questions 13.1-13.4 are based on the Table A and Table B. Study these tables related to boiling points of different substances and humidity and answer the following questions.

Table A : Boiling points of different substances

| Substance | Boiling point (°C) |
|-------------|--------------------|
| Methanol | 64.7 |
| Ethanol | 78.4 |
| Nitric Acid | 83 |
| Water | 100 |
| Iodine | 184.3 |

Table B : Humidity percentage in three situations

| | Humidity (%) |
|-------------|--------------|
| Situation A | >75 |

| | Humidity (%) |
|-------------|--------------|
| Situation B | 50 – 75 |
| Situation C | <50 |

- 13.1** Refer Table B and find out in which situation a bowl of water will evaporate away the fastest and in which situation the slowest. [1]
- 13.2** A bowl of water and a bowl of ethanol are kept inside a room. Which bowl will get empty first? [1]
- 13.3** “Evaporation is a surface phenomenon.” Explain. [1]
- 13.4** Refer Table A and Table B and find in which situation out of the following, the substance will evaporate the fastest. [1]
- (a) Methanol in situation C (b) Iodine in situation A
(c) Nitric acid in situation A (d) Iodine in situation C

- Q14.** Read the passage and answer the following questions.
Rohan has a brother who is an athlete. One day Rohan had gone to see his brother in a racing competition. The race starts and after sometime, Rohan sees his brother in pain and not able to run properly. He sees that the doctor immediately applies ice on his knees.



- 14.1** Rohan is confused as to why the doctor is applying ice on his brother’s knees. Can you clear his confusion by stating an appropriate reason? [1]
- 14.2** State one function of a skeletal connective tissue. [1]
- 14.3** What is ligament? [1]
- 14.4** What values are shown by Rohan? [1]

SECTION -B

- Q15.** A body starts from rest and moves with a uniform acceleration of 2 m/s^2 - until it travels a distance of 625 m. Find its velocity. [3]
- Q16.** (a) The smell of hot sizzling food reaches you several meters away, but to smell the cold food you have to go close. Why? [3]
(b) After rains, the rain drops dry away easily on a sunny day or on a cloudy day? Give reasons. [3]
- Q17.** Draw a neat diagram of the section of the tissue that is responsible for the translocation of food from the leaves to the different parts of the plant. [3]
- Q18.** (a) Why does a passenger jumping out of a rapidly moving bus fall forward with his face downwards? [3]
(b) Why is it difficult for a fireman to hose, which ejects large amount of water at a high velocity? [3]

OR

- Which of the following has more inertia:
- (a) A rubber or a stone of the same size?
(b) A bicycle or a train?
(c) A five-rupee coin or a one-rupee coin?

Q19. Name three basic scientific approaches for increasing the yield of a crop. [3]

Q20. What are the properties of a periodic table? [3]

OR

Define ionization energy and electron affinity.

Q21. (a) The mass of the body on earth is 60kg, what is its weight on the earth and on moon ? [3]

(b) How is the weight of an object related to its mass ?

Q22. What is classification? What is the need for classification? What is the basis of classification ? [3]

OR

Describe the general characteristics of gymnosperms.

Q23. (a) What amount of energy in kWh is consumed in 10 h by a machine of power 500 W? [3]

(b) An archer stretches the string of his bow to shoot an arrow. Name :

(i) The type of energy he uses in the process.

(ii) The type of energy into which it is converted.

(iii) The energy transformation taking place when the arrow is shot.

(c) If a body is thrown vertically upward, its velocity goes on decreasing. What happens to its kinetic energy when it stops at the top and its velocity becomes zero ?

Q24. What are the main functional regions of a cell? Explain with the help of diagram. [3]

SECTION -C

Q25. (a) How can ultrasound be used to detect the defects in a metal block ? [5]

(b) What is reverberation and what is done to reduce it ?

OR

Sound requires a medium to travel. Justify experimentally.

Q26. Describe an activity that rate of intermixing depends upon the forces of attraction between the particles. [5]

Q27. Explain in detail what do you know about the structure of nucleus. [5]

OR

What are lysosomes and centrosomes? Write their function.

Q28. An 8000 kg engine pulls a train of 5 wagons, each of 2000 kg along with a horizontal track. If the engine exerts a force of 40000 N and the track offers a friction force of 5000 N, then calculate : [5]

(a) The net accelerating force

(b) The acceleration of the train

(c) The force of wagon 1 on wagon 2.

Q29. (a) Explain with examples. [5]

(i) Mono atomic molecules

(ii) Diatomic molecules

(iii) Triatomic molecules

(iv) Polyatomic molecules

(b) What is formula unit of mass? How is it different from molecular mass ?

OR

Which has more number of atoms, 100 grams of sodium or 100 grams of iron (given, atomic mass of Na = 23 u, Fe = 56 u) ?

Q30. Describe the water cycle with the help of a diagram. [5]