CLASS IX (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-10

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

Q1. The phenomenon by which protoplast of a cell shrinks from the wall is [1]
(a) Osmosis (b) Plasmolysis
(c) Diffusion (d) Glycolysis

Q2. What could be the diameters of the molecules of matter? [1]
(a) 10^{-7} m (b) 10^{-11} m
(c) 10^{-9} m (d) 10^{-15} m

DIRECTION : For question numbers 3 and 4, 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 A.
(b) Both A and R are true but R is not the correct explanation of the A.
(c) A is true but R is false.
(d) Both A and R are false.

Q3. **Assertion (A) :** Turtles lay eggs outside the water.
Reason (R) : Turtles are amphibians. [1]

Q4. **Assertion (A) :** Plasma membrane is a selectively permeable membrane. [1]
Reason (R) : Plasma membrane allows entry and exit of substance from cell through the process of diffusion.

Q5. Diamond is lustrous because : [1]
(a) It is colourless. (b) It is hard.
(c) It is pure. (d) Its refractive index is high.

Q6. The tissue present in the lining of kidney tubules and ducts of salivary glands is : [1]
(a) Squamous epithelium tissue (b) Glandular epithelium tissue
(c) Cuboidal epithelium tissue (d) Columar epithelium tissue

OR

Parenchyma is a type of : [1]
(a) Complex tissue (b) Organ
(c) Simple tissue (d) Organelle

Q7. Plasmodium is an example of [1]

(a) Virus (b) Bacteria

(c) Protozoa (d) Worm

Q8. If proton (P^+) number of an element change : [1]

(a) It becomes an isotope. (b) It becomes another element.

(c) It will sublimate immediately. (d) It will be an electrolyte.

OR

The atomic number of sodium is 11 and its mass number is 23. It has :

(a) 11 neutrons and 12 protons (b) 12 protons and 11 electrons

(c) 11 electrons and 12 neutrons (d) 12 electrons and 11 neutrons

Q9. Which irrigation system is more useful in the areas where canal flow is insufficient or irregular? [1]

(a) Canal system (b) Tanks

(c) Wells (d) River lift system

Q10. The earth attracts the moon with a gravitational force of 1020 N. The moon attracts the earth with a gravitational force of [1]

(a) Less than 10^{20} N (b) 10^{20} N

(c) Greater than 10^{20} N (d) 10^{-20} N

OR

The gravitational force causes

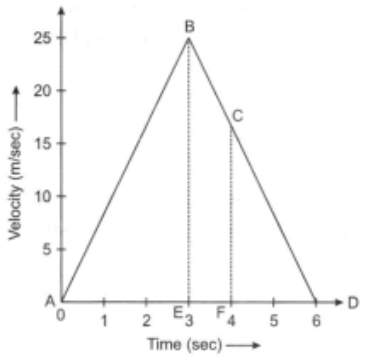
(a) Tides (b) Motion of moon

(c) Revolution of earth (d) Both (a) and (b)

Q11. What is the role of "International Code of Binomial Nomenclature"? [1]

Q12. Calculate the mass of one atom of oxygen. [1]

Q13. Answer the question numbers 13.1–13.4 on the basis of your understanding of the following paragraph and the related studied concepts. Study the given velocity-time graph and calculate the following :



Mohan bought a new car and wanted to test it on highways. He thought he will find out the acceleration of his car at different velocities in the first 6 seconds. He called his friend Shyam and told him to sit alongside him and note down the different speeds. Shyam prepared the following (graph 1) graph. Mohan's son, who studied in 9th class wanted to do an experiment with the car. He had recently learned a peculiar thing about circular motion and coerced his father to take the car to a circular track and drive at constant speed.

13.1 Find out the car's acceleration from A to B. [1]

13.2 Find out the car's acceleration from B to C. [1]

13.3 What peculiar thing had Mohan's son learned about circular motion in his class that he wanted to test in the track? [1]

13.4 What did Mohan and their son notice when they drove their car in the circular track? [1]

Q14. Question 14.1 to 14.4 are based on the Table A. Study the table and answer the following question given below :

Table A

S. No.	Processes
1.	Conversion of solid into liquid.
2.	Conversion of liquid into gases.
3.	Conversion of solid into gases.
4.	Conversion of gases into liquid.
5.	Conversion of liquid into solid.

14.1 Give the name of the process that is involved in conversion of solid into liquid. [1]

14.2 Give the conditions for conversion of gases into liquid. [1]

14.3 Name the process for conversion of solid into gases. [1]

14.4 Give the conditions for conversion of liquid into gases. [1]

SECTION B

Q15. When will you say a body is in
(a) Uniform acceleration.
(b) Non–uniform acceleration. [3]

Q16. The element whose atomic number is 10 and the one whose atomic number is 11? [3]

Q17. Name and give the function of each cell of xylem and phloem. Draw a labelled diagram of each tissue. [3]

Q18. A car of mass 400 kg travelling at 72 km/h crashes into a truck of mass 4000 kg and travelling at 9 km/ h in same direction. The car bounces back at a speed of 18 km/h. Find the speed of the truck after the impact. [3]

OR

Two blocks A and B of mA mass and mi, respectively are kept in contact on a frictionless table. The experimenter pushes the block A from behind so that the blocks accelerate. If the block A exerts a force F on the block B. What is the force exerted by the experimenter on A?

Q19. (a) What are secretory proteins? Give an example of secretory protein.
(b) What is membrane biogenesis? How is plasma membrane formed during this process? [3]

Q20. (a) On a hot sunny day, why do people sprinkle water on the roof or open ground?
(b) Cotton is solid but it floats on water. Why? [3]

OR

Explain giving examples the various factors on which rate of evaporation depends.

Q21. State universal law of gravitation? [3]

Q22. (a) Explain the basis for grouping organisms into the five kingdoms.
(b) How would you choose between two characteristics to be used for developing a hierarchy in classification? [3]

OR

How do annelids animal differ from arthropods?

Q23. Show that when a body is dropped from a certain height, the sum of its kinetic energy at any instant during its fall is constant. [3]

Q24. What are the desirable characters of bee varieties suitable for honey production? [3]

SECTION -C

Q25. (a) What do you understand by low pitch and high pitch sound? Draw appropriate diagrams to support your answer.
(b) How is ultrasound used for cleaning? [5]

Q26. (a) What temperature in Kelvin scale is equal to 50°C?
(b) Describe an activity to show that rate of evaporation increases with surface area. [5]

Q27. (a) Write the name of different plant parts in which chromoplast, chloroplast and leucoplast are present.
(b) Which type of plastids help in photosynthesis? Draw its diagram. [5]

OR

What are the main functional regions of a cell? Explain with the help of diagram.

Q28. (a) State the law of conservation of momentum.
(b) How much momentum will a dumb bell of mass 10 kg transfer to the floor if it falls from a height of 80 cm. Take its downward acceleration to be 10 ms^{-2}. [5]

OR

(a) Why is it advised to tie a rope on the luggage while you travel by the bus?
(b) Why does an athlete take a longer jump if he comes running from a distance than when he jumps suddenly from the take-off line?
(c) A motorcar of mass 1200 kg is moving along a straight line with a uniform velocity of 90 km/h. Its velocity is slowed down to 18 km/h in 4 s by an unbalanced external force. Calculate the acceleration and change in momentum. Also calculate the magnitude of the force required.

Q29. How will you separate a mixture containing kerosene and petrol (difference in their boiling points is more than 25°C), which are miscible with each other? [5]

OR

To make a saturated solution, 30 g of sodium chloride is dissolved in 100 g of water at 293 K. Find its concentration at this temperature.

Q30. What are the limitations in the approach of treating the infectious diseases? Also mention the principles of prevention. [5]