

CLASS IX (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-7

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.
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SECTION - A

- Q1. Which of the following actions a force can do? [1]
(a) Can move a stationary object.
(b) Can stop a moving object.
(c) Can change the speed of a moving object.
(d) All of the above.
- Q2. Ozone layer protects us from which one of the following? [1]
(a) X- rays. (b) UV rays.
(c) Beta rays. (d) Gamma rays.
- Q3. The slope of kinetic energy-displacement curve of a particle in motion is [1]
(a) Equal to the acceleration of the particle.
(b) Inversely proportional to the acceleration.
(c) Directly proportional to the acceleration.
(d) None of these.
- Q4. Law of gravitation gives the gravitational force between : [1]
(a) The earth and a point mass only.
(b) The earth and sun only.
(c) Any two bodies having some mass.
(d) Two charged bodies only.

OR

A body freely falling under gravity will have uniform :

- (a) Speed (b) Velocity
(c) Momentum (d) Acceleration
- Q5. Light is a : [1]
(a) Longitudinal wave (b) Transverse wave
(c) Both (a) and (b) (d) None of these
- Q6. Who proposed the fluid mosaic model of protoplasm? [1]
(a) Singer and Nicolson (b) Watson and Crick
(c) Robert Hook (d) Robert Brown

OR

Which of the following are complex tissues?

- (a) Xylem and Phloem (b) Collenchyma and Sclerenchyma
(c) Parenchyma and Collenchyma (d) Xylem and Parenchyma

- Q7. Leghorn is related to [1]
(a) Apiculture (b) Dairy Farming
(c) Pisciculture (d) Poultry

OR

Which of the following is cultured for pearls?

- (a) Prawns (b) Oysters
(c) Mulletts (d) Bhetki

- Q8. What is classification? [1]
(a) Grouping things together on the basis of the features they have in common.
(b) Grouping things together on the basis of how they respire.
(c) Grouping things together on the basis of how they feed.
(d) Grouping things together on the basis of how they survive.

DIRECTION : For question numbers 9 and 10, 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.

- Q9. **Assertion (A) :** The specific charge of anode ray particles depends on nature of the gas taken in the discharge tube.
Reason (R) : The particles in anode rays carry positive charge. [1]
- Q10. **Assertion (A) :** Solid CO₂ changes its state when exposed to air. [1]
Reason (R) : CO₂ undergoes sublimation.
- Q11. What does odometer of an automobile measure? [1]
- Q12. Helium atom has 2 electrons in its valence shell but its valency is not 2. Explain. [1]
- Q13. Answer question numbers 13.1–13.4 on the basis of your understanding of the following paragraph and the related studied concepts.



Aarti went on a trip organised by her school to the botanical gardens in Delhi. She was very excited to use the knowledge she had learned in her class to relate it with the flora and fauna in the gardens. When Aarti was looking at all different kind of plants, she spotted some leaves with yellowish colour. She had studied that leaves were green in colour so she was confused. Aarti took one piece of that leaf to her school laboratory, boiled it and then mounted it on a slide to observe under microscope. She then poured a strong sugar solution over it and observed the slide through the microscope.

- 13.1 Which pigment gives green colour to the leaves? [1]
 13.2 What is the function of the above mentioned pigment? [1]
 13.3 What did Aarti observe when she poured sugar solution over the slide? [1]
 13.4 Define plasmolysis. [1]

Q14. Questions 14.1 to 14.4 are based on the Table A. Study this table related to boiling points of different compounds and answer the following questions.

Table A: Boiling points

Compound	Boiling point (°C)
Ethane	-89
Butane	0
Methanol	64.7
Hexane	69
Pentadecane	270
Heptadecane	302

- 14.1 A mixture of pentadecane and heptadecane can be separated by [1]
 14.2 When is the fractional distillation preferred over distillation? [1]
 14.3 A mixture of methanol and hexane can be separated by [1]
 14.4 Which of the following pair of compounds are the easiest to separate? [1]
 (i) Ethane and Pentadecane
 (ii) Ethane and Heptadecane
 (iii) Butane and Hexane
 (iv) Butane and Heptadecane

SECTION - B

- Q15. The kinetic energy of an object of mass m , moving with a velocity of 10 m/s is 25 J. What will be its kinetic energy when its velocity is halved? What will be its kinetic energy when its velocity is increased by 5 times? [3]
- Q16. (a) What are cork cells and their functions? [3]
 (b) Which substance is present in the adipocytes? How does it help?
 (c) What is xylem? Name the four elements of xylem.
- Q17. (a) Classify the following compounds as diatomic, triatomic and polyatomic molecules. HCl, H₂, H₂O and NH₃. [3]
 (b) Define the term atomicity.
- Q18. (a) What causes the phenomenon of sunrise, sunset and change of seasons? How do we perceive this cause? [3]
 (b) Is it possible that the train in which you are sitting appears to move while it is at rest?

OR

- (a) In what situation the velocity-time graph a straight line with negative slope?
 (b) Why is the motion of a train starting from one station and stopping at the other is non-uniform?
- Q19. Give a scientific reason for the following: [3]
 (a) Mitochondria are able to make some of their proteins.
 (b) A cell having equal water concentration to its surrounding medium.
 (c) Inner membrane of mitochondria is deeply folded.
- Q20. (a) Birds and mammals share one common feature. Give details. [3]
 (b) Name the phylum in which animals has soft bodies covered with a hard shell.
 (c) Ingestion of solid food occurs in which type of nutrition ?

OR

- (a) Which structure is found in plant cells but absent in animal cell ?
 (b) What is the functional segment of DNA ?
 (c) Name the pigment that imparts red and yellow colour to flowers.

- Q21. A person with mass 10 kg weighs 100 N on earth. What will be his corresponding mass and weight on moon? [3]
- Q22. (a) Most mature plant cells have a large central vacuole. Why?
(b) Which type of vacuoles are found in plant cells and animal cells? [3]
- OR**
- (a) How bacterial cell different from an onion peel cell?
(b) Why are lysosomes also known as “scavengers of the cells”?
- Q23. A certain particle has a weight of 20 N at a place where the acceleration due to gravity is 10 m/s^2 .
(a) What are its mass and weight at a place where acceleration due to gravity is 5 m/s^2 ?
(b) What will be its mass and weight at a place where acceleration due to gravity is zero? [3]
- Q24. (a) What is the term used for the scientific management of livestock?
(b) What do you understand by composite fish culture? Describe in detail with advantages and disadvantages. [3]

SECTION - C

- Q25. (a) Identify the type of inertia in each case and give one more example for the following:
(i) A ball thrown upwards by a child in a train returns to his hands.
(ii) Mudguards are provided in bikes and cars.
(b) A stone released from the top of a tower of height 19.6 m. Calculate its first velocity just before touching the ground. [5]
- OR**
- (a) Define inertia and list its type. Give two examples to describe each type.
(b) Define momentum. State its SI unit.
- Q26. Describe the model of atom proposed by Rutherford with his observations and conclusions. Discuss also the drawbacks in his model. [5]
- Q27. (a) A person takes concentrated solution of salt, after sometime, he starts vomiting. What is the phenomenon responsible for such situation? Explain.
(b) Bacteria do not have chloroplast but some bacteria are photoautotrophic in nature and perform photosynthesis. Which part of bacterial cell performs this?
(c) Which cell organelle controls most of the activities of the cell? [5]

OR

In brief state what happens when

- (a) Rheo leaves are boiled in water first and then a drop of sugar syrup is put on it?
(b) Dry apricots are left for some time in pure water and later transferred to sugar solution?
(c) A red blood cell is kept in concentrated saline solution?
(d) Golgi apparatus is removed from the cell?
- Q28. A stone is thrown upwards with a velocity of 30 m/s.
(a) At what height will its kinetic energy be half of its potential energy?
(b) Calculate the potential energy of the body if it's mass = 5 kg. [5]
- Q29. (a) Describe the process of diffusion of O_2 and CO_2 through the cell membranes.
(b) Define osmosis. [5]

OR

You are provided with a mixture containing sand, iron filing, ammonium chloride and sodium chloride. Describe the procedures you would use to separate these constituents from the mixture?

- Q30. Describe the oxygen cycle with appropriate diagrams. [5]

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