

CLASS IX (2019-20)
SCIENCE (CODE 086)
SAMPLE PAPER-5

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) : If we push a massive truck parked along the roadside, it will not move.
 Reason (R) : Two opposite and equal forces acted on two bodies in contact cancel each other. [1]

- Q2. Assertion (A) : Molecular mass of water (H_2O) is 18 g.
 Reason (R) : Atomic mass of a hydrogen atom is 2 g and atomic mass of an oxygen atom is 14 g. [1]

OR

The two forms of oxygen found in the atmosphere are :

- Q4. What is the S.I. unit of momentum ? [1]
(a) kgms
(b) mskg⁻¹
(c) kgms⁻¹
(d) kg (ms)⁻¹

- Q5. Which of the following is not a perfectly elastic collision ? [1]
(a) Capture of an electron by proton.
(b) Man jumping on to a moving cart.
(c) Collision between glass balls.
(d) A bullet fired into a block of wood such that it is embedded in the wood.

OR

Which Newton's law is applicable in the case of swimming?

OR

The tissue present in the lining of kidney tubules and ducts of salivary glands is

- Q11. What was the limitation of J. J. Thomson's atomic model ? [1]

Q12. In what direction does the buoyant force on an object fully immersed in a liquid act ? [1]

Q13. Answer question numbers 13.1–13.4 on the basis of your understanding of the following paragraph and the related studied concepts.



Michael was having dinner with his family on the occasion of Christmas. When it was the time for dessert, Michael became curious. When he saw that the dessert was plum pudding, he became happy because he had learned about a similar term in his chemistry class on that day.

- 13.1** Correlate the plum pudding with hat Michael studied in his chemistry class. [1]
13.2 Why did the name “plum pudding” originate? [1]
13.3 Give the postulates of the model discussed here. [1]
13.4 Give one drawback of the atomic model discussed here. [1]

- Q14.** Questions 14.1 to 14.4 are based on the Table A. Study this table and answer the following questions.

Table A : 6 person and their serum osmolality levels

Person	Serum Osmolality (mmol/kg)
A	260

Person	Serum Osmolality (mmol/kg)
B	243
C	220
D	280
E	276
F	315
G	342

Table B : Range for normal and dangerous levels of serum osmolality of a person's blood

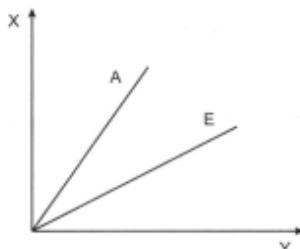
Situation	Serum osmolality (mmol/kg)
Should visit the doctor	<275
Normal range	275–295
Should visit the doctor	>295

Osmolality can be used to measure the amount of solute dissolved in a solution. If the level of solute in a solution is higher than the concentration of solute inside of the cell, water will flow out of the cell during osmosis. If the level of solute outside the cell is lower than the level of solute inside of the cell, water will flow into the cell.

- 14.1** If we place a red blood cell (osmolality is 280 mmol/kg) in the serum of person F, will the plasma flow into the cell or out of the cell ? [1]
- 14.2** Which person (refer A and B) should visit the doctor ? [1]
- 14.3** Define osmosis. [1]
- 14.4** What is the difference between diffusion and osmosis ? [1]

SECTION - B

- Q15.** The velocity, time graph of two bodies A and B travelling along the +x direction are given in the figure. [3]



- (a) Are the bodies moving with uniform acceleration ?
 (b) Which body is moving with greater acceleration ?
 Give reasons.

- Q16.** Give any two uses of isotopes. [3]
Q17. Why are manures and fertilisers used in the fields? [3]

OR

How do storage grain losses occur ?

- Q18.** State Newton's third law of motion and also tell how it explains the walking of a man on the ground. [3]
Q19. What would happen if the plasma membrane ruptures or breaks down? [3]
Q20. A person holds a bundle of hay over his head and walks for 20 minutes and gets tired. Has he done some work for holding the bundle or not? Justify your answer. [3]

OR

Define average power.

- Q21.** Which organisms are called primitive and how are they different from the so called advanced organisms? [3]

Q22. What is crystallisation? Where is it used? Why is this better than simple evaporation technique? [3]

Q23. Explain how bats use ultrasonic waves to catch prey. [3]

OR

How is ultrasound used for cleaning ?

Q24. (a) Why is epidermis important for the plants ?
(b) Draw a rough diagram of collenchyma tissue and label it properly. [3]

SECTION - C

Q25. What is the importance of universal law of gravitation ? [5]

OR

State the factors on which acceleration due to gravity depends.

Q26. Describe the J. J. Thomson's model of atom. Also state the drawback of his model. [5]

Q27. Write the characteristics of kingdom Animalia. [5]

OR

(a) Name the group of plants known as "Amphibians of plant world". Mention their four important characteristics.
(b) Give three points on how birds have adapted themselves to an aerial mode of life.

Q28. Describe the nitrogen cycle with appropriate diagrams. [5]

Q29. Differentiate between mixture and compounds by giving appropriate examples. [5]

OR

What are colloids? What are its various properties ?

Q30. What do you understand by the units of electrical energy? How many joules of energy is consumed if the electrical meter shows 200 units of energy ? [5]

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