

**CLASS IX (2019-20)**  
**SCIENCE (CODE 086)**  
**SAMPLE PAPER-4**

**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 solution scatter light ? [1]
- (a) Suspension (b) Colloidal solution  
(c) Both (a) and (b) (d) None of them

**DIRECTION :** For question numbers 2 and 3, 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.
- Q2. Assertion (A) : A body thrown vertically up with a velocity  $u$  reaches the maximum height  $h$  after  $T$  seconds. At a time  $2T$  seconds its velocity be  $u$ .  
Reason (R) : A particle thrown vertically up with a velocity comes back to its initial position with same magnitude of velocity but in opposite direction. [1]
- Q3. Assertion (A) : The growth of plants occurs only in certain specific regions. [1]  
Reason (R) : Meristematic tissue is located only at certain points in a plant.
- Q4. Oxygen is : [1]  
(a) Monovalent (b) Bivalent  
(c) Trivalent (d) None of these
- Q5. The SI unit of force is similar to the SI unit of : [1]  
(a) Power (b) Mass  
(c) Weight (d) Energy
- Q6. What is the gravitational force between the two objects ? [1]  
(a) Attractive at large distances only.  
(b) Attractive at small distances only.  
(c) Attractive at all distances.  
(d) Attractive at large distances but repulsive at small distances.
- Q7. In a salt-water solution : [1]  
(a) Water is solvent and salt is solute. (b) Water is solute and salt is solvent.  
(c) Water and salt both are solvent. (d) Water and salt both are solute.

**OR**

Which one of the following methods would you use to separate cream from milk ?

- (a) Fractional distillation (b) Distillation  
(c) Centrifugation (d) Filtration

- Q8. If a body is stored at a height  $h = 0$  m, then the energy possessed by it is : [1]  
(a) Kinetic energy (b) Potential energy  
(c) Both (a) and (b) (d) None of these

**OR**

How are Joule (J) and ergs (erg) related ?

- (a)  $1 \text{ J} = 10^7 \text{ erg}$  (b)  $1 \text{ erg} = 10^7 \text{ J}$   
(c)  $1 \text{ J} = 10^{-7} \text{ erg}$  (d) None of these

- Q9. The fertility of soil is lost due to : [1]  
(a) Strip cropping (b) Afforestation  
(c) Soil erosion (d) Crop rotation
- Q10. What is the process of growing two or more crops in a definite pattern ? [1]  
(a) Crop rotation (b) Inter-cropping  
(c) Mixed cropping (d) Organic cropping

**OR**

Which of the following species is an Indian cow ?

- (a) *Bos indicus* (b) *Bos domestica*  
(c) *Bos bubalis* (d) *Bos vulgaris*

- Q11. What is the audible range of the average human ear? [1]
- Q12. Which division among plants has the simplest organisms ? [1]
- Q13. Answer question numbers 13.1–13.4 on the basis of your understanding of the following paragraph and the related studied concepts.



Ravi was travelling to his school to give his final exams. Today it was the science exam and he was nervous. The teacher had told that there will be a surprise element in the exam that he didn't know of. When he reached the school, he found out that there will be a viva-voce exam for each of the student. When his turn came, he was given a very small task. First he was shown the above two images.

- 13.1 Help Ravi to correlate between these two images. [1]  
13.2 What is the reason behind that correlation? [1]  
13.3 Mark the solution to the above two questions in the given image. [1]  
13.4 Name two other cell organelles in a plant cell. [1]

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

**Table A : Atomic Number and Valency**

Element	Atomic Number	Valency
Beryllium	4	2
Boron	5	3

Element	Atomic Number	Valency
Carbon	6	4
Nitrogen	7	3
Oxygen	8	2
Fluorine	9	1

- 14.1** In the Table A, find out which element's atom has to gain or lose the highest number of electrons to complete its octet ? [1]
- 14.2** Nitrogen atom's outermost shell has 5 electrons. Then how is its valency 3, not 5? [1]
- 14.3** Which is more reactive among Oxygen and Fluorine? [1]
- 14.4** In what ways can an atom achieve an octet? [1]

### SECTION - B

- Q15. Calculate the work required to be done to stop a car of 1500 kg moving at a velocity of 50 km/h. [3]
- Q16. Draw the diagrams of the following cells  
(a) Fat cell  
(b) Bone cell  
(c) Smooth muscle cell. [3]
- Q17. Mention the postulates of Dalton theory of atomic model. [3]
- Q18. Why is the weight of an object on moon 1/6th its weight on earth? [3]

**OR**

Why will a sheet of paper fall slowly in comparison to one that is crumpled into a ball ?

- Q19. Name the two main types of plant tissues. [3]
- Q20. How do biotic and abiotic factors affect crop production ? [3]
- Q21. Differentiate between mass and weight. [3]
- Q22. Give three examples of the range of variations that you see in life forms around you. [3]

**OR**

Why do we classify organisms ?

- Q23. Define latent heat of vaporisation. What is the value of latent heat of vaporization for water ? [3]

**OR**

Write the steps you would use for making tea. Use the words solution, solvent, solute, dissolve, soluble, insoluble, filtrate and residue.

- Q24. How do you describe a motion ? [3]

### SECTION - C

- Q25. Differentiate vertebrates and invertebrates. [5]
- Q26. Describe Bohr's atomic model. [5]

**OR**

Explain with examples.

- (a) Atomic number (b) Mass number  
(c) Isotopes (d) Isobars

Give two uses of isotopes.

Q27. Explain SONAR and its working with the help of a diagram. [5]

**OR**

Describe the structure and working of the human ear with the help of a rough diagram.

Q28. (a) How does the factories around Taj Mahal affect it ? [5]  
(b) Can you justify why dust is called as pollutant ?

**OR**

(a) Why cultivation of legumes improve soil fertility ?  
(b) How living organisms assist in erosion of rocks ?

Q29. Define chromatography. Underline the basic principle involved and mention its different applications. [5]

Q30. (a) State the law of conservation of momentum. Write its mathematical derivation.  
(b) Two objects of masses 50 g and 100 g are moving along the same line and direction with velocities of 5 m/s and 10 m/s respectively. They collide and after the collision, the second object moves at a velocity of 8 m/s. Determine the velocity of the first object. [5]

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