

**9<sup>th</sup> CBSE Science Gian Jyoti School**

Student Name: \_\_\_\_\_ Roll. No. \_\_\_\_\_

**General Instructions:**

- i. This question paper consists of 39 questions in 5 sections.
- ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- iii. Section A consists of 20 objective type questions carrying 1 mark each.
- iv. Section B consists of 6 very Short Answer type questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. Section D consists of Long Answer type questions carrying 05 marks each. Answers to these questions should be in the range of 80 to 120 words
- vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks **each** with sub-parts.

**SECTION -A**

1. What is dry ice?  
(A), Dry ice cubes (B) Solid carbon dioxide  
(C) Solid carbon disulphide (D) Solid alcohol
2. The process of reducing the volume of a substance due to the effect of pressure is called.....  
(a) Compressibility (B) Density (C) Diffusion (D) Condensation
3. The relative molecular mass of water is  
(A) 18 u (B) 16 u (C) 12 u (D) 3 u
4. How many elements are present in Sodium Carbonate?  
(A) 2 (B) 5 (C) 6 (D) 3
5. If the K and L shells of an atom are filled completely, then what will be the number of protons in the atom?  
(A) 8 (B) 2 (C) 18 (D) 10
6. Valency of silicon and oxygen respectively are:  
(A) 4,6 (B) 4, 2 (C) 2, 2 (D) 6, 8
7. Which of the following is present in the brain?  
(A) Neuron (B) Nephron (C) Striated muscle (D) Ligament
8. Coconut fibre is made up of which tissue?  
(A) Adipose tissue (B) Parenchyma (C) Collenchyma (D) Sclerenchyma
9. What is the main function of Cardiac muscles?  
(A) If fills the empty space inside the organs.  
(B) It provides support to the internal organs.  
(C) To keep expanding and contracting rhythmically throughout the life.  
(D) Helps in repairing tissue.

10. Prokaryotic cells have:  
(A) More than one chromosome (B) Well defined nucleus  
(C) Membrane bound cell organelles (D) One Chromosome
11. The distance - time graph of an object moving with uniform speed will be:  
(A), Straight and zig-zag line (B) Zig-zag line  
(C) Straight line parallel to x-axis. (D) Straight line
12. Weight of an object on Earth is 10 N. How much will be the weight of this object on moon?  
(A) 10 N (B) 98 N (C) 1.67 N (D) 5 N
13. When sound wave propagates in a medium, the region of higher density of particle is called  
.....  
(A) Rarefaction (B) Compression (C) Propagation (D) Pitch
14. SI unit of frequency is  
(A) hertz (B) meter (C) joule (D) newton
15. Green revolution is related to  
(A) Food grain production (B) Milk production  
(C) Shrimp production (D) Fish production
16. Choose the macronutrient from the following:  
(A) Chlorine (B) Calcium (C) Boron (D) Molybdenum
- Given below are two statements labelled as Assertion and Reason. Select the most appropriate answer from the options given below:
- (A) Both A and R are true and R is the correct explanation of A  
(B) Both A and R are true but R is not the correct explanation of A.  
(C) A is true but R is false.  
(D) A is false but R is true.
17. **Assertion (A):** Sodium Oxide is always exist as mixture.  
**Reason (R):** Substances which are made up of more than one constituent are called mixture.
18. **Assertion (A):** Cell is the basic unit of life.  
**Reason (R):** Cell performs all the life process in living beings. (A)
19. **Assertion (A):** Every object thrown upward fall on the earth.  
**Reason (R):** Gravitational force of earth is the attractive force which exert from the centre of Earth.
20. **Assertion(A):**Different types of crops required different photoperiods.  
**Reason(R):** Photoperiod related with duration of sunlight.

**SECTION-B**

21. Convert the following in Kelvin scale: (a)  $410^{\circ}\text{C}$  (b)  $-27^{\circ}\text{C}$
22. Why do we sprinkle water on the roof or open ground in summers?
23. Write the number of valence electrons in the following atom:  
(a) Calcium (Atomic No. 20) (b) Chlorine (Atomic No. 17)  
(c) Helium (Atomic No. 2) (d) Lithium (Atomic No. 3)

24. Which cell organelles are called:  
(a) Power house of the cell                      (b) Kitchen of the cell? Give reason.
25. A girl walks from A to B and returns back from B to A. "If the distance from A to B is 300 m and she takes 10 minutes to complete her journey, find her average speed for the whole journey.
26. What will be the kinetic energy of a body when its mass is made three times and velocity doubled?

### SECTION-C

27. Calculate the molecular mass of the following  
(a) Sodium hydroxide                      (b) Calcium sulphate                      (c) Sodium sulphide  
(Atomic mass: Na 23 u, O= 16 u, H = 1 u, Ca = 40 u, S = 32 u)
28. Make three comparisons between plant cell and animal cell.
29. Name the tissues which:  
(a) Connects two bones tendon ligament                      (b) are present in external ear, nose and trachea.  
(c) are present in Kidney tubules.
30. Draw velocity-time graph to represent the following:  
(a) A ball thrown vertically upward and returning to the hands of the thrower.  
(b) A body moving with constant velocity.  
(c) A car accelerating uniformly and after some time it attains constant velocity.
31. Suppose a planet exists whose mass and radius both are one third to that of the earth. Calculate the acceleration due to gravity on the surface of this planet, if acceleration due to gravity on Earth is  $10 \text{ m s}^{-2}$ .
32. What is reverberation? How it can be reduced?
33. What are weeds? Discuss any three methods of weed control.

### SECTION - D

34. Give the formula of the compounds formed from the following set of elements: Calcium and fluorine  
(a) Hydrogen and Sulphur                      (b) Nitrogen and Hydrogen  
(c) Sodium and Oxygen                      (d) Magnesium and Chlorine
35. (i) Draw a well labelled diagram of an animal cell.  
(ii) Explain what happens if:  
(a) a cell is placed in a medium of hypertonic solution  
(b) hunk a cell is placed in a medium of hypotonic solution wells
36. (a) Explain how a karate player can break a pile of tiles with a single blow of his hand.  
(b) How much momentum does an object of mass 10 kg have if it falls from a height of 5 m? ( $g = 10 \text{ m s}^{-2}$ )

### SECTION - E

37. A matter is anything that has mass and occupies space. Pen, paper, clips, sand, air, ice, etc. are different forms of matter. Every matter is made up of small particles. These particles are so tiny that they can't be seen with naked eyes. Let's see about the different characteristics of particles of matter. All matter is made up of very small particles. Particles of matter has spaces between

them. Particles of matter are continuously moving. Particles of matter attract each other.

(i) Which of following is not matter?

(a) Pen (b) air (c) smell of perfume (d) None of these

(ii) Which of the following is true about particles of matter?

(a) Particles of matter has spaces between them

(b) Particles of matter are continuously moving

(c) Particles of matter attract each other

(d) All of these

(ii) Give any four examples of matter in our surroundings

**38.** Read the following case-study and answer the questions given below it from (i) to (iii)

Large and complex cells, including cells from multicellular organisms, need a lot of chemical activities to support their complicated structure and function. To keep these different activities separated from each other, these cells use membrane-bound structures (or 'organelles') within themselves. This is one of the features of the eukaryote cells that distinguish them from prokaryotic cells. Some of these organelles are: endoplasmic reticulum (ER), Golgi apparatus, lysosomes, mitochondria and plastids. They are important because they carry out some very crucial functions in cells. Mitochondria are double-membraned structure and is known as the powerhouse of the cell. The ER functions both as a passageway for intracellular transport and as a manufacturing surface. The Golgi apparatus consists of stacks of membrane bound vesicles that function in the storage, modification and packaging of substances manufactured in the cell. Most plant cells have large membranous organelles called plastids, which are of two types - chromoplasts and leucoplasts. These are absent in animal cells.

(i) Who produces lysosomes?

(ii) Name the process involved in the building of cell membrane.

(iii) State two functions of vacuoles in a plant cell?

**39.** Read the following case study and answer the questions:

We know that the earth attracts every object with a certain force and this force depends on the mass ( $m$ ) of the object and the acceleration due to the gravity ( $g$ ). The weight of an object is the force with which it is attracted towards the earth. Mathematically  $W = mxg$  Where,  $W$ = weight of object  $m$ = mass of object  $g$ = acceleration due to the gravitational force. As the weight of an object is the force with which it is attracted towards the earth, the SI unit of weight is the same as that of force, that is, Newton (N). The weight is a force acting vertically downwards; it has both magnitude and direction. We have learnt that the value of  $g$  is constant at a given place. Therefore, at a given place, the weight of an object is directly proportional to the mass, say  $m$ , of the object, that is,  $W \propto m$ . It is due to this reason that at a given place, we can use the weight of an object as a measure of its mass.

(i) Unit of acceleration due to the gravity ( $g$ ) is

(a)  $m/s$  (b)  $m/s^2$  (c) Newton(N) (iv) None of these

(ii) Which of the following has same unit

(a) Mass and weight (c) Weight and force

- (b) Velocity and acceleration (d) None of these  
(iii) Whether weight is scalar quantity or vector quantity? Justify your answer.

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### 1. Matter in Our Surroundings

- Q1. What is dry ice?
- Q2. The process of reducing the volume of a substance due to pressure...
- Q21. Convert the following in Kelvin scale
- Q22. Why do we sprinkle water on the roof...
- Q37. Case study on matter and characteristics of particles

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### ◆ 2. Is Matter Around Us Pure?

- Q4. How many elements are present in Sodium Carbonate?
- Q17. Assertion-Reason on Sodium Oxide as a mixture

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### ◆ 3. Atoms and Molecules

- Q3. The relative molecular mass of water is
- Q27. Calculate the molecular mass...
- Q34. Give formulae of compounds formed from elements

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### ◆ 4. Structure of the Atom

- Q5. If K and L shells of an atom are filled...
- Q6. Valency of silicon and oxygen
- Q23. Number of valence electrons in atoms

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### ◆ 5. The Fundamental Unit of Life

- Q10. Prokaryotic cells have...
- Q24. Cell organelles - powerhouse, kitchen
- Q35. Diagram of animal cell, effects of hypotonic & hypertonic solutions
- Q38. Case study on cell organelles

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### ◆ 6. Tissues

- Q7. Which of the following is present in the brain?
- Q8. Coconut fibre is made up of...
- Q9. Function of cardiac muscles
- Q29. Name the tissues... (tendons, ligaments, etc.)

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### ◆ 7. Why Do We Fall Ill?

- *(No direct question, but let me know if you'd like to add some)*
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### ◆ 8. Motion

- Q11. Distance-time graph of an object moving with uniform speed
  - Q25. A girl walks from A to B and back – average speed
  - Q30. Velocity-time graphs
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### ◆ 9. Force and Laws of Motion

- Q36(a). Karate player breaking pile of tiles – Newton's 2nd Law
- 

### ◆ 10. Gravitation

- Q12. Weight on Moon
  - Q19. Assertion: Every object thrown upward falls back
  - Q31. Planet with mass and radius one-third of Earth
  - Q39. Case study on weight, gravity and its units
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### ◆ 11. Work and Energy

- Q26. Kinetic energy change when mass is tripled, velocity doubled
  - Q36(b). Momentum of object falling from 5 m
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### ◆ 12. Sound

- Q13. Region of high density in sound wave
  - Q14. SI unit of frequency
  - Q32. What is reverberation? How it can be reduced?
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### ◆ 13. Improvement in Food Resources

- Q15. Green revolution is related to
- Q16. Choose the macronutrient
- Q20. Assertion: Crops require different photoperiods
- Q33. What are weeds? Methods of weed control