9th CBSE Science St. Annes 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

(Select and write the most appropriate option out of the four options given for each of the questions 1-20)

1. The phenomenon which is responsible for keeping water cool in the earthen pot is
   a) evaporation   b) condensation
   c) both evaporation and condensation   d) osmosis

2. Pick the incorrect statement out of the following.
   a) Applying pressure and reducing temperature can liquefy gases.
   b) Sponge can be compressed, still it is considered as a solid.
   c) Mass/Volume of a substance is called density.
   d) Particles in boiling water have more energy than steam at the same temperature.

3. Which of the following is a compound?
   a) brass   b)sugar   c) potassium   d) milk

4. Identify the chemical changes among the following-
   i) decaying of wood   ii) cutting of wood
   iii) burning of wood   iv) hammering of nail in a piece of wood
   a) i) and ii)   b) ii) and iii)   c) ii) and iv)   d) i) and iii)

5. What is the valency of **Fe** in Fe_2O_3?
   a) +2   b) –2   **c**) +3   d) –3

6. The maximum number of electrons that can be filled in the M shell of an atom is
   a) 2   b) **18**   c) 10   d)8

7. Amoeba obtains its food by the process of
   a) diffusion   b) osmosis   c) endocytosis   d)membrane biogenesis

8. Identify the plant tissue shown in the diagram below
   a) parenchyma   b) collenchyma   **c**) sclerenchyma   d) aerenchyma

9. Which of **the** following is a polyatomic ion?

a) Zn^{2+} b) S^{2-} **c)**Ca   d) PO_4^{3-}

10. Connective tissue which connects bone to bore is called

a) tendon   b) cartilage   c) ligament   d) adipose

11. Which of these **is** not a function of endoplasmic reticulum?

a) channels for the transport of materials

b) providing a surface for biochemical reactions

c) making complex sugars from simple sugars

d) detoxifying many poisons and drugs

12. The growing of different crops on a **piece** of land in preplanned succession is called

a) intercropping   b)mixed croppping

c)fallow cropping   d)crop rotation

13. If a car is traveling at 30 m/s and comes to a stop in 10 seconds, what is its acceleration?

a) -3 m/s^2 b) -5 m/s^2 **c**) -10 m/s^2 d) -2 m/s^2

14. When a person jumps from a boat to the shore, the boat moves backward due to:

a) Buoyant force   b) Gravitational force   c) Frictional force   d) Action-reaction force

15. If the distance between two objects is doubled, how does the gravitational force between them change?

a) It becomes four times as strong   b) It becomes half as strong

c) It becomes one-fourth as strong   d) It remains the same

16. Following table represents the mass and volume data of the three liquids named A, B, C and D. Can you find which two liquids are identical?

Liquid	Mass (in g)	Volume (in cm^3)
A	80	100
B	100	100
C	80	80
D	100	80

(a) A and C   (b) B and C   (c) A and D   (d) B and D

Q17 To Q20- **Directions:** In each of the following questions, a statement of Assertion is given and a corresponding statement of Reason is given. Of the statements, given below, mark the correct answer as:

(a) Both assertion and reason are true and reason is the correct explanation of assertion.

(b) Both assertion and reason are true but reason is not the correct explanation of assertion.

(c) Assertion is true but reason is false.

(d) Assertion is false but reason is true.

17. **Assertion(A) -** Silicon is a metalloid.

Reason (R)- Its properties are similar to metals.

18. **Assertion(A)** -A molecule is the smallest particle of an element or a compound, which is capable of independent existence.

Reason: The number of atoms present in one molecule of the substance is called its atomicity.

19. **Assertion:** Mass is a measure of inertia of the body in linear motion.
Reason: Greater the mass, greater is the force required to change its state of rest **or** motion.

20. **Assertion (A)**-Xylem and Phloem are referred to as complex permanent tissue.
Reason**(R)**-They are made up of more than one type of cells which are non dividing.

SECTION-B

(Question No. 21 to 26 are **very short answer questions)**

21. a)Convert the following temperatures
i)20°C to K   ii) 430K to °**C**
b) Why does ice float on water?

22. State any two properties of a colloid. What **is the dispersed** phase and dispersion medium in mist?

23. What would happen to the life of a cell if there was no golgi apparatus?

OR

24. What is the importance of cell division ?State the two types of cell division.
Draw a neat labelled diagram of neuron.

25. A body starts to slide over a horizontal surface with an initial velocity of 0.5 m/s. Due to friction, its velocity decreases at the rate 0.05 m/s2. How much time will it take for the body to stop?

OR

Distinguish between distance and displacement.

26. (a) State Newton's second law of motion.
(b) A motor vehicle has a mass of 1500 kg. How large must the force between the car and the road be for the car to stop with a negative acceleration of 1.7 ms^{-2}?

SECTION-C

(Question No. 27 to 33 are **very short answer questions)**

27. Define the following terms-
a) plasmolysis   b) nucleoid   c) membrane biogenesis

28. An atom of an element has two electrons in the third shell which is the outermost shell. Write
i**)** its electronic configration   ii) atomic number   iii) number of protons   iv)valency
v) name of the element   **vi)** its nature(metal/non metal)
Three elements X,Y,Z have consective increasing atomic numbers. Element Y is Argon.
i) Identify X and Z.   ii) Derive the formula of compound formed between X and Z.
iii) What is the valency of Y ? Give example of one more element which has the same valency

29. a) Draw a labelled diagram of animal **cell**.
b)Name two **cell** organelles which **have their** own genetic material.

30. a) Write two functions each of   i) stomata present in the epidermis of leaves
ii) areolar connective tissue
b) Give one location each of   i) cartilage   ii)striated muscle fibres

31. A) Why is it difficult to hold a school bag with a strap made of a thin and strong string?

B) Why will a sheet of paper fall slower than one that is crumpled into a ball?

(C) A stone is released from the top of a tower of height 19.6 m. Calculate its final velocity just before touching the ground. $(g=9.8 m/s^2)$

32. Define work. Certain force acting on a 20 kg mass changes its velocity from 5 m s^{-1} to 2 ms^{-1}. Calculate the work done by the force.

33. A) A person has a hearing range from 20 Hz to 20 kHz. What are the typical wavelengths of sound waves in air corresponding to these two frequencies? Take the speed of sound in air as 344 ms^{-1}.

B). Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen, why?

SECTION-D
(Question No. 34 to 36 are long answer questions)

34. (a) Illustrate the three rules of distribution of electrons in different energy levels of an atom as suggested by Bohr and Bury.

(b) What are isotopes? Explain with the help of an example.

OR

a) State the two postulates of Bohr's model of an atom. Draw a sketch of Bohr's model of an atom with three shells.

b) What are the drawback of Rutherford's model of an atom?

35. a) Compare the use of manure and fertilizers in maintaining soil fertility.

b) Explain composite fish culture system.

c) Give two examples of macronutrients required by plants.

OR

a) What are the desirable characters of bee varieties suitable for honey production?

b) List four factors for which crop variety improvement is done.

c) What is the difference between broilers and layers?

36. I) State the law of conservation of energy? Describe the energy changes involved when

(i) a battery lights a bulb   (ii) a boy rides a bicycle.

II) A machine raises a load of 750 N through a height of 16 m in 5 seconds.

Calculate the power at which the machine works.

OR

(a) Distinguish between kinetic energy and potential energy.

A metal ball of mass **2** kg is allowed to fall freely from rest from a height of 5 m above the ground.

(a) Taking g=10 ms^{-2}

calculate:

(i) the potential energy possessed by the ball when it is initially at rest.

(ii) the kinetic energy of the ball just before it hits the ground?

(b) What happens to the mechanical energy after the ball hits the ground and comes to rest?

SECTION-E

37. READ THE PASSAGE AND ANSWER THE QUESTION 37 (a), (b) and (c).

37(a) and 37(b) are compulsory questions. Attempt **ANY ONE** in **37(c)**

Pure substances can be elements or compounds. A compound is a substance composed of two or more different types of elements chemically combined in fixed proportion.eg. water, ammonia and carbon dioxide. Compounds composed of metals and non metals contain charged species called ions. The chemical formula of a compound is a symbolic representation of its composition. Valency can be used to find out how the atoms of an element will combine with the atoms of another element to form a chemical compound.

a) Define **valency**. **b)** Name **the** elements present **in the** compound-quicklime.

c) Calculate the ratio by mass of the combining elements -carbon and oxygen in the compound CO_2.

OR

c) Derive the chemical formula of the compound- sodium carbonate and magnesium oxide.

38. READ THE PASSAGE AND ANSWER THE QUESTION 38 (a), (b) and (c**).**

38(a) and 38(b) are compulsory questions. Attempt **ANY ONE in 38(c)**

Epithelial tissue is the simplest **type** of animal tissue which occurs as a protective layer. It covers most organs and cavities **within the** body. It also forms a barrier to keep different body systems separate. Cells of this tissue are tightly packed and form a continuous sheet. They have a small amount of cementing material between them and almost no intercellular spaces.

a) Name the type of **epithelial tissue which** forms **the** lining of kidney tubules.

b) As epithelial tissue forms the protective layer in animal body**,** which plant tissue performs the same function in plant body?

c) State two differences between simple squamous and stratified squamous epithelium.

OR

b) Draw a diagram showing ciliated columnar epithelium. Write one location of this epithelium in our body.

39. Read the passage and answer the questions.

Suman noticed that when she shouted near a tall building, she heard her own voice after a short interval. She timed the interval between her shout and the echo as 0.6 seconds. The speed of sound in air is 340 m/**s**.

Answer the following Questions :

1. What is the distance between Suman and the building?

2. What is the phenomenon that Suman experienced called?

3. What conditions are required for an echo to occur?

OR

4. If the temperature of air increases, how will it affect the speed of sound and the time taken for the echo to return?