

# CBSE

## SUBJECT: SCIENCE (SET-1)

CLASS: IX  
DATE: 29/01/2020

MAXIMUM MARKS: 80  
TIME ALLOWED : 3 HOURS

### General Instructions

1. All questions are compulsory
2. This question paper comprises of four sections. Sec. A,B,C,D
3. Sec A (1 mark questions), Sec B (3 mark questions), Sec C (5 mark questions)
4. Internal choices are provided in section B and C
5. Section D comprises of Multiple choice questions.

### SECTION -A (1 mark question)

- Q1. A body thrown in vertically upward direction rises to a height "h" and comes back to the position of start. What is the distance and displacement?
- Q2. What is the acceleration of a body when it is under the action of balanced force?
- Q3. A force of 20N acts on a body whose weight is 9.8N Find the mass and acceleration of the body.
- Q4. What are energy transformations taking place in (a) electric motor (b) release of arrow from a bow
- Q5. Why crystallisation is better than evaporation for purification of impure solutions?
- Q6. Why it is inconvenient to wear cotton clothes in winter?
- Q7. Jointed leg animal A belongs to phylum B. Identify A and B
- Q8. Exercise is essential for good health. State the reason.
- Q9. Mention any two living organisms which influence the formation of soil.
- Q10. It is difficult to pull the husk of a coconut. Why?

### SECTION -B (3 mark question)

- Q11. Distinguish between loudness and intensity of sound on two points each. Give one application of reflection of sound wave
- Q12. A 4kg ball is thrown upwards with a velocity 20m/s. Find
- (i) Potential energy at the maximum height
  - (ii) Maximum height attained by the ball ( $g=10\text{m/s}^2$ )

Q13 Explain the following giving reasons (**Any three**)

- (i) Rockets and jet aeroplanes move upward.
- (ii) Cars and scooters are fitted with shockers
- (iii) Velocity is a vector quantity
- (iv) Action and reaction forces never cancel each other
- (v) Athlete run a certain distance before taking a leap

Q14. Give reason for the following-

- a) Why the valency of helium atom is zero but not two
- b) Why do we observe water droplets on the outer surface of a glass containing ice in it?
- c) Why TYNDALL EFFECT is usually observed in a canopy of dense forest.

Q.15 a) What are the observations and conclusions of Rutherford'S model of an atom ?

- b) Calculate the number of molecules of sulphur in 16 gms of solid sulphur.

Q.16 What is formula unit mass ? Calculate the formula unit mass for a molecule of  $\text{ZnO}$ ?

**(OR)**

Draw the atomic structures of isotopes of the lightest element?

Q17. Define the terms: a) Membrane biogenesis b) Bilateral symmetry c) Crop rotation

**(OR)**

- a) What is top soil?
- b) What is its role in farming?
- c) How is it affected due to modern farming practices?

Q18. Name the following:

- a) Two green house gases
- b) Connective tissue which contains liquid matrix
- c) Class of Plantae which has well developed vascular system

Q19. a) Which organelle will you associate with the elimination of old and worn out cells and Why?

- b) Identify the organelle which can make proteins in cell.
- c) Name the cell which does not have a well defined nuclear region.

Q20. It was diagnosed that the body of a patient has lost its power of fighting any infection.

- a) Identify the disease
- b) What type of microbe is responsible for this disease?
- c) How does it spread from one person to the other?

**SECTION - C (5 marks question)**

Q21 When a body is immersed in water it displaces 4kg of water. How much is the buoyant force acting on the body. What are the factors affecting buoyancy. Why will a swimmer experience greater buoyant force in sea water than in river water

Q22 Establish and derive the relation between speed of sound ,its wavelength and frequency. If the velocity of sound in air is 340m/s Calculate

- (i) Wavelength when frequency is 256 Hz
- (ii) Frequency when wavelength is 0.85 m

**(OR)**

Explain the terms-SONAR, Ultrasonography and ecocardiography

A person standing near a cliff fires the gun and hears an echo after 2.2 sec.

If the speed of sound in air is 340m/s ,how far is the person from cliff

Q.23 The number of protons , neutrons and electrons in elements from A to E are given;

| ELEMENTS | PROTONS | NEUTRONS | ELECTRONS |
|----------|---------|----------|-----------|
| A        | 17      | 18       | 17        |
| B        | 3       | 4        | 3         |
| C        | 18      | 22       | 18        |
| D        | 17      | 20       | 17        |
| E        | 11      | 12       | 11        |

- a) Which one is a cation?
- b) Which one is an anion?
- c) Which one are a pair of isotopes?
- d) Give the formula of the compound formed of E with phosphate ion and sulphate ion

**Q.24** a) On heating calcium carbonate gets converted into calcium oxide and carbon dioxide.

i) Is this a physical or a chemical change?

ii) Write the formulae of the products formed. Write use of the gas in beverage industry?

b) Non metals are usually poor conductors of heat and electricity. They are non-lustrous, non-sonorous, non-malleable and are coloured.

i) Name two metalloids.

ii) Name a non-metal which exists as a liquid at room temperature.

iii) Name two different forms of carbon.

iv) Name a non-metal which is required for combustion.

**(OR)**

a) How is suspension different from a colloid?

b) A solution contains 60 gm of common salt in 340 gms of water. Calculate the mass by mass percentage of the solution. <http://www.cbseboardonline.com>

c) What is a saturated solution.

d) Identify the type of colloid, dispersed phase and dispersed medium in

i) jelly              ii) mud

e) Calculate the molar mass of aluminium carbonate.

25. a) Construct a table to differentiate between Dicots and Monocots on the basis of the following characters: Root, Stem, Leaves, Cotyledons

b) Cotyledons are called as Seed Leaves. Give reason

**(OR)**

a. List any two differences between Parenchyma and Sclerenchyma.

b. Name the organelle which act as power house of the cell. Also write why is it called so?

c. Mention one function of

(i) Xylem      (ii) Cardiac muscle

26. a) Name two biologically important compounds that contain both Oxygen and Nitrogen

b) What are the two forms of oxygen found in atmosphere?

c) List any three human activities which would lead to an increase in the carbon dioxide content of air.

### MCQ

27. Structure of a nerve cell does not contain one of the following:

- (i) dendrite
- (ii) axon
- (iii) nucleus
- (iv) sarcolemma

28. Which of the following is an oviparous animal?

- (i) mammals
- (ii) birds
- (iii) whale
- (iv) none of these

29. Respiration in reptiles occur through

- (i) gills
- (ii) moist skin
- (iii) lungs
- (iv) air sacs

Q30 While studying the reflection of sound, four students A,B,C and D used different reflecting surfaces. A used thermocol sheet, B-polished metal sheet , C-rough cardboard sheet and D-cushioned chair. The student who obtain best result is-

- (i) A
- (ii) B
- (iii) C
- (iv) D

Q31. While determining the density of solid sphere a student noted down the following reading of mass as 64g, the initial level of water in cylinder without sphere in it as 62ml and the final level of water with sphere in it as 70ml. The density of solid is

- (i) 8 g/ml
- (ii) 10 g/ml
- (iii) 9 g/ml
- (iv) 35 g/ml

Q32. While performing the experiment for determining the velocity of a pulse through a stretched string a student should choose:

- (i) Thick cotton string
- (ii) thick silk string
- (iii) a metal string
- (iv) thick fibre string

Q33. Mass of an electron in comparison with Hydrogen

- (i)  $1/200$
- (ii)  $\frac{1}{2}$
- (iii)  $1/2 \times 10^{-9}$
- (iv)  $1/2000$

**The following questions have two statement- Assertion (A) and Reason (R)**

Select the appropriate options for the question nos. 34,35 and 36

- i) Both A and R are true R is the correct explanation of A
- ii) Both A and R are true and R is not the correct explanation of A
- iii) A is true but R is false
- iv) A is false but R is true

Q34. **ASSERTION-** Formula for ammonium chloride is  $\text{NH}_4\text{Cl}$

**REASON-** Ammonium ion and chloride ion are both polyatomic ion.

Q35. **ASSERTION-** While drawing water from well, the bucket of water appears to be heavier as it comes out of water.

**REASON-** There is no up thrust due to water

36. **ASSERTION** - Making anti-viral drugs is more difficult than making anti-bacterial drugs.

**REASON** - Viruses have very few biochemical mechanisms of their own

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