



A Unit of Soundarya Educational Trust (R)
SOUNDARYA CENTRAL SCHOOL
Affiliated to CBSE – New Delhi

I PREPARATORY EXAM 2018 – 2019

SUBJECT: SCIENCE

Grade: IX

Marks: 80

Time: 3 hrs.

General Instructions:-

- The question paper comprises two sections, A and B. You are to attempt both the sections.
- All questions are compulsory.
- All questions of section A and B are to be attempted separately.
- There is an internal choice in three questions of three marks each, two questions of five mark each and one question (for assessing the practical skill) of two mark.
- Question numbers 1 – 2 are one mark questions. These are to be answered in one word or in one sentence.
- Question numbers 3 – 5 are two marks questions. These are to be answered in about 30 words each.
- Question numbers 6 – 15 are three marks questions. These are to be answered in about 50 words each.
- Question numbers 16 – 21 are five marks questions. These are to be answered in about 70 words each.
- Question numbers 22 – 27 in Section B are based on practical skill. Each question is a two mark question. These are to be answered in brief.

SECTION A

1. Write the full form of DNA. State the exact location of DNA within the nucleus.
 2. State Archimede's principle.
 3. To make a saturated solution, 36g of sodium chloride is dissolved in 100g of water at 293K.
Find its concentration at the specified temperature.
 4. (a) Enlist different types of epithelial tissues in the human body.
(b) Mention the location of any two types in the human body.
 5. A stone is gently dropped from a height of 45m. If its velocity increases uniformly at the rate of 10 ms^{-2} , with what velocity will it strike the ground? Calculate the time taken by the stone to strike the ground.
 6. Show diagrammatically the electron distribution in a sodium and a sodium ion and also give their atomic number.
 7. Give the comparison between the subgroups – Bryophyta and Pteridophyta of K.Plantae. Specify an example each.
 8. Give reason:
(a) A cricketer lowers his hand while catching a ball.
(b) When a carpet is beaten with a stick, dust comes out of it.
(c) Ceilings of concert halls are curved.
 9. A ball thrown up vertically returns to the thrower after 8s, find –
(a) the velocity with which it was thrown up
(b) the maximum height it reaches and
(c) its position after 5s.
 10. Discuss the following:-
(i) (a) Green manure (b) Broiler production
(ii) Specify an example of exotic cattle breed.
- OR**
- (a) Enlist the different ways by which insect pests affect the plant health.
(b) Write any two methods of crop protection management.
 11. How are solution, suspension and colloids different from each other? (Any three)
 12. (a) State Newton's Second law of motion.
(b) Express Newton's Second law mathematically explaining the symbols used.

13. Differentiate between metals and non-metals on the following parameters.
 (a) Sonority (b) Malleability (c) Physical state
14. (a) Explain the working principle of a vaccine in the human body.
 (b) Name any two diseases for which vaccination is provided.
15. Calculate the number of moles in:-
 (a) 9.2g of sodium (b) 11g of CO₂ (c) 20g of NaOH
16. (a) Explain how defects in a metal block can be detected using ultrasound with diagram.
 (b) A stone is dropped from the top of a tower 500m high into a pond of water at the base of the tower. When is the splash heard at the top? (Give $g = 10\text{ms}^{-2}$ and speed of sound is 340ms^{-1})
17. Calculate the molecular masses of the following:-
 (a) 1 mole of water (H₂O)
 (b) 1 mole of ethanol (C₂H₆O)
 (c) 1 mole of glucose (C₆H₁₂O₆)
 (d) 1 mole of cane sugar (C₁₂ H₂₂O₁₁)
 (e) 1 mole of carbon dioxide (CO₂)
 Atomic masses (H = 1u ; C = 12u ; O = 16u)
18. (a) A stone is allowed to fall from the top of a tower 200m high and at the same time another stone is projected vertically upwards from the ground with a velocity of 50m/s. Calculate when and where the two stones will meet.
 (b) What is the importance of universal law of gravitation?
- OR**
- (a) Describe with the help of a diagram, how compressions and rare factions are produced in air near a source of sound.
 (b) Prove that Newton's third law of motion by conservation of momentum.
19. (i) Draw a neat diagram of a plant cell and label the following:-
 (a) Storage Sac filled with cell sap.
 (b) Plastid containing the pigment chlorophyll
 (c) Organelle involved in the formation of lysosomes.
 (d) ATP generating organelle
 (e) Rigid covering containing cellulose
 (f) Structure containing chromatin fibres
 (ii) Mention any four differences between plant cell and an animal cell.
20. Write any three characteristics of the following organisms. Mention the 'class' to which the organisms belong to:-
 (a) Leech (b) Ascaris (c) Salamander
21. (a) Describe Rutherford's model of an atom.
 (b) The mass number of an element is 18. It contains 7 electrons. What is the number of protons and neutrons in it?
 (c) State the number of electrons in CCl_4^- ion.

SECTION B

22. Write any four characteristics of the plant 'cycas'?
23. Which element has more number of atoms, 100 grams of sodium or 100 grams of iron? Explain.
24. Draw a sketch of Bohr's model of an atom with three shells.
25. A piece of brass weighs 175gf in air and 150gf when fully submerged in water. The density of water is 1.0gcm^{-3} .
 (i) What is the volume of the brass piece?
 (ii) Why does the brass piece weigh less in water?
26. Give the comparison between the phylum porifera and phylum coelentrata with an example for each.
27. Define the term force and state the various effects produced by a force.