CBSE Sample Paper Class 9 Science SA2 Set 3

MAX. Marks: 90 **TIMES: 3 Hrs**

General Instructions:

1. The question paper comprises of two sections, A and B, you are to attempt both the sections.
2. All questions are compulsory.
3. There is no overall choice. However, internal choice has been provided in all the three questions of five marks category. Only one option in such questions is to be attempted.
4. All questions of section A and all questions of section B are to be attempted separately.
5. Question numbers1 to 4 in section A are one mark question. These are to be answered in one word or one sentence.
6. Questions numbers 5 to 13 are two marks questions, to be answered in about 30 words.
7. Question numbers 14 to 22 are three marks questions, to be answered in about 50 words.
8. Question numbers 23 to 25 are five marks questions, to be answered in about 70 marks.
9. Question numbers 26 to 41 in section B are multiple choice questions are based on practical skills. Each question is a one mark question. You are to choose one most appropriate response out of 0the four provided to you.

SECTION – A

1. Give one example where kinetic energy is transferred from one object to other.

2. A battery lights a bulb. Suggest the possible energy changes involved in the lighting process.

3. What are the different states in which water is found during the water cycle?

4. List any two human activities that lead to an increase in the carbon dioxide content of air.

5. Flash and thunder are produced simultaneously. But thunder is heard a few seconds after the flash is seen, why? How does the speed of sound in air vary with rise in density of the medium?

6. a. Draw a sketch of Bohr's model of an atom with three shells.
   b. If K and L shell of an atom are full, then what would be the total number of electrons in the atom?

7. What is the mass of?
   (i) 0.2 mole of oxygen atoms?
   (ii) 0.5 mole of water molecules?

8. The volume of 50 g of a substance is 20 cm3 . If the density of water is 1g/cm3 , will the substance float or sink?

9. (a) How many cotyledons are present in the seeds of monocots and dicots?
(b)Why do bryophytes called as amphibians of the plant kingdom?

10. (a) Name the carbon compound responsible for depletion of ozone.
(b) What are the different states in which water is found during the water cycle?

11. (a) Give one example each of biotic and abiotic components of biosphere.
(b) Define water pollution.

12. Following observations were taken while determining the relative density of a liquid. Weight of the solid in air = 0.100 kgf Weight of the solid in liquid = 0.080 kgf Weight of the solid in water = 0.075 kgf Calculate:
(a) the apparent loss in weight of solid in liquid
(b) the apparent loss in weight of solid in water

13. List one similarity and one difference between fungi and plant.

14. Draw a neat diagram of human ear and label external ear, middle ear and inner ear.

15. A man whose mass is 50 kg climbs up 30 steps of the stairs in 30 seconds. If each step is 20 cm high, calculate the power used in climbing the stairs.

16. (a) A ship sends out ultrasound produced by transmitter that returns from the sea bed and detected after 3.42 s. If the speed of ultrasound waves through sea water is 1530 s-1 , what is the distance of the sea bed from the ship?
(b) What is SONAR?

17. a. Valencies or charges of some ions are given below:

Hydrogen ion, H + = + 1	Oxide ion, O2- = - 2
Aluminum ion, Al 3+ = 3+	Nitride ion, N3- = 3-
Calcium ion, Ca 2+ = 2+	Hydroxide ion, OH- = 1-
Sodium ion, Na+ = +1	Carbonate ion, CO2- 3 = 2-

Using the above information, write down the chemical formulae of the following:
(i) Aluminium oxide (ii) Calcium nitride
(iii) Calcium hydroxide (IV) Sodium carbonate

b. Why is it not possible to see an atom with naked eyes?

18. Calculate the number of molecules of sulphur (S8) present in 16 g of solid sulphur. (Given: Atomic mass of S = 16)

19. (a) How physicians are able to pinpoint a particular disease?
(b) What is the main difference between communicable and non-communicable diseases?

20. (a) Give suitable term for the following: i. Animals carrying the infecting agents from a sick person to another potential host. ii. Preventive inoculation against a disease.

(b) Write the full form of AIDS. Name the virus that caused AIDS.

21. (a) What is the binomial system of nomenclature?
(b) Mention any two characteristic feature of phylum Echinodermata?

22. (a) Under which of the following conditions is a person most likely to fall sick?
(i) When she is recovering from malaria.
(ii) When she has recovered from malaria and is taking care of someone suffering from chicken pox.
(iii) When she is on a four-day fast after recovering from malaria and is taking care of someone suffering from chicken-pox. Why?
(b) Name any two infectious diseases against which vaccine is available.

23. (a) What is the amount of work done:
(i) By an electron revolving in a circular orbit of radius r round a nucleus?
(ii) By an electron moving with half the speed of light in empty space free of all forces?
(b) An electric pump is used to pump water from an underground sump to the overhead tank situated 20 m above. It transfers 2000 kg of water to overhead tank in 15 minutes. Calculate the power of pump.
(c) What do you mean by instantaneous power of a device?

Or

(a) Certain force acting on a 20 kg mass changes its velocity from 5m/s to 2m/s. Calculate the work done by the force.
(b) State two possible conditions under which the work done would be zero.
(c) If the kinetic energy of the body is increased by 300% then determine the percentage increase in the momentum.

24. (a) How is the valency of an atom related to its electronic configuration?
(b) Composition of the nuclei of two atomic species A and B is given as under: A B Protons = 6 Protons = 6 Neutrons = 6 Neutrons = 8 Calculate the mass numbers of A and B. What is the relation between the two species and which element or elements do they represent?

OR

(a) Why is helium inert?
(b) Why Na atom gets 1+ charge when it loses one electron?
(c) What are the limitations of Rutherford's model of the atom?
(d) Name the particles which determine the mass of an atom.

25. (a) Define water cycle.
(b) Draw water cycle in nature giving neat and labeled diagram.
(c) i. What is nitrogen fixation? ii. What is the effect of oxygen on nitrogen?

Or

(a) Define soil pollution.
(b) Name any two methods to prevent the loss of top soil.
(c) How is acid rain formed?

SECTION – B

26. The least count of a spring balance is 1 g wt. When it is suspended freely without any weight attached to the hook, the pointer is just in front of second small division on the scale. The zero error is
(a) -2 g wt
(b) +2 g wt
(c) Zero
(d) +1 g wt

27. A student noted down the following observations in his note book:
(i) Weight of the stone in air = 272 g wt
(ii) Weight of the stone in water = 192 g wt
(iii) Weight of the stone in salty water = 176 g wt The relative density of the salty water must be
a) 11/12
b) 11/17
c) 13/17
d) 6/5

28. A student lowers a body in a liquid filled in a container. He finds that there is a maximum apparent loss in weight of the body when
(a) It just touches the surface of the liquid.
(b) It is completely immersed in the liquid.
(c) It is partially immersed in the liquid.
(d) It is partially immersed and also touches the sides of the container.

29. An object exerts a force F on a surface of surface area A. The pressure P acting on the surface is given by
(a) P = F/A (b) P = A/F (c) P=FA (d) P = F/A2 30. In the experiment of verification of reflection of sound, the incident sound is directed along
(a) Axis of tube.
(b) Normal to the axis of the tube.
(c) At an angle of 30 from the axis of the tube.
(d) At an angle of 45 from the axis of the tube.

30. Which principle tells us about the decrease in weight of a body when immersed in a liquid?
(a) Pascal's law
(b) Avogadro's law
(c) Boyle's law
(d) Archimedes' law

31. Sound waves in air are:
(a) Longitudinal waves
(b) Transverse waves
(c) Shock waves
(d) Radio waves

32. The thread used to tie a solid should be
(a) As fine as possible
(b) Fine but strong enough
(c) Thick
(d) A metallic wire

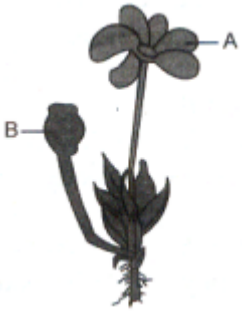
33. If we want to determine the volume of a solid by immersing it in water, the solid should be
(a) Any solid
(b) Heavier than water
(c) Insoluble in water
(d) Heavier than water and insoluble in it

34. A metallic disc is gently placed on sand and disc exerts a pressure on sand. If another disc of same radius and mass is gently placed over the first metal disc, then
(a)Pressure is doubled.
(b)Pressure remains unchanged.
(c) Pressure is reduced to half.
(d)Pressure is quadrupled.

35. Which of the following statement is wrong?
(a)Sound travels as waves.
(b)Sound can be reflected.
(c) Sound is a form of energy.
(d)Sound travels faster in vacuum than in air.

36. Thallophyta is a group of plants which:
(a)Bear flowers
(b)Have well developed roots, stem and leaves.
(c) Do not have well differentiated body.
(d)Have naked seeds.

37. A student carefully observes the parts labeled ‘A' and 'B' in the given diagram and classifies the plant correctly as:



(a) a bryophyte
(b) a pteridophyte
(c) a gymnosperm
(d) an angiosperm

38. Rudra, Rehman, Shweta and Parol were given a specimen of fern for recognising the main characters of

pteridophyta. Each one wrote four characters in favour of answer. Who gave the right answer?

Name of student	Root	Stem	Leaf	Reproductive organ
(a) Rudra	Adventitious	Rhizome	Impertipinnate compound leaf	In sori
(b) Rehman	Tap roots	Corm	Pertipinnate compound leaf	In capsule
(c) Shweta	Fibrous roots	Bulb	Simple leaf	Embedded in leaf
(d) Parol	Contractile roots	Tuberous	Sessile leaf	No organ

39. Which animal belongs to phylum Arthropoda?

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

40. A specimen of a fish was given to students to identify the externally visible chordate feature in it. The student would look for
(a) Operculum
(b) Notochord
(c) Dorsal tubular nerve cord
(d) Post anal tail

41. Given below are pictures of two animals A and B belonging to