SUMMATIVE ASSESSMENT

SCIENCE

CLASS -IX

Time: 3 hrs. Max. Marks: 90

General Instructions:

(i) The question paper comprises of three sections A, B and C. You are to attempt all the sections.

(ii) Question numbers 1 to 3 in Section A are one-mark question. These are to be answered in one word or in one sentence.

(iii) Question numbers 4 and 5 in Section A are two marks questions. These are to be answered in about 30 words.

(iv) Question numbers 6 to 16 in Section A are three marks questions. These are to be answered in about 60 words.

(v) Question numbers 17 to 21 in Section A are three marks questions. These are to be answered in about 70 words.

(vi) Section B has three OTBA questions. Question number 22 is of two marks, question numbers 23 is of three marks and question number 24 is of five marks.

(vii) Question numbers 25 to 33 in Section C- are multiple choice questions based on practical skills and each question carries one mark.

(vii) Question numbers 34 to 36 in Section-C are explanatory questions are based on practical skills and each question carries two marks.

SECTION-A

1. State the law of conservation of mass.

2. Name a device which converts electrical energy to mechanical energy.

3. Which isotope of uranium is used in nuclear field?

4. Write the meaning of formula unit mass. Calculate the formula unit mass of a compound, $Na_2S_2O_3$.

(Given atomic mass of Na = 23u; S = 32u; O =16u)

5. State the difference between density and relative density. Relative density of gold is 19.3. If the mass of one cubic metre and density is 1000 kg, find the density of gold in SI units.

6. List three conclusions drawn by Rutherford from his α - particle scattering experiment. State three features of nuclear model of an atom put forward by Rutherford.

7. Composition of the nuclei of two atomic species A and B are given below:

	A	**B**
Protons	6	6
Neutrons	6	8

(a) State the mass numbers of A and B.
(b) What is the charge on the atoms A and B?
(c) State the relationship between the two species.

8. List any two basis of five kingdom classification proposed by Robert Whittaker. Mention in brief the basis of classification between
(a) bacteria and fungi
(b) plants and animals.

9. Raman lives in a coastal village. He is the son of a fisherman. Whenever any unwanted animal comes in the net, instead of killing it, he puts it back in the sea.
Answer the following questions based on the above information:
(a) What would have happened, had he killed those animals?
(b) Give one reason to justify that Raman's action is environment friendly.
(c) How can you contribute in the preservation of flora and fauna around you? Mention any two steps.

10. There are lots of advertisements through sign boards and mass media about the childhood immunization under the Public Health Programme. State in brief the principle behind immunization. List three infectious diseases against which children are immunized in our country.

11. State the meaning of 1 pascal. A boy of mass 40 kg is standing on loose sand. If the area of his feet is 0.04 m^2, calculate the pressure exerted by the boy on the sand. (g=10 ms^{-2})

12. (a) 'Lactometers are used to determine the purity of a sample of milk'. State the principle on which this instrument is based on.

(b) Write two factors on which the buoyant force acting on a body when the immersed in a liquid depends.

13. Distinguish between positive work and negative work. When you lift an object up, two forces act on it. Identify these forces. Which one of the two does:

(a) positive work? (b) negative work?

14. Define power. Derive its SI unit. An electric bulb is rated 10W. What does it mean? What is the energy consumed in joules if it is used for 5 minutes?

15. State in brief how sound is produced and how it is transmitted through a medium and received by our ears. Name the type of waves responsible for the vibrations of our eardrum.

16. (a) Antibiotics are successful in curing bacterial infections but do not care viral infections. Why?
(b) Which system of our body is activated in response to infection and how it responds?
(c) Name any two organisms from which antibiotic could be extracted?

17. (a) (i) List two conditions essential for good health.
(ii) Healthy balanced diet helps in preventing diseases. How?
(b) State in tabular form the method of transmission of each of the following of each of the following diseases:
(i) Cholera (ii) HIV-AIDS (iii) Malaria (iv) Pneumonia

18. Define the following terms:
(a) One mole of a species
(b) Gram atomic mass
Calculate the number of molecules of Sulphur (S_8) present in 512g of solid Sulphur. Given, atomic mass of S = 32u; Avogadro number (N_0) = 6.022×10^{23} per mol.

19. A person enters a museum and observe the animal specimens. He looks at the one marked 'Salamander' and calls it a "Lizard". How will you explain to him that Salamanders and Lizards belong to two different classes? List four distinguishing features and also give one example each of the other members of the above two classes.

20. Define potential energy. Derive an expression for the gravitational potential energy of an object of mass 'm' at a height 'h' above the earth's surface. A ball of mass 0.25 kg is moving horizontally with a uniform velocity of 25 ms^{-1}. Calculate the kinetic energy possessed by the ball.

21. Define the following terms and state their SI units:
(a) Wavelength (b) Frequency (c) Amplitude
Derive a relationship to show how the wavelength and frequency of a sound wave are related to its speed.

SECTION-B

22. OTBA
23. OTBA
24. OTBA

SECTION-C

25. A student noted down the following precaution for the experiment "To verify the law of conservation of mass in a chemical reaction."

(i) The spring balance should be held vertical while in use.
(ii) Before marking use of the spring balance it must be ensured that its pointer is at zero mark.
(iii) The reading of the balance should be noted only when its pointer comes to rest.
(iv) Mixing of two solutions should be done quickly.
(v) Chemical reaction should be exothermic.

The precautions which need modifications are:
(a) (i) and (iii)

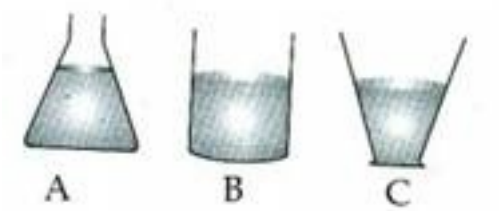
(b) (ii) and (iii)
(c) (iii) and (iv)
(d) (iv) and (v)

26. Four students A, B, C and D observed roots and leaves of gram and reported as under:
(a) Fibrous root and reticulate venation
(b) Fibrous root and parallel venation
(c) Tap root and reticulate venation
(d) Tap root and parallel venation

27. The sequence of developmental stages during the life cycle of a mosquitoes may be represent as:
(a) egg, pupa, larva, adult
(b) egg, larva, pupa, adult
(c) larva, egg, pupa, adult
(d) larva, pupa, egg, adult

28. The weight of a body measured in tap water and salted water are W_a and W_b respectively, then:
(a) $W_a = W_b$ (ii) $W_a > W_b$ (iii) $W_a < W_b$ (iv) $W_a = 2W_b$

29. Using a spring balance a given solid is weighing in the air. It is then weighed by immersing fully in water in each of the three vessels water as shown below the apparent weight of the solid will be:



(a) Least in A
(b) Least in B
(c) Least in C
(d) Equal in all

30. Ritu took a cuboid of weight 20N and of face area of respective faces f_1, f_2 and f_3 as $1\times10^{-2}m^2$, $0.64\times10^{-2}m^2$ and $0.16\times10^{-2}m^2$. She observed the depression produced on

sand by placing it on different faces successively on sand. She would observe that the pressure exerted on sand is

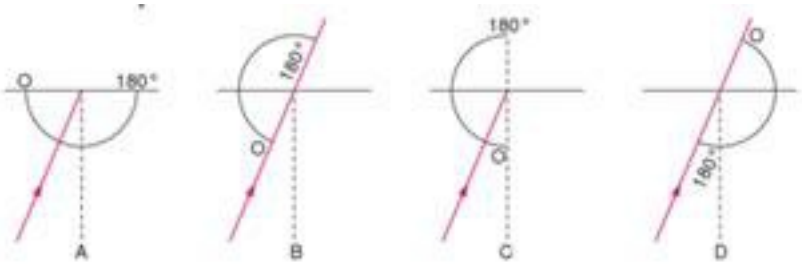
(a) maximum when placed on face f_1.

(b) maximum when placed on face f_2.

(c) maximum when placed on face f_3.

(d) same in each case.

31. In order to measure the angle of incidence, the correct position of the protractor (Dee) is shown in the set up:



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

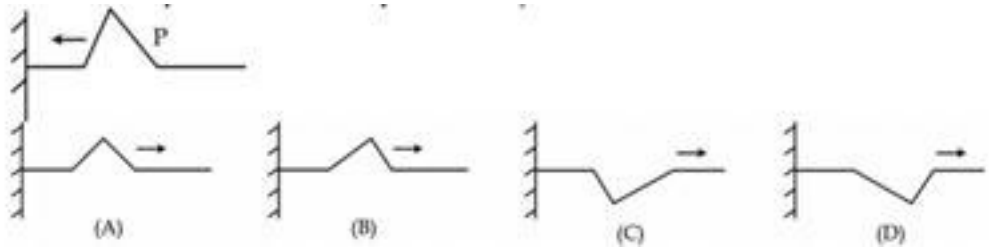
32. A pulse was created in a string/slinky of length 4m by a group of 4 students. They observed that it returned after reflection, at the point of creation 6 times in 10 seconds and calculated the speed as follows:

Student	A	B	C	D
Speed in m/s	0.4	2.14	4.8	9.6

The correct speed was calculated by the student

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

33. The figure given below shows an incident pulse P reflected from a rigid support. Which out of A, B, C, D represent the reflected pulse correctly.



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

34. While doing the experiment on laws of reflection of sound four students Rahul, Rajesh, Ranjit and Ramesh made observations in the following manner.
Rahul: For moving the incident wave 10° towards the normal with respect to the sound reflecting board the reflected wave moves 10° away from the normal.
Rajesh: For moving the incident wave 10° towards the normal with respect to the sound reflecting board the reflected wave moves through the same angle towards the normal.
Ranjit: For moving the incident wave 10° towards the normal with respect to the sound reflecting board the reflected wave norms 20° away from the normal.
Ramesh: For moving the incident wave 10° towards with the normal with respect to the sound reflecting board the reflected wave towards 20° towards the normal.
Who made correct observation?

35. Sodium carbonate reacts with ethanoic acid to form sodium ethanoate, carbon dioxide and water. In the experiment, 5.3g of sodium carbonate reacted with 6g of ethanoic acid to form 8.2g of sodium ethanoate, 2.2g of carbon dioxide and 0.9g of water. Show that this data verifies the law of conservation of mass.

36. Four students observed the given specimen carefully and recorded its one adaptive feature and phylum as given alongside. What is the correct identification of the adaptive feature and phylum of the given animal?