SPECTRA PRACTICE PAPER (2025-2026)
CLASS-IXth
SUBJECT: SCIENCE

DURATION: 3 HRS. **M MARKS:80**

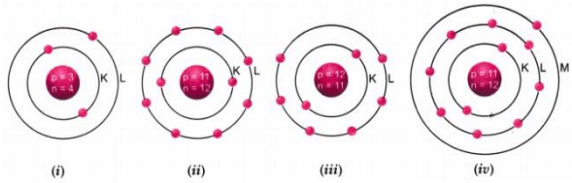
General Instruction:

1. This question paper consists of 39 questions in 5 sections.
2. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.

1.	**Section A** **It consists of 20 objective type questions carrying 1 mark each.** In the Rutherford scattering experiment alpha-particles are (a) H^+ (b) He^+ (c) He^{2+} (d) He	1
2.	Ram Swims in a 90m long pool, she covers 180m in one minute going either way. The average velocity is - a) 30m/s b) zero c) 180m/s d) 90m/s	1
3.	Heat affects the formation of solution because change in temperature cause: (a) Increases the size of water particles (b) Changes the shape of water molecules. (c) Changes the energy of the particles. (d) Decreases the intermolecular spaces between the particles.	1
4.	Brass is a (a) Element (b) Homogeneous mixture (c) Heterogeneous mixture (d) Compound	1
5.	Suppose a boy is enjoying a ride on a marry-go-round which is moving with a constant speed of 10 m/s. It implies that the boy is: (a) At rest (b) Moving with no acceleration (c) In accelerated motion (d) Moving with uniform velocity	1
6.	What is the work done by an object in a circular path? (a) 0 (b) 30 (c) 60 (d) None of the above	1

7.	The mass ratio of N and H in NH_3 is (a) 1:3 (b) 14:3 (c) 3:14 (d) 18:3	1
8.	Lysosomes arises from e) Nucleus f) Golgi apparatus g) Endoplasmic reticulum h) Mitochondria	1
9.	If the weight of a 60kg mass is W on moon, then W is equal to (a) 48N (b) 80N (c) 96N (d) 108N	1
10.	The Energy currency of the cell is- (a) AMP (b) GTP (c) ATP (d) ADP	1
11.	What type of mixture is air? a) Heterogeneous mixture b) Homogeneous mixture c) Compound d) Pure substance	1
12.	Identify the incorrect statements. (a) Atoms of the same elements may have different masses (b) Atoms of different elements may have the same masses. (c) Atoms have been found to be made up of sub atomic particles. (d) None of these	1
13.	Plants can be made disease resistant by- (a) Both hybridization and genetic modification (b) Hybridization only (c) Genetic modification only (d) Use of antibiotic	1
14.	Tyndall effect is observed in which one of the following? (a) True Solution (b) Starch + water (d) NaCl + water (e) Alum+ water	1

15.	Elements with valency 1 are (a) Always non-metal (b) Either metal or nonmetal (c) Always metalloids (d) Always Metals	1
16.	Which of the following is not the character of mechanical waves? (a) Propagation depends on the elasticity of medium (b) Can be both transverse and longitudinal (c) Requires a material medium (d) Speed is comparatively higher	1
17.	For question numbers 17 to 20 two statements are given For Q.No.17 to 20 two statements are given one labeled as Assertion (A) and the other labeled as Reason (R). Select the correct option to these questions from: a) Both A and R are true and R is the correct explanation of A. b) Both A and R are true but R is not the correct explanation of A. c) A is true but R is false. d) A is false but R is true. Assertion (A): A boy goes from A to B with a velocity of 20m/min and comes back from B to A with a velocity of 30 m/min. The average velocity of the boy during the whole journey is zero. Reason(R): The ratio of speed to the magnitude of velocity when the body is moving in one direction is equal to one.	1
18.	Assertion (A): Naphthalene, camphor, iodine, ammoniumchloride are some common examples of the substances which undergo sublimation. Reason(R): All solids are first converted to liquids and then gases on heating.	1
19.	Assertion (A): Dendrite is a single, long cylindrical process which forms fine branches terminally. Reason(R): It consists of short processes arising from the cyton.	1
20.	Assertion (A): For noble gases, valency is zero. Reason(R): Noble gases have 8 valence electrons.	1
	Section B	
21.	**It consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should in the range of 30 to 50 words.** A light and a heavy object have the same momentum. Find out the ratio of their kinetic energies. Which one has a larger kinetic energy?	2
22.	Why steam is more harmful for human body than boiling water in case of burn? Give reason.	2
23.	How does speed of sound changes with (a) temperature of medium (b) Physical state of medium.	2

24.	The temperature remains constant during a change of state. why?	2
25.	A stone of 1kg is thrown with a velocity of 20m per second across the frozen surface of a lake and comes to rest after travelling a distance of 50 m. What is the force of friction between stone and the ice?	2
26.	In the atom of an element 'Z', 5 electrons are present in the outermost shell. It requires noble gas configuration by accepting requisite number of electrons, then what would be the charge on the ion so formed? Write the formula of the compound which will be formed when 'Z' reacts with Na atom.	2
27.	**Section C** It consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should in the range of 50 to 80 words. i. What is meant by frequency of sound waves? ii. Give the range of frequencies of sound waves that an average human ear can detect. iii. A source of wave produces 20 crests and 20 troughs in 0.2s.The distance between a crest 50 cm. Find the wavelength and frequency of wave.	3
28.	Identify the Na^+ ion from the following figures. What is the valency of sodium atom? Give reason.  (i) (ii) (iii) (iv)	3
29.	Explain why a cricketer moves his hands backwards while holding a catch.	3
30.	Derive expression for Kinetic Energy of an object?	3
31.	i. Which characteristic of sound helps to identify your friend by his voice while sitting with others in a dark room? ii. State the relationship between frequency and time period of a wave. The wavelength of vibrations produced on the surface of the water is 4cm.If the wave velocity is 20m/s find the frequency and Time period.	3
32.	Differentiate between meiosis and mitosis cell division.	3
33.	Differentiate between three types of muscle fibres.	3
34.	**Section D** **It consists of 3 Long Answer type questions carrying 05 marks each. Answer to these questions should be in the range of 80 to 120 words.** What is the difference between the mass and the weight of an object?	5

35.	i. The lysosomes are they termed as suicidal bags. Why? ii. What happens to the dry raisins, when placed in plain water for sometime? State the reason for whatever is observed. What would happen if these raisins are then placed in concentrated salt solution?	5
36.	i. Distinguish among the true solution, suspension and colloid in a tabular form under the following heads: a. Stability b. Tyndall effect c. Type of mixture ii. Give the expression for the concentration of a solution. How will you prepare a 10%solution of glucose by mass in the water?	5
37.	**Section E** **It consists of 3 case-based units of assessment of 04 marks each with sub-parts.** The tissue is a group of cells having similar origin, structure & function. Study of tissues is called Histology. In unicellular organism (Amoeba) single cell performs all basic functions, whereas in multi-cellular organisms (Plants and Animals) shows division of labour as Plant tissue & Animal tissues. Plant tissues are two types Meristematic & Permanent tissue. Meristematic tissue: The meristems are the tissues having the power of cell division. It is found on that region of the plant which grows. Following are the types of Meristems: The Apical meristems-It is present at the growing tip of the stem and roots and increases the length. The lateral meristems-It present at the lateral side of stem and root(cambium)and increases the girth. The intercalary meristems-It present at inter nodes or base of the leaves and increases the length between the nodes. i. Which tissue help in the secondary growth of the plant? ii. In what region of the plant does intercalary meristematic growth occur? iii. Where does meristematic tissue mostly found in a plant? OR Iii. Why is cambium called lateral meristem?	 1 1 2 2

38.	Read the following text carefully and answer the questions that follow: A farmer applied cow dung manure in one part of his field and chemical fertilizer (urea) in another. He observed that manure improved soil texture, while fertilizer gave instant nutrient supply. 1. Manure improves: (a) water retention (b) soil texture (c) soil fertility(d) all 2. Fertilizers supply: (a) humus (b) specific nutrients (c) organic matter(d) none 3. Excess fertilizer use causes: (a) eutrophication (b) water pollution (c) soil degradation(d) all 4. Organic manure is obtained from: (a) both (b) plants (c) animals(d) none	1 1 1 1
39.	Read the following text carefully and answer the questions that follow: A suspension is a heterogeneous mixture in which the solute particles do not dissolve but remain suspended throughout the bulk of the medium. Particles of a suspension are visible to the naked eye. The particles of a suspension scatter a beam of light passing through it and make its path visible. Due to the relatively smaller size of particles, as compared to that of a suspension, the mixture appears to be homogeneous. The scattering of a beam of light is called the Tyndall effect. The components of a colloidal solution are the dispersed phase and the dispersion medium. The solute-like component or the dispersed particles in a colloid form the dispersed phase, and the component in which the dispersed phase is suspended is known as the dispersing medium. i. Differentiate between Dispersed phase and Dispersion medium? ii. Differentiate between Homogeneous and Heterogeneous mixture? iii. What is emulsion ? OR iii. Give an example of solid sol.	1 1 2 2