

SPECTRA PRACTICE PAPER(2024-25)

SPECTRA CLASSES

CLASS – 9TH

SUBJECT – SCIENCE

TIME – 3 HR.**MM: 80****General Instruction:**

1. This question paper consists of 39 questions. All questions are compulsory.
2. This question paper is divided into five Sections - A, B, C, D and E.
3. Section A Question numbers 1 to 18 are multiple choice questions (MCQs) and questions numbers 19 and 20 are Assertion - Reason based questions of 1 mark each.
4. Section B, Question numbers 21 to 26 are very short answer (VSA) type questions. Carrying 2 marks each.
5. Section C, Question numbers 27 to 33 are short answer (SA) type questions. Carrying 3 marks each..
6. Section D, Question numbers 34 and 36 are long answer (LA) type questions. Carrying 5 marks each.
7. Section E, Question numbers 37 and 39 are case-study based integrated question carrying 4 marks each.
9. Draw neat diagrams wherever required. .
10. Use of calculators is NOT allowed.

Section A		
1	Which of the following is not a chemical change? 1. Changing of milk into curd 2. Freezing of water 3. Burning of paper 4. Mixing of iron filling & sand a) (B) and (D) are correct b) All of these c) (A) and (B) are correct d) (A), (B) and (C) are correct	[1]
2	When water boils its temperature a) keeps on increasing as long as heating is continued. b) may decrease or increase depending on the place where the experiment is being carried out. c) remains constant d) keeps decreasing then increases.	[1]
3	An element P forms an oxide with formula PO. The formulae of its sulphate and phosphate will be respectively a) $P_2(SO_4)_3$ and PPO_4 b) PSO_4 and $P_2(PO_4)_3$ c) $P(SO_4)_2$ and $P(PO_4)_2$ d) PSO_4 and $P_3(PO_4)_2$	[1]

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4	<p>The formula for quicklime is</p> <p>a) $\text{Ca}(\text{OH})_2$ b) CaCl_2 c) CaO d) CaCO_3</p>	[1]									
5	<p>There are two atomic species X and Y, such that</p> <table border="1" style="margin-left: 20px;"> <thead> <tr> <th>Atomic species</th> <th>X</th> <th>Y</th> </tr> </thead> <tbody> <tr> <td>Protons</td> <td>8</td> <td>8</td> </tr> <tr> <td>Neutrons</td> <td>8</td> <td>10</td> </tr> </tbody> </table> <p>Which of the following statements is true about X and Y?</p> <p>a) X and Y have different chemical properties. b) X and Y are isobars. c) X and Y have different physical properties. d) All are correct.</p>	Atomic species	X	Y	Protons	8	8	Neutrons	8	10	[1]
Atomic species	X	Y									
Protons	8	8									
Neutrons	8	10									
6	<p>In neutral atoms, number of electrons are equal to number of _____.</p> <p>a) Mass number b) Protons c) Neutrons d) Nuclear charge</p>	[1]									
7	<p>Which of the following is known as the "physical basis of life"?</p> <p>a) Nucleolus b) Mitochondria c) Gene d) Protoplasm</p>	[1]									
8	<p>Plasmolysis in a plant cell is defined as</p> <p>a) Shrinkage of nucleoplasm b) Shrinkage of cytoplasm in hypertonic medium c) Break down (lysis) of plasma membrane in hypotonic medium d) shrinkage of nucleolus</p>	[1]									
9	<p>Lysosomes are the reservoirs of:</p> <p>a) steroid hormones b) glycogen c) digestive enzymes d) oxidising enzymes</p>	[1]									
10	<p>Chlorenchyma and aerenchyma are modified/specialised</p> <p>a) phloem b) parenchyma c) sclerenchyma d) collenchyma</p>	[1]									

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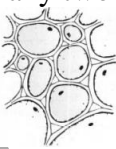
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11	A nail is inserted in the trunk of a tree at a height of 1 metre from the ground level. After 3 years the nail will a) move downwards b) remain at the same position c) move sideways d) move upwards	[1]
12	A long tree has several branches. The tissue that helps in the side ways conduction of water in the branches is a) collenchyma b) xylem vessels c) xylem parenchyma d) parenchyma	[1]
13	In which of the following cases of motion, the distance moved and the magnitude of displacement are equal? a) The earth is revolving around the Sun b) The pendulum is moving to and fro c) A car is moving on a straight road d) A car is moving in a circular path	[1]
14	A wooden block is floating in water contained in a beaker. During the free fall of the beaker, the upthrust on the block will be a) Slightly less than the weight of the block. b) Equal to the weight of the block c) Zero d) Slightly more than the weight of the block.	[1]
15	Even though stone also attracts earth towards itself, the earth does not move: a) Force exerted by stone is less b) Because of lesser mass of stone c) Because of greater mass of earth d) Force exerted earth is large	[1]
16	The ratio of weight to mass of the body is _____. a) zero b) 9.8 c) 1.0 d) 10	[1]
17	A truck and a car having equal kinetic energies are stopped by applying equal retarding force. If S_1 and S_2 are the distances covered by truck and car respectively, before stopping, then a) $S_1 < S_2$ b) $S_1 = S_2$ c) Cannot say d) $S_1 > S_2$	[1]

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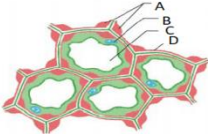
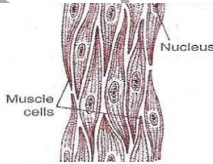
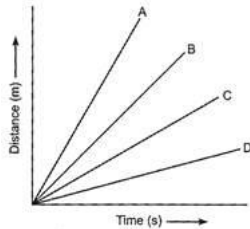
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18	Two sounds of same pitch and loudness differ in their: a) note b) frequency c) tone d) quality	[1]
19	Assertion (A): The interconversion of state occurs without a change in composition but there is a change in the chemical nature of the substance. Reason (R): During burning one substance reacts with another to undergo a chemical composition. 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.	[1]
20	Assertion (A): Newton's third law applies to all types of forces. e.g. gravitational, electric, or magnetic forces, etc. Reason (R): Newton's third law of motion is applicable only when bodies are in motion. 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.	[1]
Section B		
21	Explain why should we wear cotton clothes in summer.	[2]
22	How are a sol, a solution and a suspension different from each other?	[2]
23	Differentiate between rough and smooth endoplasmic reticulum. How is the endoplasmic reticulum important for membrane biogenesis?	[2]
24	1. A plant tissue is observed under a microscope, as shown in the figure below. Identify the tissue. 2. State the characteristic features of these cells. 3. Name any two parts of the plant, where such cells are present. 	[2]
25	An automobile vehicle has a mass of 1500 kg. What must be the force between the vehicle and road if the vehicle is to be stopped with the negative acceleration of 1.7 ms^{-2} ?	[2]

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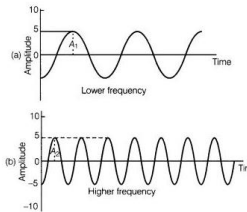
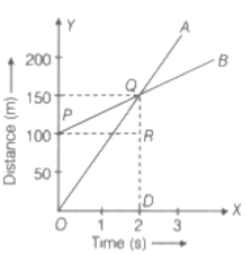
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26	"If we excessively use pesticides to safeguard the crop from blight, it may cause long term damage to the mankind" Justify the statement.	[2]																				
Section C																						
27	Differentiate between homogeneous and heterogeneous mixtures with examples.	[3]																				
28	<p>The following data represents the distribution of electrons, protons and neutrons in atoms of four elements A,B, C, D.</p> <table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Element</th> <th>Protons</th> <th>Neutrons</th> <th>Electrons</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>10</td> <td>10</td> <td>10</td> </tr> <tr> <td>B</td> <td>11</td> <td>12</td> <td>11</td> </tr> <tr> <td>C</td> <td>12</td> <td>12</td> <td>12</td> </tr> <tr> <td>D</td> <td>13</td> <td>14</td> <td>13</td> </tr> </tbody> </table> <p>Solve the following questions.</p> <ol style="list-style-type: none"> Write the electronic distribution of atoms of elements A and D. Element A is an inert gas. Why? What is the valency of element C? 	Element	Protons	Neutrons	Electrons	A	10	10	10	B	11	12	11	C	12	12	12	D	13	14	13	[3]
Element	Protons	Neutrons	Electrons																			
A	10	10	10																			
B	11	12	11																			
C	12	12	12																			
D	13	14	13																			
29	<p>Study the following figure and answer the following questions:</p>  <ol style="list-style-type: none"> Identify the type of tissue shown in the given figure. Write the labellings - A, B, C, D. Is the given type of tissue in the figure is flexible or not? Give a reason for your answer. What are the functions of the tissue shown in the given figure? 	[3]																				
30	<p>Observe the following diagram and answer the following questions:</p>  <ol style="list-style-type: none"> Identify the type of tissue mentioned in the given figure. Write any two characteristics of the type of tissue mentioned in the given figure. Where is the given tissue found in our body? What is the nature of the given tissue mentioned in the diagram? 	[3]																				
31	<p>Four cars A, B, C and D are moving on a leveled road. Their distance versus time graphs are shown in figure. Which car is the slowest.</p> 	[3]																				

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32	<p>Shyam and his friends were playing with a catapult (gulel) in his garden. Several mangoes were dislodged and fell with the help of catapult. One of his friend was aiming the catapult on a bird. Shyam prevented him from doing so.</p> <ol style="list-style-type: none"> Name the energy possessed by the stretched string of the catapult. What will happen if the stone is thrown without stretching the string of a catapult? Why did Shyam prevent his friend from aiming at the bird? Which quality is highlighted in Shyam's behaviour? 	[3]	
33	<p>Observe the following graphical diagram and answer the following questions:</p> <ol style="list-style-type: none"> What is represented by the graphical diagram shown above? Which wave characteristic determine the pitch of sound? What is the relationship between pitch and frequency? 		[3]
Section D			
34	<p>Write the chemical formulae of the following:</p> <ol style="list-style-type: none"> Magnesium chloride Calcium oxide Coppennitrate Aluminium chloride Calcium carbonate. 	[5]	
35	<ol style="list-style-type: none"> State what will happen when human red blood cells are placed in a hypotonic salt/sugar solution. Why plant cell shrinks when kept in a hypertonic solution. Why lysosomes are known as suicidal bags? 	[5]	
36	<p>The distance - time graph of the two trains is shown in the figure. The trains start simultaneously in the same direction.</p> <ol style="list-style-type: none"> How much A is ahead of B when the motion starts? What is the speed of B? When and where will A catch B? What is the difference between speeds of A and B? Is the speed of both the trains uniform or non - uniform? Justify your answer. 		[5]

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Section E		
37	<p>Read the following text carefully and answer the questions that follow:</p> <p>Gases are highly compressible as compared to solids and liquids. The liquefied petroleum gas (LPG) cylinder that we get in our home for cooking or the oxygen supplied to hospitals in cylinders is compressed gas. Compressed natural gas (CNG) is used as fuel these days in vehicles. The liquid takes up the shape of the container in which they are kept. Liquids flow and change shape, so they are not rigid but can be called fluid. Solids and liquids can diffuse into liquids. The aquatic animals can breathe underwater. The rate of diffusion of liquids is greater than solid.</p> <ol style="list-style-type: none"> Why Compressed natural gas (CNG) is used as fuel these days in vehicles? (1) How can we say that liquid do not have their fixed shape? (1) How do aquatic animals breathe under water? (2) <p style="text-align: center;">OR</p> <p>What is diffusion? (2)</p>	[4]
<p>The diagram shows three states of matter: (a) Solid, represented by a rigid cube of particles and a metal block; (b) Liquid, represented by particles in a disordered arrangement and a beaker of water; (c) Gas, represented by widely spaced particles and a gas cylinder.</p>		
38	<p>Read the following text carefully and answer the questions that follow:</p> <p>The force with which a planet attracts an object towards it is called the weight of the object on that planet. The weight of an object on the surface of the earth is W newton. The object is now taken to a planet whose mass is $\frac{1}{4}$ times the mass of earth and radius is $\frac{1}{8}$ times the radius of the earth. It is found that the weight of the object on the planet is different than the weight on the earth. g is the acceleration due to gravity on the earth.</p> <ol style="list-style-type: none"> What is weight and how is it different from mass? (1) Why is the weight of an object less on the moon than on earth?(1) What is the value of acceleration due to gravity on the planet?(2) <p style="text-align: center;">OR</p> <p>On what factors do the weights of an object depend?(2)</p>	[4]
39	<p>Read the following text carefully and answer the questions that follow:</p> <p>A farmer has grown wheat on his field consecutively two times but when the third time he grows wheat on the same field the quality of the wheat was not up to the desired level. To improve the quality of his crops he uses chemical fertilizer but the condition of the crop became worse. One of his friends told him to grow a different variety of crops after wheat so as to grow two or three crops in a year with good harvests and use biological manure in place of chemical fertilizers which he prepares by animal excreta and plant waste to get the good quality of crops. He also told him about the good storage of his grains to protect them from the biotic and abiotic losses as in agriculture storage losses are very high.</p> <ol style="list-style-type: none"> What are the bases on which the next crop is decided to grow in the same field also name the process? (1) What is the advantage of using biological manure over chemical fertilizers?(1) Is it possible for the farmer to grow two crops at the same time if yes what is the requirement?(2) <p style="text-align: center;">OR</p> <p>Enlist the biotic and abiotic losses?(2)</p>	[4]

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