

**KENDRIYA VIDYALAYA SANGATHAN, LUCKNOW REGION**

**SESSION ENDING EXAMINATION (2022-23)**

**Subject - Science**

**Class - IX**

**Time Allowed: 3 hours**


**Max. Marks: 80**

**General Instructions:**

- i. This question paper consists of 39 questions in 5 sections.
- ii. All questions are compulsory. However, an internal choice is provided in some questions. A student is expected to attempt only one of these questions.
- iii. Section A consists of 20 objective type questions carrying 1 mark each.
- iv. Section B consists of 6 Very Short questions carrying 02 marks each. Answers to these questions should be in the range of 30 to 50 words.
- v. Section C consists of 7 Short Answer type questions carrying 03 marks each. Answers to these questions should be in the range of 50 to 80 words.
- vi. Section D 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.
- vii. Section E consists of 3 source-based/case-based units of assessment of 04 marks each with sub-parts.

**SECTION A**

(Select and write one most appropriate option out of the four options given for each of the questions 1- 20)

1.	Which macro-nutrient is required in the largest quantity by the plant? (a) Nitrogen (b) Molybdenum (c) Copper (d) Potassium	1
2.	Which of the following properties does not describe a compound? (a) It is composed of two or more elements (b) It is a pure substance. (c) It cannot be separated into constituents by physical means (d) It is mixed in any proportion by mass	1
3.	Which of the statements is incorrect about the physical change? (a) There is no gain or loss of energy. (b) It is permanent and Irreversible (c) Composition of the substance remains the same (d) No new substance is formed.	1
4.	The management and production of fish is called (a) Pisciculture (b) Apiculture (c) Sericulture (d) Aquaculture	1
5.	Sound waves in air is an example of _____ (a) Longitudinal wave (c) Electromagnetic wave (b) Transverse wave (d) None of the options	1
6.	The sum of kinetic energy and potential energy is _____ (a) Mechanical energy (c) Potential energy (b) Thermal energy (d) Kinetic Energy	1
7.	Select the incorrect sentence (a) Cartilage is a form of connective tissue (b) Tendons are non-fibrous tissue and fragile. (c) Two bones are connected with ligaments (d) Blood has matrix containing proteins, salts and ligaments	1
8.	Which of the following in figure does not represent Bohr's model of an atom correctly? <div style="text-align: center;">  <p>(i) (ii) (iii) (iv)</p> </div> (a) (i) and (ii) (b) (ii) and (iii) (c) (ii) and (iv) (d) (i) and (iv)	1
9.	Who discovered cell? (a) Himmiler (b) Robert Hooke (c) A V Leewenhoek (d) None of the these	1
10.	In plants, ..... tissues conduct food and water from one part of the plant to other parts. (a) Transport (b) Circulatory (c) Vascular (d) None of them	1
11.	A boy having weight of 36 kg on earth, what would be his weight on moon? (a) 36 kg (b) 18 kg (c) 12 kg (d) 6 kg	1
12.	When a body vibrates, it compresses the air surrounding and forms a high-density area known as (a) Refraction (b) Reflection (c) Rarefaction (d) Compression	1
13.	The S.I. unit of force is (a) Kgm/s (b) Kgm/s <sup>2</sup> (c) Newton (d) Newton-meter	1

14	The process by which water moves through a semi-permeable membrane from a region of high concentration to a region of lower concentration, thereby equalizing water concentration is called: (a) Evaporation                      (b) Diffusion                      (c) Osmosis                      (d) All of the above	1
15	A goalkeeper in a football game pulls his hands backwards after holding the ball shot at the goal. This enables the goalkeeper to (a) increase the rate of change of momentum (b) decrease the rate of change of momentum (c) increase the force exerted by the balls on the hands (d) exert larger force on the ball	1
16	Poultry farming is undertaken to raise following (i) Egg production                      (ii) Feather production                      (iii) Chicken meat                      (iv) Milk production (a) (i) and (iii)                      (b) (i) and (ii)                      (c) (ii) and (iii)                      (d) (iii) and (iv)	1
<b>NOTE:</b> Question No.17 to 20 are Assertion - Reasoning based questions. These consists of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below: (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 reason is true		
17	<b>ASSERTION:</b> Parenchyma cells help in storage of food. <b>REASON :</b> Parenchyma cells are the main seats of photosynthesis.	1
18	<b>ASSERTION:</b> Sugar and Salt both are easily dissolved in water. <b>REASON</b> – Sugar and Salt are solid hence it is easily dissolved in water.	1
19	<b>ASSERTION :</b> If the net external force on the body is zero, then its acceleration is zero. <b>REASON :</b> Acceleration does not depend on force.	1
20	<b>ASSERTION :</b> The mass of the total number of protons and neutrons is a measure of the approximate mass of an atom <b>REASON :</b> The mass of an electron is negligible.	1
<b>SECTION B</b>		
21	If you apply a net force of 3N on 1 kg box. What is the acceleration on box?	2
22	If the atomic number of an element X is 15 and mass number is 31. Find out the number of neutrons.	2
23	Why do we see water droplets on the outer surface of a glass containing ice cold water?	2
24	Write the main functions of cell wall.	2
25	A ball is thrown upward with a velocity of 100 m/s. Find the time taken to reach the ground.	2
26	If the small and big stones are dropped from the roof of a house simultaneously, they will reach the ground at the same time. Why?	2
<b>SECTION C</b>		
27	Write down the formulae of – (i) Ferrous sulphate                      (ii) sodium chloride                      (iii) sulphuric acid	3
28	(i) What is acceleration? (ii) A train starting from a railway station and moving with uniform acceleration attains a speed 40 km h <sup>-1</sup> in 10 minutes. Find its acceleration <b>OR</b> A bus starting from rest moves with a uniform acceleration of 0.1 m s <sup>-2</sup> for 2 minutes. Find (a) the speed acquired                      (b) the distance travelled	1 2
29	Write any 3 differences between Animal cell and Plant cell.	3

30	(i)	Suppose you and your friend are on the moon. Will you be able to hear any-sound produced by your friend? Justify your answer.	1
	(ii)	The frequency of a sources/ sound is 100 Hz. How many times does it vibrate in a minute?	2
31	(i)	Name the connective tissue which connects two bones.	1
	(ii)	Mention one region in the human body where adipose tissue is present and state one function of the tissue.	2
32	(i)	Which gas is called dry ice? Why?	1, 2
	(ii)	How does evaporation differ from boiling.	
33	Which of the following conditions will give the most benefits? Why?		3
	(i)	Farmers use high-quality seeds; do not adopt irrigation or use fertilisers	
	(ii)	Farmers use ordinary seeds, adopt irrigation and use fertilizer	
	(iii)	Farmers use quality seeds, adopt irrigation, use fertiliser and use crop protection measures.	
SECTION D			
34	(i)	Define one joule of kinetic energy?	1
	(ii)	A ball of mass 2kg is thrown up with a speed of 10m/s. find the kinetic energy of the ball at the time of throwing.	2
	(iii)	Also find the potential energy of the ball at the highest point?	2
	OR		
	(i)	Define one Joule of work.	1
	(ii)	Calculate the work done in lifting a box weighing 150 kg through a vertical height of 7 metres. (Take g = 10 ms <sup>-2</sup> )	4
35	If K and L shells of an atom are full, then what would be the total number of electrons in the atom? How will you find the valency of chlorine, sulphur and magnesium?		5
36	What is a neuron? Write the structure and functions of a neuron.		5
SECTION E			
Read the following passages (37 to 39) and answer the given questions:			
37	Plasma membrane or Cell membrane is the outermost covering of the cell that separates the contents of the cell from its external environment. The plasma membrane is flexible and is made up of organic molecules called lipids and proteins. The flexibility of the cell membrane also enables the cell to engulf in food and other material from its external environment. Such processes are known as endocytosis. The plasma membrane allows or permits the entry and exit of some materials in and out of the cell. It also prevents movement of some other materials. The cell membrane, therefore, is called a selectively permeable membrane. Some substances like carbon dioxide or oxygen can move across the cell membrane by a process called diffusion. There is spontaneous movement of a substance from a region of high concentration to a region where its concentration is low. Similar thing happens in cells – some substance like CO <sub>2</sub> (carbon dioxide is cellular waste and requires to be excreted out by the cell) accumulates in high concentrations inside the cell. In the cell's external environment, the concentration of CO <sub>2</sub> is low as compared to that inside the cell. As soon as there is a difference of concentration of CO <sub>2</sub> inside and outside a cell, CO <sub>2</sub> moves out of the cell, from a region of high concentration, to a region of low concentration outside the cell by the process of diffusion.		
	Water obeys the law of diffusion. The movement of water molecules through such a selectively permeable membrane is called osmosis. The movement of water across the plasma membrane is also affected by the amount of substance dissolved in water. Thus, osmosis is the net diffusion of water across a selectively permeable membrane toward a higher solute concentration.		
	i. The plasma membrane is made up of _____		
	(a) Proteins (b) Lipids (c) Proteins and Lipids (Lipoproteins) (d) none of above		
	ii. Which of the following substance is known as cellular waste?		
	(a) Oxygen (b) Nitrogen (c) Carbon dioxide (d) None of above		
	iii. The movement of a substance from the region of higher concentration to the region where its concentration is lower is called as _____		
	(a) Osmosis (b) Diffusion (c) Excretion of CO <sub>2</sub> (carbon dioxide) (d) All above		
	iv. Why cell membrane is known as selectively permeable membrane?		

