

Directorate of Education, GNCT of Delhi

Practice Paper (Session: 2023-24)

Class: IX

Subject: N. Science (086)

Duration: 3 hours

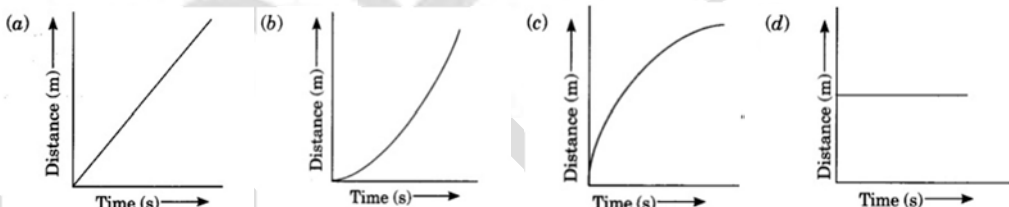
Maximum Marks: 80

General Instructions :

Read the following instructions very carefully and strictly follow them :

- (i) *This question paper comprises **39** questions. **All** questions are compulsory.*
- (ii) *This question paper is divided into **five** sections – **A, B, C, D** and **E**.*
- (iii) ***Section A** – Questions No. **1** to **20** are multiple choice questions. Each question carries **1** mark.*
- (iv) ***Section B** – Questions No. **21** to **26** are very short answer type questions. Each question carries **2** marks. Answer to these questions should be in the range of **30** to **50** words.*
- (v) ***Section C** – Questions No. **27** to **33** are short answer type questions. Each question carries **3** marks. Answer to these questions should be in the range of **50** to **80** words.*
- (vi) ***Section D** – Questions No. **34** to **36** are long answer type questions. Each question carries **5** marks. Answer to these questions should be in the range of **80** to **120** words.*
- (vii) ***Section E** – Questions No. **37** to **39** are of 3 source-based/case-based units of assessment carrying **4** marks each with sub-parts.*
- (viii) *There is no overall choice. However, an internal choice has been provided in some sections. Only one of the alternatives has to be attempted in such questions.*

SECTION-A		
Q. No.	Questions	Marks
1	The intermixing of particles of two different types of matter on their own is called: a) Osmosis b) Diffusion c) both a and b d) Transpiration	1
2	When 20 g of salt is dissolved in 1000ml of water, there is no increase in volume. This observation indicates that: a) particles of water have spaces between them into which salt particles fit. b) particles are continuously moving. c) particle of salt attracts each other. d) particles of water attract each other.	1
3	Which of the following can be categorised as colloid/s: i) mist ii) clouds iii) blood iv) aerated drink a) i,ii, and iii b) ii, iii, iv c) only iii d) only iv	1

4	The ions present in Al_2O_3 are: a) Al^{3+} ; O^{2-} b) Al^{3-} ; O^{2+} c) Al^{3+} ; O^{2+} d) Al^+ ; O^-	1
5	Hydrogen and Oxygen present in the molecule of water in ratio by mass is: a) 1:8 b) 2:1 c) 1:1 d) 1:2	1
6	Which of the following statements is correct about the structure of an atom? i. the atom is an indivisible particle ii. the atom as a whole is neutral iii. the whole mass of an atom is concentrated in the nucleus. Choose the right option among the following: a) i. and iii b) only ii c) only i d) ii. and iii	1
7	The number of valence electrons in any atom 'X' having $Z=13$ are: a) 3 b) 13 c) 15 d) 18	1
8	Golgi apparatus is necessary in the cell for: a) protein synthesis b) respiration c) photosynthesis d) packaging of proteins	1
9	Which of the following can perform photosynthesis? a) Aerenchyma b) Chlorenchyma c) Collenchyma d) Sclerenchyma	1
10	Which of the following graph shows that the object is at rest: 	1
11	The speed of a car is 18km/h , this can also be represented as: a) 5m/s b) 10m/s c) 15m/s d) $30/5\text{ms}^{-1}$	1
12	The athlete takes t seconds to go once around the circular path of radius r , the velocity v is given by: a) $v=2r/t$ b) $v=2\pi r/t$ c) $s=2\pi r/t$ d) $s=2r/t$	1
13	According to first law of motion, a body will remain at rest unless acted upon by: a) a balanced force b) an unbalanced force c) both a and b d) does not depend on force	1
14	The mass of a truck on the earth is 1200 kg , its mass on the moon will be: a) more than 1200kg b) less than 1200 kg c) equal to 1200kg d) 200 kg	1
15	The energy derived from a battery to run a toy originates from:	1

	a) atomic energy b) nuclear energy c) chemical energy d) hydro power	
16	If a lift is on the 6th floor, then it possesses more of: a) kinetic energy b) potential energy c) heat energy d) chemical energy	1

Q. no 17 to 20 are **Assertion - Reasoning** based questions.

These consist of two statements – Assertion (A) and Reason (R).

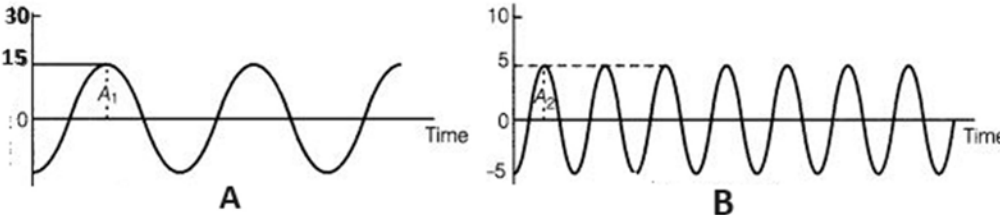
Answer these questions selecting the appropriate option given below:

- (a) Both A and R are true and R is the correct explanation of A
- (b) Both A and R are true and R is not the correct explanation of A
- (c) A is true but R is false
- (d) A is False but R is true

17	Assertion (A): hydrogen chloride is a binary compound. Reason (R): Binary compound are the simplest compound made up of two different elements.	1
18	Assertion (A): Xylem and Phloem are known as conduction tissue. Reason (R): Water and minerals are transported in the plant through xylem.	1
19	Assertion (A): Inertia of an object depends on its mass. Reason (R): mass of a object is a measure of its inertia.	1
20	Assertion (A): Nitrogen is a macronutrient. Reason (R): Macro nutrient are required in large quantities.	1

SECTION-B

Q.no.21 to 26 are very short answer questions.

21	How will you prepare a saturated sugar solution at 50°C?	2
22	With respect to the cell, the nature of solutions can be categorised as hypotonic, hypertonic and isotonic. The Eye drop is a solution of medicines, what should be its nature? Justify.	2
23	Cartilage is a connective tissue. Where does it found in human body?	2
24	When a car makes a sharp turn at a high speed the passenger tends to get thrown to one side. Why?	2
25	Which of the following sound waves have? i. high amplitude and ii. high frequency. 	2

26	Organic farming products are high in demand. Why?	2																												
<div>SECTION-C</div> <div>Q.no.27 to 33 are short answer questions.</div>																														
27	a) What are two functions of vacuoles in <i>amoeba</i> . b) Which cell organelle is known as kitchen of cell?	3																												
28	Match the following tissue with their position/location. <table><tr><td></td><td>Tissue</td><td></td><td>Position/location</td></tr><tr><td>A</td><td>Aerolar tissue</td><td>i</td><td>Respiratory tract</td></tr><tr><td>B</td><td>Cuboidal epithelium</td><td>ii</td><td>Stomach wall</td></tr><tr><td>C</td><td>Ciliated columnar epithelium</td><td>iii</td><td>Blood</td></tr><tr><td>D</td><td>Smooth muscle</td><td>iv</td><td>Lining of kidney tubules</td></tr><tr><td>E</td><td>Plasma</td><td>v</td><td>Between skin and muscles</td></tr><tr><td>F</td><td>Neuron</td><td>vi</td><td>Brain</td></tr></table>		Tissue		Position/location	A	Aerolar tissue	i	Respiratory tract	B	Cuboidal epithelium	ii	Stomach wall	C	Ciliated columnar epithelium	iii	Blood	D	Smooth muscle	iv	Lining of kidney tubules	E	Plasma	v	Between skin and muscles	F	Neuron	vi	Brain	3
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29	Convert the following as directed: i. 60 km/h into m/s ii.35m/s into km/h iii. 30km/h into m/s Or A bus decreases its speed form 60 km/h to 40km/h in 4s. Find the acceleration of the bus.	3																												
30	Suggest some measures to reduce sound pollution. Or a) A boy clapped his hands near a cliff and heard the echo after 6s. What is the distance of the cliff from the boy if the speed of the sound, ‘v’ is taken as 346 m/s? b) What is reverberation of sound?	3																												
31	List out the three major groups of activities for improving crop yields can be classified.	3																												
32	Calculate the molecular mass of the following compounds: (H=1u; C=12u; O=16u; K=39u; Na=23u; Cl=35.5u) a. CH ₃ OH b. K ₂ CO ₃ c. NaCl	3																												
33	Observe the melting and boiling point of substance A, B and C given in the following table:	3																												

Substance	Melting point (°C)	Boiling point (°C)
A	-210	-196
B	250	700
C	-20	90


a) Which substance will be solid at room temperature?

b) Which substance will be liquid at room temperature? why?

SECTION-D

Q.no.34 to 36 are long answer questions.

34	<p>Complete the following table.</p> <table><tr><th>Atomic Number</th><th>Mass number</th><th>No. of Protons</th><th>No. of Electrons</th><th>No. of Neutrons</th><th>Symbol of Atomic species</th></tr><tr><td>--</td><td>27</td><td>13</td><td>--</td><td>--</td><td>Al</td></tr><tr><td>14</td><td>--</td><td>---</td><td>14</td><td>14</td><td>---</td></tr><tr><td>1</td><td>1</td><td>--</td><td>--</td><td>--</td><td>--</td></tr></table> <p>Or</p> <p>a) How Rutherford came to conclusion that:</p> <p>i. 'most of the space inside the atom is empty'</p> <p>ii. 'mass of the atom is concentrated in a very small volume within the atom'.</p> <p>b) Distinguish between isotopes and isobars.</p>	Atomic Number	Mass number	No. of Protons	No. of Electrons	No. of Neutrons	Symbol of Atomic species	--	27	13	--	--	Al	14	--	---	14	14	---	1	1	--	--	--	--	5
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35	<p>a) If Golgi apparatus is not functional in a cell what will be its impact on the cell. Explain.</p> <p>b) Write full form of RER and SER organelle of the cell also write their function in the cell.</p> <p>Or</p> <p>When some raisins are placed in a hypotonic solution they get increases in size. Answer the following question:</p> <p>a) What is hypotonic solution?</p> <p>b) What happen if you place these raisins now in a hypertonic solution?</p> <p>c) What is the role of cell wall in the cell in above situation?</p>	5																								
36	<p>a) How value of acceleration due to gravity varies on earth?</p> <p>b) Write three differences between 'G' and 'g'.</p> <p>Or</p>	5																								

	<p>Give reason:</p> <p>a) Truck has much wider tyres.</p> <p>b) Cutting tools have sharp edges.</p> <p>c) Iron nail sink but a wooden log float.</p> <p>d) Nails are flat at one end and sharp at another.</p> <p>e) It is much easy to walk on ice by using ice skates.</p>	
<p style="text-align: center;">SECTION-E</p> <p style="text-align: center;">Q.no.37 to 39 are case based / source- based questions with 2 to 3 short sub - parts.</p>		
37	<p>Mixtures are constituted by more than one kind of pure form of matter, known as a substance. A student mixes salt and egg white in two separate beaker A and B respectively filled with water. They pass a beam of light through the mixture in the beaker in dark and observed that the path of light is visible in one beaker only.</p>  <p>Answer the following questions:</p> <p>a) Name the components of a solution. Give example from above activity.</p> <p>b) Which category of mixture formed in beaker A and B?</p> <p>c) In which beaker the path of light is not visible. Why?</p> <p style="text-align: center;">Or</p> <p>c) Give any other activity to prepare a mixture which shows the same properties as shown by mixture in beaker B.</p>	4
38	<p>The signal that passes along the nerve fibre is called a nerve impulse. Nerve impulse allows us to move our muscles when we want to the functional combination of nerve and muscle tissue is fundamental to most animals. This combination enables animals to move rapidly in response to stimuli.</p> <p>a) Name the functional unit of nervous tissue.</p> <p>b) What is the direction of nerve impulse or signal in a neuron?</p> <p>c) Draw a labelled diagram of a neuron.</p> <p style="text-align: center;">Or</p> <p>c) Where is nervous tissue found? And what is its function?</p>	4
39	<p>An object increases its energy when raised through a height. This is because work is done on it against gravity while it is being raised. It is useful to note that the work done by gravity depends on the difference in vertical heights of the initial and final positions of the object and not on the path along which the object is moved.</p>	4

- a) Define potential energy of an object.
- b) Which object will have more potential energy in the given setup shown here. Explain.
- c) Calculate the potential energy of the object shown in the given diagram.

Or

- c) Can we increase the potential energy of the given object shown in the diagram? Explain.

