Roll No. | | | | | |

INDIAN SCHOOL SALALAH

FIRST TERM EXAMINATION – SEPTEMBER 2024

SCIENCE (086)

Class: IX **Date: 22-09-24**

Time: 3 Hours **Maximum Marks: 80**

General Instructions:

(i) *This question paper comprises of **39** questions. **All** questions are compulsory*

(ii) *This question paper is divided into **five** sections - **A, B, C, D** and **E.***

(iii) ***Section A** - Question No **1** to **20** are multiple choice questions. Each question carries **1** mark.*

(iv) ***Section B** - Question No.**21** to **26** are very short answer type questions. Each question carries **2** marks. Answers to these questions should be in the range of 30 to 50 words.*

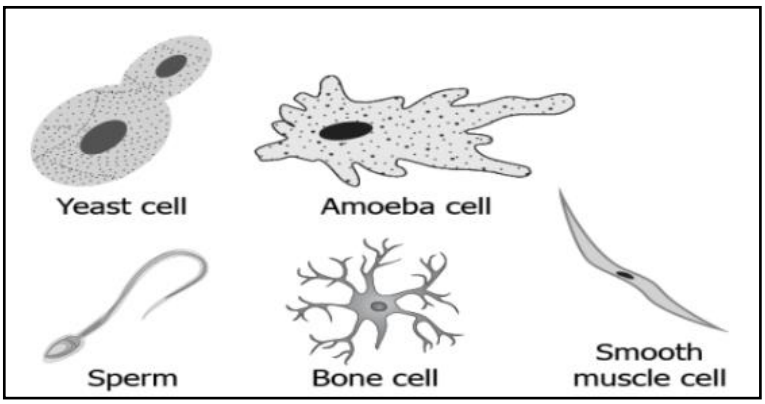
(v) ***Section C** - Question No. **27** to **33** are **s**hort answer type questions. Each question carries **3** marks. Answers to these questions should be in the range of 50 to 80 words.*

(vi) ***Section D** - Question No.**34** to **36** are Long Answer type questions Each question carries **5** marks. Answers to these questions should be in the range of 80 to 120 words.*

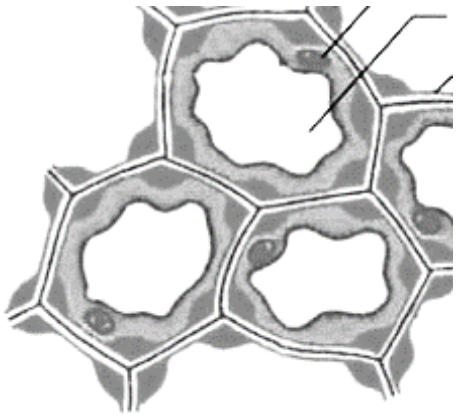
(vii) ***Section E**- Question No. **37** to **39** are source-based/case-based units of assessment carrying **4** marks each with sub-parts.*

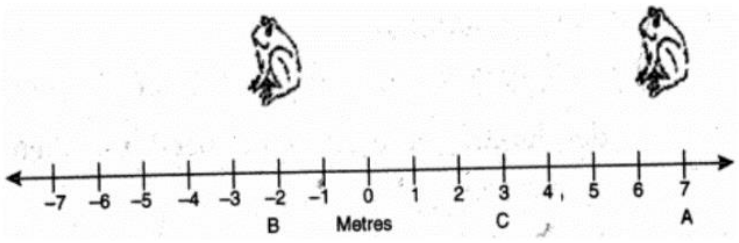
(viii) *There is no overall choice. However, an internal choice has been provided in some sections. Only one of the alternatives has to be attempted in such questions.*

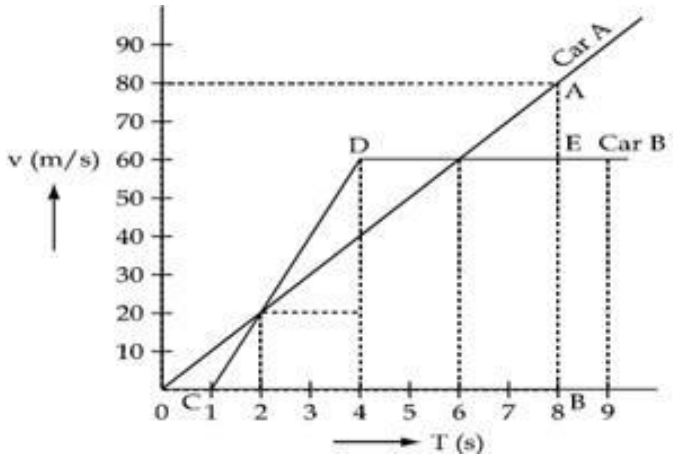
	SECTION-A **Select and write the most appropriate option out of the four options given for each of the question no. 1 to 20.**	
1	Intermolecular force of attraction is maximum in a) Solids b) Liquids c) Gases d) Plasma state	**1**
2	Gases do not have a) High compressibility b) High fluidity c) High density d) Large volume	**1**
3	Which one of the following properties is not characteristic of liquids? a) Fluidity b) Definite shape c) Definite volume d) Compressibility	**1**
4	On increasing the temperature of solids, the kinetic energy of particles a) Increases b) Decreases c) Remains same d) None of the above	**1**
5	Sol is an example of a) Solid dispersed in liquid b) Liquid dispersed in solid c) Solid dispersed in gas d) Liquid dispersed in gas	**1**

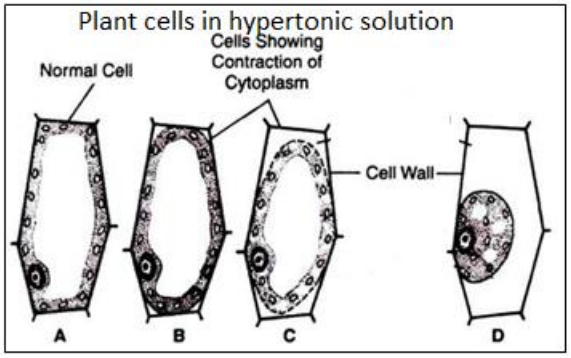
6	Select a heterogeneous mixture a) Air b) Sugar solution c) Emulsion d) Alloy	**1**
7	Which of the following is a physical change? a) Burning of candle b) Formation of curd c) Dissolving salt in water d) Digestion of food	**1**
8	Survival of plants in terrestrial environment has been made possible by the presence of a) intercalary meristem b) conducting tissue c) apical meristem d) parenchymatous tissue	**1**
9	Lignified, narrow, elongated and dead cells are found in a) Collenchyma b) Parenchyma c) Sclerenchyma d) Phloem	**1**
10	The image shows some types of cells.  Based on the image what could be the reason for the different shape and size? a) To suit their function. b) As they are formed first or last in the body. c) As they are all animal cells. d)As some are plant cells and some animal cells.	**1**
11	Select the **wrong** statement: - a) Chlorenchyma is a parenchymatous tissue. b) Chlorenchyma have chloroplast in them c) Chlorenchyma provide flexibility to plants d) Chlorenchyma are present in green leaves.	**1**
12	The area under the velocity – time graph of a body gives: a) Speed of the body b) Retardation of the body c) Acceleration of the body d) Distance travelled by the body	**1**
13	A body completes one cycle on a circular track of radius ‘r’ in 20 seconds. The distance and displacement of the body after 50 seconds are a) 0, 2πr b) 5πr, 2r c) 4πr, 2r d) 5πr, 0	**1**

14	An external force of 5N changes the velocity of a body of mass 2 kg from 5 m/s to 7 m/s. The time for which the force has been applied is a) 0.9 s b) 1 s c) 0.8 s d) 2 s	**1**
15	The gravitational force between two objects is F. If masses of both objects are halved without changing the distance between them , then the gravitational force would become a) $\frac{F}{4}$ b) $\frac{F}{2}$ c) F d) 2F	**1**
16	The weight of an object of mass 'm' at the centre of the earth is a) mg b) infinite c) zero d) > mg	**1**
	For Question No. 17 to 20 consist of two statements – Assertion (A) and Reason (R). Answer these questions selecting the appropriate option given below: (a) Both Assertion (A) and Reason (R) are true, and Reason (R) is the correct explanation of Assertion (A). (b) Both Assertion (A) and Reason (R). are true, and Reason (R) is not the correct explanation of Assertion (A). (c) Assertion (A) is true, but Reason (R) is false. (d) Assertion (A) is false, but Reason (R) is true.	
17	**Assertion(A):** A solution can scatter a beam of light passing through it. **Reason (R) :** The particles of solution are very small(less than 1 nm in diameter).	
18	**Assertion (A):** Cell wall is a non-living part of the cell. **Reason (R):** It offers protection, definite shape and support.	**1**
19	**Assertion (A):** If an unbalanced force is applied on the object, there will be no change either in its speed or in the direction of its motion. **Reason (R):** To accelerate the motion of an object, an unbalanced force is required.	**1**
20	**Assertion (A):** Parenchyma cells help in the storage of food. **Reason (R):** Parenchyma cells are the main site of photosynthesis.	**1**
	SECTION-B ***Question No. 21 to 26 are very short answer questions***	
21	What is Tyndall effect? Write any two examples.	**2**
22	How do lysosomes digest any foreign material that enters the cell?	**2**
23	(A). a) What is cell division? b) Name the type of division is the chromosome number reduce to half. **OR**	**2**

	(B). a) Give any two differences between the two types of Endoplasmic reticulum. b) How is the endoplasmic reticulum important in membrane biogenesis?	
24	Find the change in momentum of a car weighing 1500 kg when it's speed increases from 36 km/h to 72 km/h.	**2**
25	(A) Derive the mathematical expression for Newton's second law of motion. **OR** (B)Explain the terms inertia of rest and inertia of motion with suitable examples.	**2**
26	(a)Identify the tissue given in the figure. (b)State the characteristic features of the cell. (c)Name any one part of the plant , where these cells are present. 	**2**
	SECTION-C **Question No. 27 to 33 are short answer questions**	
27	a) Write any two properties of suspensions. b) Write any two differences between compounds and mixtures.	**3**
28	(A) a) Define latent heat of vapourisation? b) Why should we wear cotton clothes in summer? Give reason. c) Convert the following temperature to Celsius scale. i) 400 K ii) 673 K **OR** (B) a) What is sublimation? Write any two examples for sublimable substances. b) Why does gas exert pressure on the walls of the container?	**3**
29	List the difference between Prokaryotic cell and Eukaryotic cell. (Any three points)	**3**
30	a) Draw a neat, labelled diagram to show the location of the different types of meristematic tissues. b) Mention the function of the different types of meristematic tissues.	**3**
31	A bullet of mass 10 g travelling horizontally with a velocity of 150 m/s strikes a stationary wooden block and comes to rest in 0.03 s. Calculate the distance of penetration of the bullet into the block. Also calculate the magnitude of the force exerted by the wooden block on the bullet.	**3**

32	Differentiate between mass and weight (3 points of differences).	**3**
33	A frog hops along a straight-line path from point 'A' to point 'B' in 10 s and then turns and hops to point 'C' in another 5 s. Calculate the average speed and average velocity of the frog for the motion between:  a) A to B b) A to C through B	**3**
	Section-D **Question No. 34 to 36 are long answer questions**	
34	A. a) What is evaporation? What are the factors on which evaporation depends and how? b) Why do we see tiny water droplets on the outer surface of a glass containing ice cold water? c) Define diffusion? Arrange three states of matter in the decreasing order of diffusion. **OR** B. a) What produces more severe burns, boiling water or steam? b) How does the water kept in an earthen pot become cool during summer? c) How can we liquify the gases? d) A gas fills completely the vessel in which it is kept. Give reason. e) What is CNG? Which property of gas is used to fill CNG cylinders?	**5**
35	Sneha has studied that plants have protective tissue for protection against many factors. She has also heard that the leaves of desert plant have a coating of thick waterproof wax on them, this prevents transpiration, hence helps in storing a lot of water. She observes a desert plant and sees the waxy coating on the leaf. A. a) Name the outermost layer of cells that covers the entire surface of plant? b) What is transpiration? Write any one importance of transpiration in plants. c) Name the waxy coating present in desert plants on the epidermis. d) Name the chemical substance present on the walls of cork cell. **OR** B. a) Explain the structure of the power house of the cell. b) Who first described Golgi apparatus? List down the functions of Golgi apparatus. (Any two)	**5**

36	A)	a) A scooter starts from rest, moves in a straight line with a constant acceleration and covers a distance of 64m in 4 s. Calculate its acceleration and final velocity. b) In how much time the scooter will cover half the total distance? c) Draw the nature of distance- time graph for uniform and non-uniform motion. **OR**	**5**
	B)	The velocity time graphs of cars A and B which start from the same place and move along a straight road in the same direction is shown below:  Calculate: a) The acceleration of car A between 2 s and 4 s. b) The time at which both the cars have the same velocity. c) The distance travelled by car A and car B in 8 seconds. d) Which of the two cars is ahead after 8 s and by how much?	
	SECTION - E **Question No. 37 to 39 are case-based/data -based questions with 2 to 3 short sub-parts.** **Internal choice is provided in one of these sub-parts.**		
37	A solution is a homogeneous mixture. In a solution the relative proportion of solute and the solvent can be varied. Depending upon the amount of solute present in a solution, it can be called a dilute or concentrated solution. The concentration of a solution is the amount of solute present in a given amount of solution. (a) Define unsaturated solution. (b) List any two properties of colloidal solutions. (c) A solution of alcohol in water has been prepared by mixing 150 ml of alcohol with 600 ml of water. Calculate the concentration in terms of volume-by-volume percentage of the solution. **OR** (c) Define the terms solute and solvent. Name the solute and solvent of soda water.		**4**

38	a) Two beakers A and B contain plain water and concentrated sugar solution respectively. Equal number of dried raisins and fresh grapes are kept in them for a few hours and then taken out. Explain the reason for the difference in the physical appearance of raisins and fresh grapes which were taken out of the two beakers. b) Define isotonic solution. c) Identify and define the phenomenon given below.  **OR** c) Define the process in which diffusion takes place through a selectively permeable membrane.	**4**
39	We have learnt that the earth attracts objects towards it. This is due to the gravitational force. Whenever objects fall towards the earth under this force alone, we say that the objects are in free fall. While falling, there is no change in the direction of motion of the objects. But due to the earth's attraction, there will be a change in the magnitude of the velocity. Any change in velocity involves acceleration. Whenever an object falls towards the earth, acceleration is involved. This acceleration is due to the earth's gravitational force. Therefore, this acceleration is called acceleration due to the gravitational force of the earth or acceleration due to gravity. a) Write an expression for acceleration due to gravity. b) What is the value of acceleration due to gravity on the surface of the earth? c) What is the effect on acceleration due to gravity as we move from poles towards equator? Why? **OR** c) A stone thrown vertically upwards reaches the maximum height in 3s. Calculate its initial velocity.	**4**