

INDIAN SCHOOL AL WADI AL KABIR

MIDTERM (2023 - 24)

Class: VII Sub: SCIENCE Max Marks: 80 Date: 21.09.2023 Set - I Time: 2 ½ hours

General Instructions:

i. All questions are compulsory. Marks are indicated against each section.

ii. The question paper comprises 11 pages and 39 questions in 5 sections A, B, C, D and E.

iii. Q 1 to Q 16 in **section A** -MCQ carry ONE mark each. Write the correct answer along with the option only in the answer script.

iv. Q 17 to Q 20 in **section A** -Assertion and Reason carry ONE mark each.

v. Q 21 to Q 26 in **section B** are short Answer Type Questions and carry TWO marks each.

vi. Q 27 TO Q 33 in **section C** are Short Answer Type Questions and carry THREE marks each.

vii. Q34 TO Q 36 in section **D** are Long Answer Type Questions and carry FIVE marks each.

viii. Q 37 TO Q 39 in **section E** Case study/paragraph Questions carry FOUR marks each.

ix. Write the same question number as given in the question paper.

x. Ink killer or whitener should not be used in the answer script.

xi. Diagrams should be drawn using a pencil.

SECTION A (1X20=20)

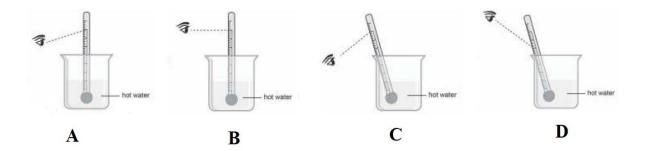
1. The equation given below represents photosynthesis.

$$\begin{array}{c} Sunlight \\ Carbon \ dioxide + A \end{array} \qquad \begin{array}{c} Sunlight \\ \hline \\ Chlorophyll \end{array}$$

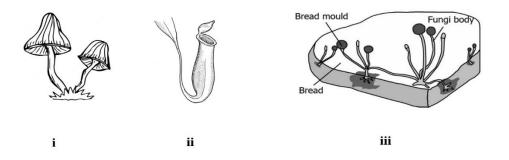
Which of the following represents A and B in the given equation?

- a) A- Water and minerals, B- Hydrogen
- b) A- Oxygen, B- Water and minerals
- c) A- Water and minerals, B- Oxygen
- d) A- Hydrogen, B- Water and minerals

2. Which figure shows the correct way of reading a temperature using a laboratory thermometer?

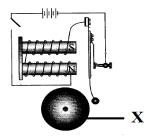


- a) A
- b) B
- c) C
- d) D
- 3. Which of the following organisms obtain food from the dead and decaying organisms?



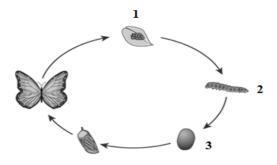
- a) Only i
- b) Both i and ii
- c) Only iii
- d) Both i and iii
- 4. A student studies that a fuse wire helps in protecting electrical appliances. What role does the fuse wire play in an electrical appliance?
 - a) It helps in storing electricity for further use.
 - b) It helps in providing heat.
 - c) It helps to avoid the passing of large electric currents.
 - d) It helps in generating electric current.

5. Identify the part marked as 'X' in the given diagram of an electric bell.



- a) Hammer
- b) Soft iron strip
- c) Switch
- d) Gong

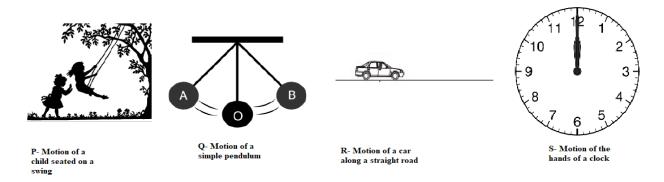
6. The figure represents the stages of the life cycle in a silk moth.



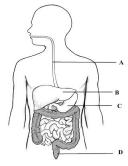
Identify the stages marked as 1,2 and 3.

- a) 1-cocoon, 2-eggs, 3- caterpillar
- b) 1-caterpillar, 2-eggs, 3- cocoon
- c) 1-eggs, 2-cocoon, 3- caterpillar
- d) 1-eggs, 2-caterpillar, 3- cocoon
- 7. Why are cocoons boiled before reeling silk threads in machines?
 - a) It increases the amount of silk fibres.
 - b) It separates the silk fibres from the cocoons.
 - c) It lightens the colour of the silk fibres.
 - d) It reduces the size of the silk fibres.

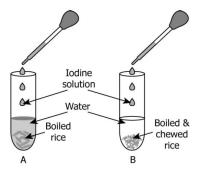
- 8. Which of these will help to conserve water?
 - a) Use running tap water when brushing your teeth.
 - b) Use a high-flow shower head for bathing.
 - c) Use water collected after rinsing fruits and vegetables to water the house plants.
 - d) Use running tap water to wash utensils.
- 9. A few activities are provided below. Identify the bodies exhibiting oscillatory motion.



- a) P and R
- b) R and S
- c) P and Q
- d) Q and R
- 10. What is the purpose of **bar screens** in the wastewater treatment process?
 - a) To remove solid impurities like napkins, plastic covers etc.
 - b) To kill germs, present in the wastewater.
 - c) To remove the foul smell of wastewater.
 - d) To add oxygen to the wastewater.
- 11. The image shows an unlabelled sketch of the human digestive system. Identify the part where **the digestion of fats** takes place.



- a) A
- b) B
- c) C
- d) D
- 12. Which set of teeth is used for ripping and tearing food such as meat?
 - a) Incisors
 - b) Canines
 - c) Premolars
 - d) Molars
- 13. The image shows an experiment set up in which boiled rice was taken in test tube A and boiled, and chewed rice was taken in test tube B.

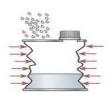


When the iodine solution was dropped into both test tubes, the colour of the substance in test tube A changed to blue-black, but the colour in test tube B remained unchanged. Which of the statements describes the correct reason for this observation?

- a) Chewing adds saliva to the food, which converts the starch into sugars.
- b) Chewing adds saliva to the food, which converts the Proteins into amino acids.
- c) Chewing adds saliva to the food, which converts the Fats to fatty acids.
- d) Chewing adds saliva to the food, which converts the Fats to glycerol.
- 14. Which of the following factors will lead to the change in the time period of the simple pendulum?
 - i) increase in the length of the string
 - ii) decrease in the length of the string
 - iii) increase in the weight of the bob

- a) Only i
- b) Only ii
- c) Only iii
- d) Both i and ii
- 15. When cold water is poured on a hot tin can, the can gets crushed because:





- a) The pressure inside the can is less than outside.
- b) The pressure inside the can is more than outside.
- c) The pressure inside the can is the same as outside.
- d) The pressure inside the can is equal to atmospheric pressure.
- 16. Four glass bottles are kept in four vessels. The first vessel is filled with ice, the second with cold water, the third with boiling water and the fourth with water at room temperature. A balloon is fixed on the mouth of each of the glass bottles. In which case the balloon will inflate?
 - a) First case
 - b) Second case
 - c) Third case
 - d) Fourth case

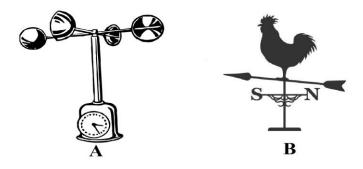
For the following questions, two statements are given- one labelled Assertion (A) and the other labelled Reason (R). Select the correct answer to these questions from the codes (i), (ii), (iii), and (iv) as given below

- i) Both A and R are true and R is the correct explanation of the assertion.
- ii) Both A and R are true but R is not the correct explanation of the assertion.
- iii) A is true but R is false.
- iv) A is false but R is true
- 17. **Assertion** (A): The temperature of boiling water can be measured by a clinical thermometer.
 - **Reason** (**R**): The range of a clinical thermometer is from 35°C to 42°C.
- 18. **Assertion (A):** Selective breeding is the process of selecting parents for obtaining special characters in their offspring.
 - **Reason** (**R**): Selective breeding is done in silkworms.
- 19. **Assertion** (A): Ruminants can digest cellulose.
 - **Reason (R):** Ruminants have cellulose-digesting bacteria in their stomach.
- 20. **Assertion** (A): On heating air expands and occupies more space.
 - **Reason** (**R**): The warm air is denser than cold air.

SECTION B (2X6=12)

- 21. a) Does photosynthesis occur in leaves which are coloured other than green? Give reason.
 - b) How does the exchange of gases take place in leaves?
- 22. a) What happens when a compass needle is brought near a current-carrying wire?
 - b) Draw a neat diagram of an open circuit.
- 23. a) What are the devices used in vehicles to record **speed and distance**?
 - b) A car is covering equal distances in equal intervals of time. **Draw a distance-time** graph to show the motion of the car.
- 24. a) Define the term ingestion. Also, write the mode of ingestion in a butterfly.
 - b) How can we protect our teeth from tooth decay? Give any two points.

- 25. a) Mention the role of the following
 - i. Mucous lining of the stomach
 - ii. Hydrochloric acid
 - b) What is meant by villi? Write the importance of villi in the process of digestion.
- 26. a) When strong/high-speed wind blows, an umbrella held upright at times gets upturned. Give reason.
 - b) Write the functions of the given devices:



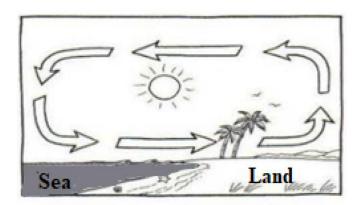
SECTION C (3X7=21)

- 27. a) **Explain** the symbiotic relationship between algae and fungi in lichens.
 - b) Nitrogen is an essential nutrient for plant growth. However, farmers who cultivate leguminous crops like green gram, Bengal gram, black gram, etc. do not apply nitrogenous fertilisers during cultivation. Why?
- 28. a) At a campsite there are tents of two shades. One is made with black fabric and the other with white fabric. Which one would you prefer for resting on a **hot summer afternoon** and which one would you prefer **during winter**? Give a reason for your choice.
 - b) Using **two thin blankets** rather than **one thick blanket** is preferred. Explain.
- 29. a) Why does a fuse wire have a low melting point?
 - b) What do you mean by MCB? How is it important?
 - c) We prefer using CFL and LED bulbs over normal bulbs. Give reason.
- 30. a) Give **any two** qualities of silk which make it more preferable.
 - b) Differentiate between natural and synthetic fibres with examples.

- 31. a) A van covers 480 km in 12h. Calculate the **speed** of the van.
 - b) What is the **disadvantage** of using a sundial as a timekeeping device?
- 32. **Explain** the process of nutrition in amoeba with the help of a diagram.
- 33. a) Why do we consider Cuscuta as a **parasitic** plant?
 - b) How do water and minerals absorbed by roots reach the leaves for synthesising food?
 - c) Give any **one point** of difference between the mode of nutrition in green plants and in humans.

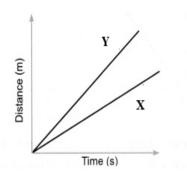
SECTION D (5X3=15)

- 34. a) Write **any two** differences between a clinical and a laboratory thermometer.
 - b) What is the importance of a **kink** in the clinical thermometer?
 - c) Which phenomena is given in the diagram? **Explain** the phenomena.



- 35. a) **Explain** how to make a simple electromagnet.
 - b) Give any two uses of an electromagnet.
 - c) Manu made an electromagnet by winding 40 turns of wire over an iron screw. Sam also made an electromagnet by winding 80 turns over a similar iron screw. Which electromagnet will attract more pins? Give reason

- 36. a) Draw a neat and labelled diagram of a simple pendulum and mark its **mean and extreme positions**.
- b) A simple pendulum takes 30s to complete 15 oscillations. What is the **time period** of the pendulum?
- c) The given figure shows the distance-time graph for the motion of two vehicles X and Y. Which one of them is moving faster? Why?



SECTION E (4X3=12)

- All of us use water in our homes and make them dirty. Cooking oil and fats should not be thrown down the drain. They can harden and block the pipes. In an open drain, the fats clog the soil pores reducing its effectiveness in filtering water. Throw oil and fats in the dustbin. Chemicals like paints, solvents, insecticides, motor oil, and medicines may kill microbes that help purify water. So, do not throw them down the drain. This used water should not be wasted. We must clean it up by removing pollutants. Clean water that is fit for use is unfortunately not available to all. It has been reported that more than one billion people have no access to safe drinking water. The increasing scarcity of freshwater is due to population growth, pollution, industrial development and mismanagement. Poor sanitation and contaminated drinking water are the cause of a large number of diseases. They include cholera, typhoid, polio, meningitis, hepatitis and dysentery.
- (i) Write any two diseases caused due to the consumption of contaminated drinking water.
- (ii) Why we should not throw cooking oils and fats down the drain.
- (iii) Mention any two causes for the increasing scarcity of freshwater.

- 38. The process of removal of fleece along with a thin layer of skin from the body of the animal is called shearing. It is usually done during the hot season, as sheep do not survive without their protective coat of hair during winter. Shearing does not hurt the sheep as the uppermost layer of skin is dead and its hair grows again. The sheared fleece with the thin layer of skin is thoroughly washed in tanks to remove grease, dust and dirt. This is called scouring. It is done by machines nowadays. The hairy skin is sent to a factory where the hair of different textures is separated or sorted. The small fluffy fibres, called burrs, are picked up from the hair. These fibres are scoured again and dried. Now the wool is ready to be drawn into fibres. Now the fibres are dyed into different colours. The fibres are straightened, combed and rolled into yarn. The longer fibres are made into wool for sweaters and the shorter fibres are spun and woven into woollen cloth.
- (i) What is shearing? Why is shearing done only in the hot season?
- (ii) Why is it necessary to wash the fleece after shearing?
- (iii) What kinds of products can be created using **longer and shorter** wool fibres?
- 39. A cyclone is a weather condition consisting of a system of high-speed winds revolving around a central area of very low pressure. The centre of a cyclone is a calm area and is called the eye of the storm. Factors like wind speed, wind direction, temperature and humidity contribute to the development of cyclones. When a cyclone reaches the land, it becomes comparatively weaker due to several factors such as friction with land and shortage of moisture. Cyclones cause widespread destruction and loss of life in coastal areas. The low pressure in the eye lifts the water surface in the centre. The rising water may be as high as 3-12 m and appear like a water wall moving towards the shore. As a result, the seawater enters the low-lying coastal areas and can destroy roads and railway tracks, wash away vehicles, damage houses, drown people and animals, and damage crops causing a great loss of life and property. The cyclone also reduces the fertility of the soil.
- (i) What is meant by the 'eye' of a cyclone?
- (ii) Why does a cyclonic storm die after reaching the land?
- (iii) Explain the destructions caused by the cyclone.

ANSWER KEY

	SECTION A	
Q NO	VALUE POINTS	MARKS
1	c) A- Water and minerals, B- Oxygen	1
2	b) B	1

3	d) Both i and iii	1
4	c) It helps to avoid the passing of large electric currents.	1
5	d) Gong	1
6	d) 1-eggs, 2-caterpillar, 3- cocoon	1
7	b) It separates the silk fibres from the cocoons.	1
8	c) Use water collected after rinsing fruits and vegetables to water the house plants.	1
9	c) P and Q	1
10	a) To remove solid impurities like napkins, plastic covers etc.	1
11	b) B	1
12	b) Canines	1
13	a) Chewing adds saliva to the food, which converts the starch into sugars.	1
14	d) Both i and ii	1
15	a) The pressure inside the can is less than outside.	1
16	c) Third case	1
17	iv) A is false but R is true	1
18	iii) A is true but R is false.	1
19	i) Both A and R are true and R is the correct explanation of the assertion.	1
20	iii) A is true but R is false.	1

	SECTION B	
21	a) plants with leaf colours other than green perform photosynthesis just like green-leaf plants. The chlorophyll needed for photosynthesis is masked among the colourful pigmentation.	1
	b) Leaves of plants have tiny pores called stomata , which are used for the exchange of gases.	1
22	a) A compass needle is a tiny magnet which points in a North-South direction. When it is brought close to a current-carrying wire, which is an electromagnet, the needle gets deflected . This happens due to the magnetic effect of electric current.	1
	+	1
	b)	
23	a) Speed- Speedometer, Distance- Odometer	1/2+1/2=1
	b) Time ——>	1
24	a) The mode of intake of food by an organism. Sucking/siphoning	1/2+1/2=1
	b) One should clean the teeth with a brush or datun (neem twigs) and dental floss (a special strong thread which is moved between two teeth to take out trapped food particles) at least twice a day and rinse the mouth after every meal. Also, one should not put dirty fingers or any unwashed object in the mouth.	$\frac{1}{2}+\frac{1}{2}=1$ (Any two)
25	a) i. Mucous – Protects the inner lining of the stomach from the effect of hydrochloric acid	1/2+1/2=1

	ii. Kills the germs present in the food / Makes the medium inside the	
	stomach acidic.	
	b) Villi are finger-like projections which are richly supplied with blood vessels. They are present in the inner lining of the small intestine and help in the absorption of nutrients by increasing the surface area for absorption.	1/2+1/2=1
26	a) The high-speed or strong wind passing through an umbrella creates a low pressure. The higher pressure below the umbrella causes the umbrella to flip upside down as the air moves from high-pressure to low-pressure region.	1
	b) A- anemometer- helps in detecting the speed of the wind.	1/2+1/2=1
	B- wind vane/weather cock – helps in finding the direction of the wind.	
	SECTION C	
27	a) Lichen is an association between algae and fungi. Algae contains chlorophyll and provides food and nutrition to the fungus. While the fungus provides water, minerals and shelter to the algae.	1+1=2
	b) Leguminous plants have Rhizobium bacteria in their root nodules, which helps in Nitrogen fixation/Converting nitrogen into simple useful forms that can be readily absorbed by the plants	1
28	a) So, on a hot summer afternoon a tent made up of white fabric will be preferred and on a cold winter afternoon a tent made up of black fabric will be preferred because white colour is a good reflector of heat and black colour is a good absorber of heat.	1+1=2
	b) Using two thin blankets rather than one thick blanket is preferred because it creates an air gap between two thin blankets. Air works as a heat insulator and does not allow the body's heat to transfer outside, thus protecting us from the cold.	1
29	a) A low melting point will let it break when a high current pass through the circuit because of the heat generated.	1
	b) Miniature circuit breaker, there is a switch that trips down when excess current flows through the circuit. The circuit can be easily resumed by switching it on. / Safe to use/easy to handle/no need to replace any wire/sensitive	1
	c) Compact fluorescent lamps (CFLs) reduce the wastage of electricity and can be fixed in ordinary bulb holders. Nowadays, light-emitting diode (LED) bulbs are preferred because they consume less electricity as compared to incandescent bulbs or fluorescent tubes or CFLs.	1

30	a) • It is soft, smooth and lustrous.	½+½=1(Any
	• It is the strongest natural fibre.	two)
	It absorbs moisture readily.	
	It is cool to wear in summer and warm in winter	
	b) Natural fibres are the fibres which are made by using natural source materials such as plants and animals. E.g Cotton, jute, silk, coir etc. The synthetic fibres are the ones that are made from chemicals. E.g. Nylon, acrylic, polyester etc.	½X4=2
31	a) Given,	1(formula
	d- 480km,	and substitution)
	t = 12h	+1(ans +
	s=d/t, $480/12 = 40$ km/h	unit) =2
	b) it does not work at night, or when the sun is covered by clouds or on a rainy day	1
32	Amoeba feeds on some microscopic organisms. When it senses food, it pushes out	3
	pseudopodia around the food particle and engulfs it. The food becomes trapped in a food vacuole. Digestive juices are secreted into the food vacuole. They act on the food and break it down into simpler substances. Gradually, digested food is absorbed and used for growth, maintenance and multiplication.	
	Food Pseudopodia	
	Ingestion Digestion	
	Egestion Assimilation Absorption	
33	a) Cuscuta species are plant parasites. Since they lack chlorophyll, they cannot use photosynthesis to produce their sustenance. To grow, they depend on other plants for nutrients, which weakens the host plant.	1

	 b) There are vessels inside a plant which run like pipes throughout the root, stem, branches and leaves. Water and minerals are transported through these vessels from roots to leaves. c) b) The green plants exhibit an autotrophic mode of nutrition. The mode of nutrition in which organisms synthesise their own food is 			1
	called autotrophic nutrition. Humans exhibit a heterotrophic mode of nutrition . The mode of nutrition in which organisms do not prepare their own food but are directly or indirectly dependent on plants for food is called heterotrophic nutrition			1/2+1/2=1
		SEC'	TION D	
34		Clinical Thermometer Clinical thermometer is scaled from 35°C to 42°C or from 94°F to 108°F	Laboratory Thermometer Laboratory thermometer is generally scaled from -10°C to 110°C.	Any two differences 1/2X4=2
		Mercury level does not fall on its own, as there is a kink near the bulb to prevent the fall of mercury level. Temperature can be read after	Mercury level falls on its own as no kink is present. Temperature is read while keeping	
		removing the thermometer from armpit or mouth. To lower the mercury level jerks are given.	the thermometer in the source, such as liquid or anything. No need to give jerk to down the mercury level. automatically.	
	a)	Clinical thermometer is used to take the body temperature.	Laboratory thermometer is used to take the temperature in laboratory.	
		prevents the backflow of n	•	1
	rises up a	•	ted faster than the water. The hot air a rushes towards the land. This is	2
35	a) Take a long piece of insulated, flexible wire and an iron nail. Wind the wire tightly around the nail in the form of a coil. Connect the free ends of the wire to the terminals of a cell through a switch. When the current is switched on, the iron nail acts like an electromagnet. b) (i) Electromagnets are used in loudspeakers to amplify the signals so that we can hear the sound.			2
				1+1=2 (Any 2)
	(ii) They are used in electric bells.			
	(iii) Electromagnets are used in cranes to lift heavy loads of iron and steel.			
	(iv) They are used in telephones, refrigerators, generators, etc.			

	(v) Electromagnets are also used to separate magnetic material from the junk.	
	c) The magnetic effect directly depends on the number of turns of wire on an electromagnet. The electromagnet of Sam is stronger as it has a greater number of turns of wire on it and will attract more pins.	1/2+1/2=1
36	Rigid support String A(Extreme position) O (Mean position) Fig: Simple pendulum	1+1=2(Diagr am+ labelling)
	b) Given- Number of oscillations= 15	
	Time taken = 30s	
	Time period = Time taken / Number of oscillations $30/15 = 2s$	1(formula and substitution) +1(ans + unit) =2
	c) Vehicle Y is moving faster than vehicle X. The Greater the slope of the distance-time graph, the higher the speed.	
		1/2+1/2=1
	SECTION E	
37	i. Cholera, typhoid, polio, meningitis, hepatitis and dysentery.	1/2+1/2
	ii. Cooking oil and fats should not be thrown down the drain. They can harden and block the pipes. In an open drain, the fats clog the soil pores	=1(An y two)
	reducing its effectiveness in filtering water.	1

		T
	iii. The increasing scarcity of freshwater is due to population growth,	1+1=
	pollution, industrial development and mismanagement.	2
		(Any
		two)
38	i. The process of removal of fleece along with a thin layer of skin from	1/2+1/2
	the body of the animal is called shearing. It is usually done during the hot season, as sheep do not survive without their protective coat of hair	=1
	during winter.	
	ii. The sheared fleece with the thin layer of skin is thoroughly washed in	
	tanks to remove grease, dust and dirt.	1
	iii. The longer fibres are made into wool for sweaters and the shorter	1
	fibres are spun and woven into Woollen cloth.	
	notes are span and woven into woonen croun.	1+1=2
		111-2
39	i. The centre of a cyclone is a calm area and is called the eye of the	1
	storm.	
	ii. When a cyclone reaches the land, it becomes comparatively weaker	
	due to several factors such as friction with land and shortage of	1
	moisture.	
	iii. Cyclones cause widespread destruction and loss of life in coastal	
	areas. The low pressure in the eye lifts the water surface in the centre.	2(Any two
	The rising water may be as high as 3-12 m and appear like a water wall	points)
	moving towards the shore. As a result, the seawater enters the low-lying	
	coastal areas and can destroy roads and railway tracks, wash away	
	vehicles, damage houses, drown people and animals, and damage crops causing a great loss of life and property. The cyclone also reduces the	
	fertility of the soil.	
	TOTAL MARKS	80