



**BK BIRLA CENTRE FOR EDUCATION**  
SARALA BIRLA GROUP OF SCHOOLS  
SENIOR SECONDARY CO-ED DAY CUM BOYS' RESIDENTIAL SCHOOL



**MID TERM EXAMINATION - 2024-25**

**SCIENCE**

Class: VII  
Date: 16.09.24  
Name:

Duration: 3 hrs  
Max. Marks: 80  
Exam R No:

**Marking Scheme**

- |                                                                                                                                                                                                                                                                                                            |   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| 1.(c) A compound                                                                                                                                                                                                                                                                                           | 1 |
| 2. (b) Hydrochloric acid                                                                                                                                                                                                                                                                                   | 1 |
| 3. (b) Slaked lime                                                                                                                                                                                                                                                                                         | 1 |
| 4. (c) Earthworm                                                                                                                                                                                                                                                                                           | 1 |
| 5. (a) Top soil                                                                                                                                                                                                                                                                                            | 1 |
| 6. (a) Clayey soil                                                                                                                                                                                                                                                                                         | 1 |
| 7. (b) Bacteria                                                                                                                                                                                                                                                                                            | 1 |
| 8. ( a) X- carbon dioxide, Y- oxygen.                                                                                                                                                                                                                                                                      | 1 |
| 9 (c) Earthworm and frog                                                                                                                                                                                                                                                                                   | 1 |
| 10 (a) Digestive system                                                                                                                                                                                                                                                                                    | 1 |
| 11. (c) Plant B, as Cuscuta uses readymade food of plant A that weakens the host plant.                                                                                                                                                                                                                    | 1 |
| 12. (b) molars and premolars                                                                                                                                                                                                                                                                               | 1 |
| 13. (a) Mercury                                                                                                                                                                                                                                                                                            | 1 |
| 14. (c) Both have a normal body temperature.                                                                                                                                                                                                                                                               | 1 |
| 15. (b) Eye                                                                                                                                                                                                                                                                                                | 1 |
| 16. (b) Tornado                                                                                                                                                                                                                                                                                            | 1 |
| 17. (d) A is false but R is true.                                                                                                                                                                                                                                                                          | 1 |
| 18. (a) Both A and R are true, and R is the correct explanation of A.                                                                                                                                                                                                                                      | 1 |
| 19.a) Both A and R are true and R is the correct explanation of the assertion.                                                                                                                                                                                                                             | 1 |
| 20. (a) Both A and R are true, and R is the correct explanation of A.                                                                                                                                                                                                                                      | 1 |
| 21. A paste made of baking soda and water can help with a variety of insect bites and stings. It's believed baking soda can neutralize bee venom, reducing itching and swelling.                                                                                                                           | 2 |
| 22.i. This happens as follows: Oxygen from the air enters into a leaf through stomata and reaches all the cells by the process of diffusion. This oxygen is used in respiration in cells of the leaf. The carbon dioxide produced during diffuses out from the leaf into the air through the same stomata. |   |
| ii. A plant's roots absorb air from the gaps between soil particles. The air in the soil particles comes into touch with the root hairs. The oxygen in soil particles diffuses into root hair and reaches all of the root's cells, where it is used in respiration.                                        | 2 |

OR

Anaerobic respiration in Human beings

In the absence of oxygen----- Glucose                      lactic acid + energy                      1

Anaerobic respiration in yeast without the use of oxygen

Glucose                      Alcohol + Carbon dioxide + energy                      1

23. The villi are finger-like outgrowths which are present on the inner walls of the small intestine. The villi increase the surface area for absorption of the digested food. Each villus has a network of thin and small blood vessels close to its surface. The surface of the villi absorbs the digested food materials. 1+1=2

24. 1. In winters, we wear dark-coloured clothes to keep our body warm. This is because dark colours are good absorbers of heat.  
2. In cold and hilly areas, the outer walls and roofs are usually painted with dark colour to keep the houses warm. 1+1

25. Close association of two different organisms for mutual benefit and both are not harmed. e.g. Lichen and Rhizobium. In lichen both algal and fungal partners are mutually benefitted. Algae produce food and the fungal part provides nutrients. 2

26. It consists of 4 cups mounted on a rod that can rotate freely on its axis. The greater the force of wind, the faster the cups rotate the rod. A scale placed at the bottom of Anemometer records the wind speed in the desired unit of measurement. 1+1

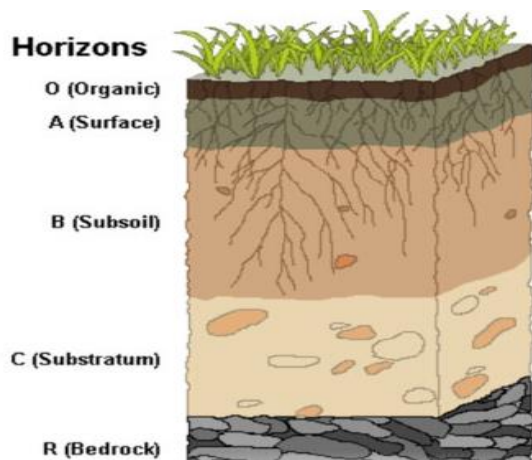


27. (a) Calcium and Oxygen 1+1+½ +½  
(b) Number of atoms present in a molecule of an element.

Hydrogen– 2 and Magnesium–1

28. A soil profile is a vertical section of soil that shows the layers, or horizons, that make up the soil's structure. The profile extends from the soil surface to the parent rock material, or bedrock.

1 ½ + 1 ½



- O horizon: The topmost layer, where organic matter decomposes into humus. This layer can be thick or thin, and sometimes absent.
- A horizon: Also called the topsoil, this layer is rich in minerals and humus, and is where seeds are sown. It's soft and porous, and contains plant roots and microorganisms.
- E horizon: Nutrients from the O and A horizons penetrate this layer.
- B horizon: Also called the subsoil, this layer contains clays and materials that have washed down from the A horizon. It's harder and more compact than topsoil, and contains minerals from the topsoil, but is less organic.
- C horizon: Also called the regolith, this layer consists of weathering rock.
  - D horizon: Bedrock, or the rock that has weathered to produce the soil above it.

**OR**

Soil conservation is a method used to maintain soil fertility, prevent soil erosion, and improve the condition of degraded soil. Soil conservation is important because it helps keep soil healthy so that plants can grow better and produce higher yields

1+2

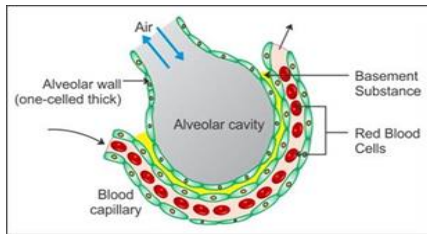
Crop rotation: Alternate different types of crops in a given area to prevent soil from becoming depleted of nutrients. Crop rotation also improves soil health and organic matter, reduces the need for fertilizer and pesticides, and helps improve water quality.

Terracing: Build stepped terraces into the sides of hills or mountains to create a water-gathering system for crops.

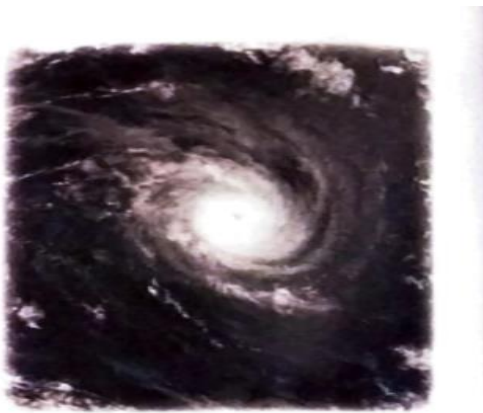
Afforestation is the process of establishing a forest on land that has not been forested before, either through planting trees or sowing seeds.

29. (a) Liver secretes the bile juice which is temporarily stored in the gallbladder. Bile plays an important role in the digestion of fats. It breaks down fats into fatty acids and glycerol. 2
- (b) Pseudopodia are used by amoeba to capture their prey and also for movement 1

30. Alveoli are the primary sites of exchange of gases. Exchange of gases also occurs between blood and tissues.  $O_2$  and  $CO_2$  are exchanged in these sites by simple diffusion mainly based on pressure/concentration gradient. 1+2=3



31. A cyclone is formed when the warm, moist air rises upward over the ocean. As this air moves up, there is a formation of a low-pressure area below. Now the low-pressure area is filled with the high-pressure air from the surroundings. This process of creating a low-pressure area is repeated several times which pushes air to move up higher and higher in the atmosphere. However, due to the rotation of the Earth, the air moves up in a spiralling pattern with low pressure area at its centre. Therefore, a cyclone develops where a low pressure area in the centre is surrounded by high-speed-swirling winds. 1+2



▲ Fig. 14.6 Cyclone

32.

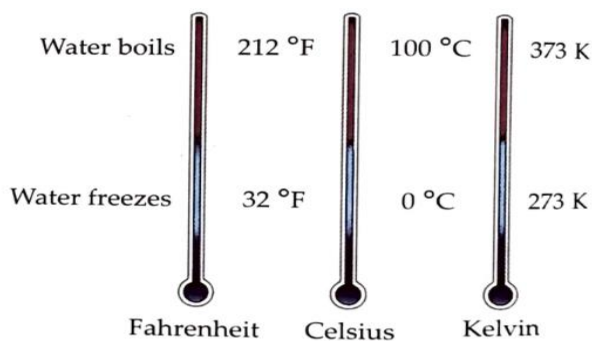
1. Take two soft drink cans ( $C_1$  and  $C_2$ ).
2. Paint the outer side of  $C_1$  with black colour and the outer side of  $C_2$  with white colour.
3. Half-fill both cans with cold water and leave them in the sun for some time. Check the temperature of both cans with the help of a thermometer.
4. Now put both the cans in a cool, dark and shady place. Again check the temperature of both cans.



You will see the temperature of  $C_1$  will be more than  $C_2$  in the first case but the temperature of  $C_1$  will be less than  $C_2$  in the second case. This shows black body absorbs heat fast and also radiates heat fast.

3

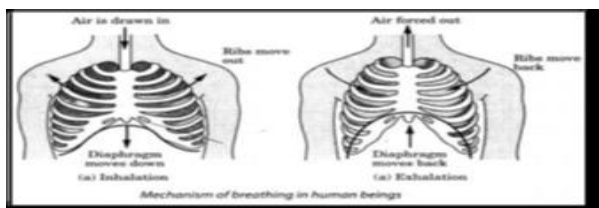
33.



▲ Fig. 4.1 Temperature scales

3

34. During inhalation, air passes through the nostrils into the nasal cavity. Then it moves through the windpipe and reaches the lungs. The lungs are located in the chest cavity which is surrounded by the ribs. On the floor of the chest cavity lays a sheet of muscle called the diaphragm. During the breathing process, the movement of the ribs and diaphragm takes place. Because the lungs expand and contract during breathing. As we take in the air (inhalation) it fills up the lungs. This moves the ribs up and outwards while the diaphragm moves downwards. The lungs while releasing out air (exhalation) from the body, move the ribs down and inward while the diaphragm moves into its original position.



OR

Respiration is the process in which food is broken down in the presence of oxygen to release energy and Carbon-di-oxide.

Four respiratory organs in animals are:

**i) Skin:** Earthworms and other soil animals use their skin to absorb oxygen from the air and expel carbon dioxide.

**ii) Gills:** They are found in aquatic creatures such as fish, prawns, and mussels. They extract oxygen from water and remove carbon dioxide from the body.

**iii) Spiracles:** This is the respiratory organ of insects such as grasshoppers, cockroaches, houseflies, and mosquitos as tiny pores on their bodies and air tubes called tracheae.

**iv) Lungs:** These are the respiratory organs of land creatures such as humans, birds, lizards, dogs, and frogs. Frogs can breathe through both their lungs and their skin. 1+1+1+1+1=5

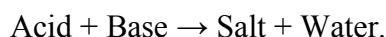
35. (a) Aquatic life 2+3

Acids in factory waste can harm fish and other aquatic organisms. Hazardous substances from industry can also accumulate in water sediments and make fish and crustaceans sick, or even kill them.

Environment

Untreated wastewater can harm water quality, disrupt ecosystems, and threaten human health. It can cause oxygen depletion, which can kill fish and alter food chain composition. It can also spread disease.

(b) A neutralization reaction is a reaction between an acid and a base that produces water and salt, and also releases energy. The general equation for a neutralization reaction is:



OR

(i) \_\_\_ bases \_\_\_\_.

(ii) \_\_\_ Sodium chloride \_\_\_\_.

(b) Soak some petals of china rose in warm water for a couple of hours. The red-colored solution is used as an indicator for detecting an acid or a base solution. It turns into magenta in an acidic medium and green in a basic medium. Hence, it is a natural indicator. Diagram and material also needed. 2+3

36. Tornadoes are storms in which powerful rotating winds form a column that extends from a cloud to the ground. Tornado winds are the strongest on Earth. They have top speeds of up to 300 miles per hour (500 kilometers per hour).

Precautions:

1. Move away from open garages, metal sheds and water bodies.
2. You may sit inside a car, a bus or a closed vehicle, or inside a building.
3. Do not take shelter under an isolated tree. 2+3

OR

Thunderstorms form when warm, moist air rises into cold air. The warm air becomes cooler, which causes moisture, called water vapor, to form small water droplets — a process called condensation. The cooled air drops lower in the atmosphere, warms, and rises again.

1. Do not take shelter under a tall and isolated tree as it is closer to the clouds and more likely to hit by lightning than other small trees.
2. Do not use umbrellas having a metallic tip or base as metal is a good conductor of electricity and allows lightning to pass through it.
3. Avoid tall metallic structures such as electricity poles and cell phone towers. 2+3

- 37.i) Soil has certain bacteria that convert gaseous nitrogen into a usable form and release it into the soil. These soluble forms are absorbed by the plants along with water. Farmers add fertilisers rich in nitrogen to the soil to make nitrogen available to the plants 1
- ii) The plants cannot use nitrogen in the manner they use carbon dioxide. They need nitrogen in soluble form 1
- iii) The plants such as gram, peas, and pulses are called leguminous plants. These plants have root nodules in them which have a symbiotic association with bacteria such as Rhizobium. These bacteria convert gaseous nitrogen of air into water soluble nitrogen compounds (like nitrates). Some of these nitrogen compounds are used by leguminous plants for their growth 2

OR

- iv) proteins and fats. 2
38. (a) Aluminium -Al and Potassium- K. 1
- (b)  $MgCl_2$  1
- (c) hydrogen, nitrogen and oxygen, number of atoms- 5 . 2

OR

- (c) Oxygen-4 and sulphur-1 2
- 39.(i) Celsius and Kelvin scales 1
- (ii) Celsius scale 1
- (iii) Measure the degree of hotness and coldness of an object. SI unit is Kelvin 2
- OR
- (iii)  $0^\circ C$  and  $100^\circ c$  2