LESSON 1 HEAT

VI. Analogy

1. Heat : Joule :: Temperature : _____

Ans: Kelvin

2. ice cube : 0^o C :: Boiling water :_____

Ans: 100^o C

3. Total Kinetic Energy of molecules: Heat :: Average Kinetic Energy : _____

Ans: Temperature

VII. Give very short answer

1. Make a list of electrical equipments at home which we get heat from.

- Electric iron, Water heater, etc.

2. What is temperature?

- The measurement of warmness or coldness of a substance is known as its Temperature.
- SI unit of temperature is kelvin.

3. What is thermal expansion?

- The expansion of a substance on heating is called, the thermal expansion of that substance.

4. What do you understand by thermal equilibrium?

- Thermal equilibrium exists when two objects in thermal contact no longer affect each other's temperature.

VIII. Give short answer

1. What difference do you think heating the solid will make in their molecules ?

- When substances are heated the vibration and movement are increasing.

2. Distinguish between heat and temperature.

HEAT	TEMPERATURE
It measures total kinetic energy of molecules.	It measures average kinetic energy of molecules
SI unit Joule	SI unit Kelvin

IX. Answer in detail

1. Explain thermal expansion with suitable examples.

Ans: The expansion of a substance on heating is called the thermal expansion of that substance.

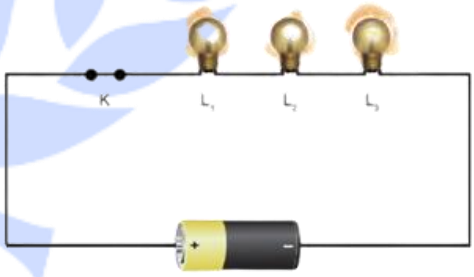
Examples:

- Fitting the iron rim on the wooden wheel.
- Rivetting
- Cracking of a thick glass tumbler
- Electric wires.

LESSON 2 ELECTRICITY

VII. Give short answer

1. Draw the circuit diagram for series connection.



2. Can the cell used in the clock gives us an electric shock? Justify your answer.

- Very low voltage nearly 1.5 V.

3. Silver is a good conductor but it is not preferred for making electric wires. Why?

- Silver is costly material.
- So it is not preferred for making electric wires.

VIII. Answer in detail

1. What is the source of electricity? Explain the various power stations in India?

Sources of Electricity:

- Thermal power
- Hydel power
- Tidal power
- Wind power
- Solar power

Various power stations of India:

- Thermal Power stations – Burning of coal to generate electricity.
- Hydel power stations – Turbine is used to generate electricity.
- Atomic power stations – Nuclear energy is used to generate electricity.

2. **Tabulate the different components of an electric circuit and their respective symbols.**

Sl.no.	Electric component	Symbol
1	Electric cell	
2	Battery	
3	Switch-open	Open
4	Switch-closed	Closed
5	Electric bulb	
6	Connecting wires	

3. Write short notes on conductors and insulators.

Conductors:

- The materials which allow electric charges to pass through them are called conductors.
- **Examples:** Copper, iron, aluminum, impure water, earth etc.,

Insulators:

- The materials which do not allow electric charges to pass through them are called conductors.
- **Examples:** plastic, glass, wood, rubber, china clay, ebonite etc.,

LESSON 3 CHANGES AROUND US

IV. Analogy

1. Curdling of milk : irreversible change :: Formation of clouds : _____change
   - **Reversible**

2. Photosynthesis : _____ change :: burning of coal : Human – made change
   - **Natural**

3. Dissolution of glucose : reversible change :: Digestion of food: _____ change
   - **Irreversible**

4. Cooking of food : desirable change :: decaying of food : _____change
   - **Undesirable**

5. Burning of matchstick :_____ change: Rotation of the Earth : Slow change
   - **Fast**

V. Circle the odd one out. Give reason for your choice

1. Growth of a child, Blinking of eye, Rusting, Germination of a seed

Ans: Blinking of eye

2. Glowing of a bulb, lighting of a Candle, breaking of a coffee mug, curdling of milk

Ans: curdling of milk

3. Rotting of an egg, condensation of water vapour, trimming of hair, Ripening of fruit

Ans: Ripening of fruit

4. Inflating a balloon, popping a balloon, fading of wall paint, burning of kerosene

Ans: burning of kerosene

VI. Give very short answer

1. What kind of a change is associated with decaying of a plants?

- Slow change and chemical change.

2. You are given some candle wax. Can you make a candle doll from it? What kind of change is this?

- Yes, I can make a candle doll.
- Physical change.

3. Define a slow change.

- Changes which take longer time.
- Hours/ days/ months/ years.

4. What happens when cane sugar is strongly heated? Mention any two changes in it.

- Initially sugar melts and then it is decompose.
- Physical change and irreversible change.

5. What is a solution?

- Solution is the mixture of solute and solvent.

VII. Give short answer

1. What happen when paper is burnt? Explain.

- When paper burns oxygen from the air and carbon in the paper turn into carbon di oxide.
- Water vapor floats away.
- Irreversible change.
- Fast change and Chemical change.

2. Can deforestation be considered a desirable change? Explain.

- No deforestation cannot be considered as a desirable change.
- It is desired by humans so it is undesirable change.

3. What type of changes is associated with germination of a seed? Explain

- Slow change.
- Changes which take longer time.
- Hours/ days/ months/ years.

VIII. Answer in detail

1. Give one example for each case that happens around you.

a. Slow and fast change

- Germination of seed and burning of paper.

b. Reversible and irreversible change

- Melting of ice and milk into curd.

c. Physical and chemical change

- Sublimation and Rusting of Iron.

d. Natural and man-made change

- Rain and Deforestation.

e. Desirable and undesirable change

- Ripening of fruit and Decaying of fruit.

LESSON 4 OUR ENVIRONMENT

VI. Analogy

1. Photosynthesis : _____ :: Respiration : Oxygen

- **CO_2**

2. 78% of air : Does not support combustion :: _____ : Supports combustion

- **21% of Water**

VIII. Give very short answer

1. What is atmosphere? Name the five layers of atmosphere.

- Our earth is surrounded by a huge envelope of air called the atmosphere.
- The atmosphere is made of five different layers – the **Troposphere**, the **Stratosphere**, the **Mesosphere**, the **Ionosphere**, and the **Exosphere**.

2. How do the roots of land plants get oxygen for breathing?

- Oxygen is present in the air spaces of soil. This O_2 is taken by root hairs through diffusion to the rest of the plant.

3. What should be done if the clothes of a person catch fire accidentally? Why?

- Cover the person in a rug or blanket and Roll him on the floor.
- This will cut off the air and put out the flames.
- A suitable fire extinguisher can also be chosen.

4. What will happen if you breathe through mouth?

- Snoring
- dry mouth
- daytime tired
- Poor dental health

IX. Give short answer

1. Biscuits kept open on a plate during monsoon days lose its' crispness. Why?

- During monsoon days, Water vapour from the atmosphere is absorbed in the biscuits. So the biscuits lose its crispness.

2. Why do traffic assistants wear a mask on duty?

- Traffic assistants are continually exposed to smoke emitted out from the vehicles. Inhaling the pollutants in the smoke may cause breathing and lung problems. So they wear a mask on duty.

X. Answer in detail

1. How do plants and animals maintain the balance of oxygen and carbon-dioxide in air?

- plants in forests release oxygen through the process of photosynthesis and help in providing oxygen to animals for respiration.
- Plants consume carbon dioxide released by the animals. In this way, plants help in maintaining a balance of oxygen and carbon dioxide in the atmosphere.

2. Why is atmosphere essential for life on earth?

- The atmosphere is essential for life because it maintains an appropriate climate for the maintenance of life by carrying out the following activities:
- The atmosphere keeps the average temperature of the Earth fairly constant during the day time.
- It prevents a sudden increase in temperature during the day time.
- It also slows down the escape of heat from the surface of the Earth into outer space during the night time.

LESSON 5 THE CELL

V. Arrange in a correct sequence

1. Elephant, Cow, Bacteria, Mango, Rose plant.

- Bacteria, Mango, Rose plant, Cow, Elephant.

2. Hen's Egg, Ostrich's egg, Insect's egg.

- Insect egg, Hen egg, Ostrich egg

VI. Analogy

1. Prokaryote : Bacteria :: Eukaryote :_____

- Animals

2. Spirogyra : Plant cell :: Amoeba : _____

- Animal cell.

3. Food producer : Chloroplasts :: Power house :_

- Mitochondria.

VII. Give very short answer

1. Who discovered the cell in 1665?

- Robert hooke.

2. What type of cells do we have?

- Eukaryotic.

3. What are the essential components of a cell?

- Cell membrane, Cytoplasm and Nucleus.

4. What are the organelles found only in plant cell?

- Chloroplast and cell wall.

5. Give any three examples of eukaryotic cell?

- Plants, Animals and Fungi

6. Which one is called as "Area of movement"?

- Cytoplasm.

7. Shiva said " Bigger onion has larger cells when compared to the cells of smaller onion"! Do you agree with his statement or not ? Explain Why?

- No, the big onion and small onion both of them have plant cell and the size of every cell remains the same whether it is of a small onion or big one. The shape is larger means that the number of cells is more in bigger onion.

VIII. Give short answer

1. Why cells are called building blocks of life?

- Cells are the basic structural and functional unit of every living organism. So the cells are called as building blocks of life.

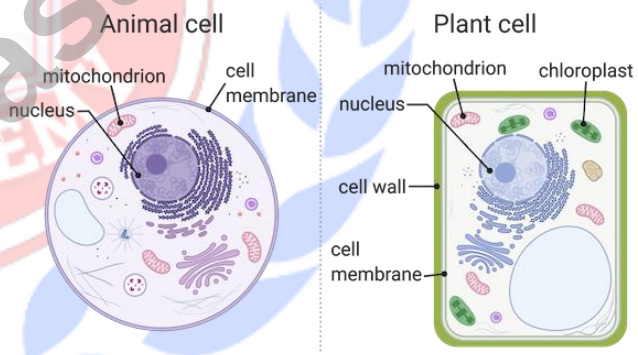
2. Identify any four parts of the Plant cell.

- A – Cell Wall,
  B – Cytoplasm,
  C – Nucleus,
  D – Mitochondria

3. Distinguish between prokaryotic and eukaryotic cells.

No	Character	Prokaryotic Cell	Eukaryotic cell
1.	Size	1 to 2 micron in diameter	10 to 100 micron in diameter
2.	Membrane bound organelles	Absent	Present
3.	Nucleus	Absence of Nuclear membrane and Nucleolus -(incipient Nucleus) so prokaryotic	Presence of Nuclear membrane and Nucleolus (True Nucleus) So Eukaryotic.

4. Make sketches of animal and plant cells which you observe under microscope.



5. Write about the contribution of Robert Hooke in cell biology

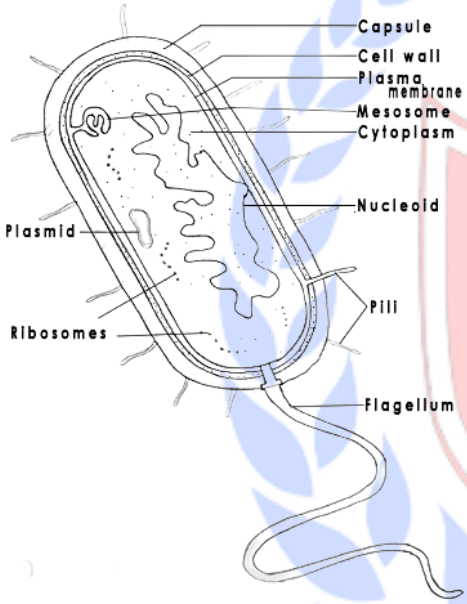
- Inventor of Microscope.
- Micrographia in the year 1665.
- First used term cell.

IX. Answer in detail

1. Tabulate any five cell organelles and their function.

	Cell organelles	Main Function	Special name
1.	Cell wall	Surrounds and protects cell	supporter and protector
2.	Cell membrane	Holds and protects the cell control movement of materials in and out of cell	Gate of cell
3.	Cytoplasm	watery gel in which cell parts move	Area of movement
4.	Nucleus	Brain of the cell Regulates and controls all activities	control centre
5.	Mitochondria	produce and supply energy for the cell	Power house of the cell

2. Draw a neat labelled diagram of a prokaryotic cell.



LESSON 6 HUMAN ORGAN SYSTEMS

V. Arrange in Correct sequence

1. Stomach →Large intestine →Oesophagus → Mouth → Pharynx → Anus → Rectum → Small Intestine.

- Mouth → Pharynx → Oesophagus → Stomach → Small intestine → Large intestine → Rectum

2. Urinary Bladder → Ureter →Urethra →Kidney

- Kidney → Ureter → Urinary bladder → Urethra.

VI. Analogy

1. Arteries : Carry blood from the heart:: _____ :carry blood to the heart.

- Veins.

2. Lungs: Respiratory system:: _____: Circulatory system.

- Heart

3. Enzymes: Digestive glands:: _____: Endocrine glands

- Hormonse.

VII. Give very short answer

1. Describe about skeletal system.

- The skeletal system consist of bone, cartilage and joints.
- It provides frame work to the body.
- It helps for running, jumping, walking, etc.

2. Write the functions of epiglottis.

- It prevents the entry of food in air pipe.
- It opens the air into the air pipe.

3. What are the three types of blood vessels?

- Arteries
- Veins
- Capilleries.

4. Define the term "Trachea".

- The trachea commonly called “Windpipe” is a tube supported by cartilaginous rings.
- It connects the pharynx and larynx to the lungs.
- Allowing the passage of air.

5. Write any two functions of digestive system.

- The digestive system is involved in the conversion of complex food substances into simple forms.
- Absorption of digested food.

6. Name the important parts of the eye.

- Cornea
- Iris
- Pupil

7. Name the five important sense organs.

- Eyes
- Ears
- Nose
- Tongue
- Skin

VIII. Give short answer

1. Write a short note on rib cage.

- The rib cage is made up of 12 pairs of curved, flat rib bones.
- It protects the delicate vital organs such as the heart and lungs.

2. List out the functions of the human skeleton.

- The skeletal system gives shape to the body.
- Bones provide a framework for the body.
- Bones along with muscles help in movements such as walking, running, chewing and dancing, etc.
- It protects the soft internal organs.

3. Differentiate between the voluntary muscles and involuntary muscles.

Voluntary Muscles	Involuntary Muscles
These are skeletal muscles attached to the bones.	These are called smooth muscles found in the walls of the digestive tract, urinary bladder, arteries and other internal organs.
These are voluntary muscles because they can be controlled by our will.	They are called involuntary muscles because they are not controlled by our will.

IX. Answer in detail

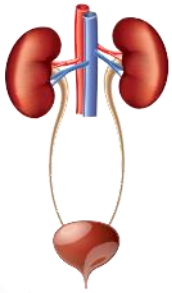
1 List out the functions of Endocrine system and Nervous system.

- Endocrine system regulates various functions of the body and maintains the internal environment.
- Eg. Growth hormone controls growth, etc.

Functions of the nervous system:

- Sensory input: The conduction of signals from sensory receptors.
- Integration: The interpretation of the sensory signals and the formulation of responses.
- Motor output: The conduction of signals from the brain and spinal card to effectors such as muscle and gland cells.

2. Label the diagram given below to show the four main parts of the urinary system and answer the following questions



A. Which organ removes extra salts and water from the blood?

- Nephron

B. Where is the urine stored?

- Urinary bladder.

C. What is the tube through which urine is excreted out of the body?

- Urethra.

D. What are the tubes that transfer urine from the kidneys to the urinary bladder called?

- Urinary bladder.

LESSON 7 PARTS OF COMPUTER

III. Give short answer

1. Name the parts of a computer.

- Input Unit
- Central Processing Unit (CPU)
- Output Unit

2. Bring out any two differences between input and output devices.

Input Device	Output Device
• An input device is connected to accept data from users.	• An output device is connected to provide information to users.
• Input devices are controlled by the user.	• Output devices are controlled by the computer.
• Input devices translate user-friendly inputs to machine-understandable inputs.	• Output devices translate machine-friendly outputs to user-understandable outputs.
• Examples: Mouse, Keyboard, Mic, Joystick, Scanner, Stylus, Trackball, etc.	• Examples: Monitor, Printer, Speakers, Headphones Projector, GPS, Plotter.

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