Class 9 Science

Complete Question Bank (with Answers)

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Chapter 1: Matter in Our Surroundings

Introduction to Matter

1. What is matter?

- ○ Anything that has mass and occupies space
- ○ Only living things
- ○ Only solid things
- ○ Ideas and thoughts

Answer: Anything that has mass and occupies space

2. The SI unit of mass is?

- ○ kilogram (kg)
- ○ gram (g)
- ○ milligram (mg)
- ○ tonne

Answer: kilogram (kg)

3. The SI unit of volume is?

- ○ cubic metre (m^3)
- ○ litre (L)
- ○ millilitre (mL)
- ○ cubic centimetre (cm^3)

Answer: cubic metre (m^3)

4. Early Indian philosophers classified matter into?

- ○ Five basic elements (Panch Tatva)
- ○ Three states
- ○ Atoms and molecules
- ○ Living and non-living

Answer: Five basic elements (Panch Tatva)

5. Which of these is NOT matter?

- ○ Love
- ○ Air
- ○ Water
- ○ Sand

Answer: Love

Physical Nature of Matter

1. Matter is made up of?

- ○ Particles
- ○ Continuous blocks
- ○ Waves
- ○ Energy

Answer: Particles

2. The particles of matter are?

- ○ Very small
- ○ Very large
- ○ Visible to naked eye
- ○ Stationary

Answer: Very small

3. What happens when salt dissolves in water?

- ○ Salt particles get into spaces between water particles
- ○ Salt disappears completely
- ○ Water volume increases significantly
- ○ Salt turns into water

Answer: Salt particles get into spaces between water particles

4. How many particles are there in a small crystal of potassium permanganate?

- ○ Millions
- ○ Hundred
- ○ One
- ○ Ten

Answer: Millions

5. Can we see particles of matter with naked eyes?

- ○ No
- ○ Yes
- ○ Only in solids
- ○ Only in gases

Answer: No

Characteristics of Particles: Space and Movement

1. What is diffusion?

- ○ Intermixing of particles of two different types of matter
- ○ Change of state from solid to liquid
- ○ Movement of particles due to gravity
- ○ Separation of particles

Answer: Intermixing of particles of two different types of matter

2. What happens to kinetic energy with temperature rise?

- ○ Increases
- ○ Decreases
- ○ Remains same
- ○ Becomes zero

Answer: Increases

3. Particles of matter are continuously?

- ○ Moving
- ○ Stationary
- ○ Vibrating only in solids
- ○ Sleeping

Answer: Moving

4. When we make tea, particles of one matter get into?

- ○ Spaces between particles of the other
- ○ Nucleus of the other
- ○ Outside the container
- ○ None of the above

Answer: Spaces between particles of the other

5. Rate of mixing changes with?

- ○ Temperature
- ○ Pressure
- ○ Volume
- ○ Color

Answer: Temperature

Characteristics of Particles: Attraction

1. Particles of matter have _____ acting between them.

- ○ Force
- ○ Friction
- ○ Gravity only
- ○ Nothing

Answer: Force

2. Which has the strongest force of attraction?

- ○ Iron nail
- ○ Water
- ○ Air
- ○ Chalk

Answer: Iron nail

3. Which has the weakest force of attraction?

- ○ Oxygen gas
- ○ Water
- ○ Sugar
- ○ Iron

Answer: Oxygen gas

4. Why can a diver cut through water?

- ○ Weak forces of attraction between water particles
- ○ Water is a solid
- ○ Diver is very strong
- ○ Water has no particles

Answer: Weak forces of attraction between water particles

5. This force keeps the particles?

- ○ Together
- ○ Apart
- ○ Moving
- ○ Still

Answer: Together

States of Matter: The Solid State

1. Solids have?

- ○ Definite shape and fixed volume
- ○ No definite shape but fixed volume
- ○ No definite shape or volume
- ○ Fixed shape but no fixed volume

Answer: Definite shape and fixed volume

2. Solids are?

- ○ Rigid
- ○ Fluid
- ○ Compressible
- ○ Gaseous

Answer: Rigid

3. Why is a sponge compressible?

- ○ It has minute holes with trapped air
- ○ It is a liquid
- ○ It is not matter
- ○ It has no mass

Answer: It has minute holes with trapped air

4. Compressibility of solids is?

- ○ Negligible
- ○ High
- ○ Moderate
- ○ Variable

Answer: Negligible

5. A rubber band changes shape under force. Is it a solid?

- ○ Yes
- ○ No
- ○ It is a liquid
- ○ It is a gas

Answer: Yes

The Liquid State

1. Liquids have?

- ○ No fixed shape but fixed volume
- ○ Fixed shape and volume
- ○ No fixed shape or volume
- ○ Fixed shape but no volume

Answer: No fixed shape but fixed volume

2. Liquids are called fluids because they can?

- ○ Flow
- ○ Freeze
- ○ Evaporate
- ○ Solidify

Answer: Flow

3. Rate of diffusion of liquids is higher than solids because?

- ○ Particles move freely and have space
- ○ Particles are fixed
- ○ Particles are very small
- ○ Liquids are hot

Answer: Particles move freely and have space

4. Aquatic animals breathe oxygen dissolved in?

- ○ Water
- ○ Air
- ○ Soil
- ○ Sand

Answer: Water

5. Liquids take the shape of?

- ○ The container
- ○ A cube
- ○ A sphere
- ○ Nothing

Answer: The container

The Gaseous State

1. Gases are highly?

- ○ Compressible
- ○ Rigid
- ○ Fixed
- ○ Heavy

Answer: Compressible

2. CNG stands for?

- ○ Compressed Natural Gas
- ○ Common Natural Gas
- ○ Clean Natural Gas
- ○ Cold Natural Gas

Answer: Compressed Natural Gas

3. Gases diffuse very fast because of?

- ○ High speed of particles and large space
- ○ Low speed
- ○ Small space
- ○ High density

Answer: High speed of particles and large space

4. Pressure of a gas is due to?

- ○ Force exerted by particles on walls
- ○ Weight of gas
- ○ Volume of container
- ○ Temperature

Answer: Force exerted by particles on walls

5. LPG is used for?

- ○ Cooking
- ○ Cleaning
- ○ Painting
- ○ Drinking

Answer: Cooking

Can Matter Change its State?

1. Water exists in how many states?

- ○ Three
- ○ Two
- ○ One
- ○ Four

Answer: Three

2. The process of melting is also called?

- ○ Fusion
- ○ Fission
- ○ Sublimation
- ○ Vaporisation

Answer: Fusion

3. The temperature at which a solid melts is called?

- ○ Melting point
- ○ Boiling point
- ○ Freezing point
- ○ Condensation point

Answer: Melting point

4. Melting point is an indication of?

- ○ Strength of force of attraction
- ○ Weight of solid
- ○ Volume of solid
- ○ Color of solid

Answer: Strength of force of attraction

5. Melting point of ice is?

- ○ 273.15 K
- ○ 100 K
- ○ 0 K
- ○ 373 K

Answer: 273.15 K

Latent Heat

1. Latent heat means?

- ○ Hidden heat
- ○ High heat
- ○ Low heat
- ○ Lost heat

Answer: Hidden heat

2. Temperature during melting?

- ○ Remains constant
- ○ Increases
- ○ Decreases
- ○ Fluctuates

Answer: Remains constant

3. Heat required to change 1 kg solid to liquid at melting point is?

- ○ Latent heat of fusion
- ○ Latent heat of vaporisation
- ○ Specific heat
- ○ Boiling heat

Answer: Latent heat of fusion

4. Boiling point of water is?

- ○ 373 K
- ○ 273 K
- ○ 100 K
- ○ 0 K

Answer: 373 K

5. Particles in steam have more energy than water at 100°C because of?

- ○ Latent heat of vaporisation
- ○ Latent heat of fusion
- ○ Kinetic energy
- ○ Potential energy

Answer: Latent heat of vaporisation

Sublimation

1. Change of solid directly to gas is called?

- ○ Sublimation
- ○ Evaporation
- ○ Condensation
- ○ Fusion

Answer: Sublimation

2. Change of gas directly to solid is called?

- ○ Deposition
- ○ Sublimation
- ○ Solidification
- ○ Freezing

Answer: Deposition

3. Which substance undergoes sublimation?

- ○ Camphor
- ○ Ice
- ○ Iron
- ○ Wax

Answer: Camphor

4. Does sublimation involve the liquid state?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only at high pressure

Answer: No

5. Solid CO2 is also known as?

- ○ Dry ice
- ○ Wet ice
- ○ Hard ice
- ○ Gas ice

Answer: Dry ice

Effect of Change of Pressure

1. Gases can be liquefied by?

- ○ Applying pressure and reducing temperature
- ○ Reducing pressure
- ○ Increasing temperature
- ○ Adding water

Answer: Applying pressure and reducing temperature

2. What happens to particles when pressure is applied?

- ○ They come closer
- ○ They move apart
- ○ They stop moving
- ○ They disappear

Answer: They come closer

3. 1 atmosphere (atm) is a unit of?

- ○ Pressure
- ○ Temperature
- ○ Volume
- ○ Mass

Answer: Pressure

4. Solid CO2 converts to gas at?

- ○ 1 atmosphere pressure
- ○ 10 atmosphere pressure
- ○ 0 atmosphere pressure
- ○ 100 atmosphere pressure

Answer: 1 atmosphere pressure

5. State of matter is determined by?

- ○ Temperature and Pressure
- ○ Volume only
- ○ Mass only
- ○ Color

Answer: Temperature and Pressure

Evaporation

1. Evaporation is a?

- ○ Surface phenomenon
- ○ Bulk phenomenon
- ○ Chemical reaction
- ○ Nuclear reaction

Answer: Surface phenomenon

2. Evaporation occurs at?

- ○ Any temperature below boiling point
- ○ Only at boiling point
- ○ Only at freezing point
- ○ Above boiling point

Answer: Any temperature below boiling point

3. Boiling is a?

- ○ Bulk phenomenon
- ○ Surface phenomenon
- ○ Slow process
- ○ Cooling process

Answer: Bulk phenomenon

4. During evaporation, particles gain energy from?

- ○ Surroundings
- ○ Nucleus
- ○ Vacuum
- ○ None

Answer: Surroundings

5. Particles escaping during evaporation have?

- ○ Higher kinetic energy
- ○ Lower kinetic energy
- ○ Zero energy
- ○ No mass

Answer: Higher kinetic energy

Factors Affecting Evaporation

1. Rate of evaporation increases with?

- ○ Increase in surface area
- ○ Decrease in surface area
- ○ Decrease in temperature
- ○ Increase in humidity

Answer: Increase in surface area

2. Increase in wind speed causes evaporation to?

- ○ Increase
- ○ Decrease
- ○ Stop
- ○ Remain same

Answer: Increase

3. Increase in humidity causes evaporation to?

- ○ Decrease
- ○ Increase
- ○ Stop
- ○ Fluctuate

Answer: Decrease

4. Why do we spread clothes to dry?

- ○ To increase surface area
- ○ To decrease surface area
- ○ To warm them
- ○ To clean them

Answer: To increase surface area

5. Higher temperature leads to?

- ○ More particles having enough kinetic energy
- ○ Freezing
- ○ Condensation
- ○ Less kinetic energy

Answer: More particles having enough kinetic energy

How Does Evaporation Cause Cooling?

1. Evaporation causes?

- ○ Cooling
- ○ Heating
- ○ Melting
- ○ Burning

Answer: Cooling

2. Acetone on palm feels cool because?

- ○ Particles gain energy from palm and evaporate
- ○ Acetone is ice cold
- ○ Acetone is a solid
- ○ Palm is hot

Answer: Particles gain energy from palm and evaporate

3. Cotton clothes are worn in summer because?

- ○ They absorb sweat and allow evaporation
- ○ They are synthetic
- ○ They are thick
- ○ They are waterproof

Answer: They absorb sweat and allow evaporation

4. Water droplets on cold glass surface are due to?

- ○ Condensation of water vapour
- ○ Evaporation of water
- ○ Melting of glass
- ○ Freezing of air

Answer: Condensation of water vapour

5. Earthen pots keep water cool due to?

- ○ Evaporation through pores
- ○ Insulation
- ○ Freezing
- ○ Boiling

Answer: Evaporation through pores

Summary of States of Matter

1. Forces of attraction are maximum in?

- ○ Solids
- ○ Liquids
- ○ Gases
- ○ Plasma

Answer: Solids

2. Kinetic energy is maximum in?

- ○ Gases
- ○ Liquids
- ○ Solids
- ○ Ice

Answer: Gases

3. Spaces between particles are maximum in?

- ○ Gases
- ○ Liquids
- ○ Solids
- ○ Stones

Answer: Gases

4. Order of particles is most regular in?

- ○ Solids
- ○ Liquids
- ○ Gases
- ○ Steam

Answer: Solids

5. States of matter are?

- ○ Inter-convertible
- ○ Fixed
- ○ Permanent
- ○ Unchangeable

Answer: Inter-convertible

Chapter 2: Is Matter Around Us Pure?

Is Matter Around Us Pure?

1. What does 'pure' mean to a scientist?

- ○ All constituent particles are the same chemically
- ○ No adulteration
- ○ Clear liquid
- ○ Expensive

Answer: All constituent particles are the same chemically

2. Milk is a?

- ○ Mixture
- ○ Pure substance
- ○ Element
- ○ Compound

Answer: Mixture

3. A pure substance consists of?

- ○ Single type of particle
- ○ Two types of particles
- ○ Variable particles
- ○ Any particle

Answer: Single type of particle

4. Most matter around us exists as?

- ○ Mixtures
- ○ Pure elements
- ○ Pure compounds
- ○ Atoms

Answer: Mixtures

5. Which of these is NOT a pure substance?

- ○ Soil
- ○ Iron
- ○ Gold
- ○ Oxygen

Answer: Soil

What is a Mixture?

1. Mixtures are constituted by?

- ○ More than one kind of pure form of matter
- ○ Single element
- ○ Single compound
- ○ Only atoms

Answer: More than one kind of pure form of matter

2. Can sodium chloride be separated from water by physical process?

- ○ Yes, by evaporation
- ○ No
- ○ Only by chemical reaction
- ○ Only by filtration

Answer: Yes, by evaporation

3. Is sodium chloride a pure substance?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ It is a mixture

Answer: Yes

4. Soft drink is a?

- ○ Mixture
- ○ Pure substance
- ○ Element
- ○ Compound

Answer: Mixture

5. A mixture contains?

- ○ More than one pure substance
- ○ Only one pure substance
- ○ Only elements
- ○ Only compounds

Answer: More than one pure substance

Types of Mixtures

1. Mixtures with uniform composition are called?

- ○ Homogeneous
- ○ Heterogeneous
- ○ Suspensions
- ○ Colloids

Answer: Homogeneous

2. Mixtures with non-uniform composition are called?

- ○ Heterogeneous
- ○ Homogeneous
- ○ Solutions
- ○ Alloys

Answer: Heterogeneous

3. Salt dissolved in water is an example of?

- ○ Homogeneous mixture
- ○ Heterogeneous mixture
- ○ Compound
- ○ Element

Answer: Homogeneous mixture

4. Oil and water is an example of?

- ○ Heterogeneous mixture
- ○ Homogeneous mixture
- ○ Solution
- ○ Alloy

Answer: Heterogeneous mixture

5. Can a homogeneous mixture have variable composition?

- ○ Yes
- ○ No
- ○ Only if heated
- ○ Never

Answer: Yes

What is a Solution?

1. A solution is a?

- ○ Homogeneous mixture
- ○ Heterogeneous mixture
- ○ Compound
- ○ Element

Answer: Homogeneous mixture

2. The component present in larger amount in a solution is?

- ○ Solvent
- ○ Solute
- ○ Particle
- ○ Gas

Answer: Solvent

3. The component dissolved in the solvent is?

- ○ Solute
- ○ Solvent
- ○ Mixture
- ○ Solution

Answer: Solute

4. Air is a mixture of?

- ○ Gas in gas
- ○ Solid in gas
- ○ Liquid in gas
- ○ Solid in liquid

Answer: Gas in gas

5. Tincture of iodine contains?

- ○ Iodine in alcohol
- ○ Iodine in water
- ○ Alcohol in iodine
- ○ Sugar in water

Answer: Iodine in alcohol

Properties of a Solution

1. Can solution particles be seen by naked eyes?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in sunlight

Answer: No

2. Do solution particles scatter a beam of light?

- ○ No
- ○ Yes
- ○ Only when hot
- ○ Only when concentrated

Answer: No

3. Is the path of light visible in a solution?

- ○ No
- ○ Yes
- ○ Maybe
- ○ Only for coloured solutions

Answer: No

4. Is a solution stable?

- ○ Yes
- ○ No
- ○ Only temporarily
- ○ Depends on container

Answer: Yes

5. Can solute particles be separated by filtration?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only large particles

Answer: No

Concentration of a Solution

1. A solution that has dissolved as much solute as it can is called?

- ○ Saturated
- ○ Unsaturated
- ○ Dilute
- ○ Concentrated

Answer: Saturated

2. The amount of solute present in a saturated solution is its?

- ○ Solubility
- ○ Concentration
- ○ Volume
- ○ Mass

Answer: Solubility

3. If amount of solute is less than saturation level, it is?

- ○ Unsaturated
- ○ Saturated
- ○ Supersaturated
- ○ Suspension

Answer: Unsaturated

4. Concentration is the amount of solute in?

- ○ Given amount of solution
- ○ Given amount of solvent
- ○ Total mass
- ○ Total volume

Answer: Given amount of solution

5. Solubility changes with?

- ○ Temperature
- ○ Pressure
- ○ Time
- ○ Container

Answer: Temperature

What is a Suspension?

1. A suspension is a?

- ○ Heterogeneous mixture
- ○ Homogeneous mixture
- ○ Solution
- ○ Colloid

Answer: Heterogeneous mixture

2. Are particles of suspension visible to naked eye?

- ○ Yes
- ○ No
- ○ Only with microscope
- ○ Only in dark

Answer: Yes

3. In suspension, solute particles?

- ○ Remain suspended
- ○ Dissolve
- ○ Evaporate
- ○ Disappear

Answer: Remain suspended

4. Chalk powder in water is an example of?

- ○ Suspension
- ○ Solution
- ○ Colloid
- ○ Solvent

Answer: Suspension

5. Solids dispersed in liquids form?

- ○ Suspensions
- ○ Solutions
- ○ Gases
- ○ Pure substances

Answer: Suspensions

Properties of a Suspension

1. Do suspension particles scatter light?

- ○ Yes
- ○ No
- ○ Only when settled
- ○ Only when filtered

Answer: Yes

2. Is the path of light visible in a suspension?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Never

Answer: Yes

3. Is a suspension stable?

- ○ No, particles settle down
- ○ Yes, always
- ○ Yes, if stirred
- ○ Yes, if heated

Answer: No, particles settle down

4. Can suspension particles be separated by filtration?

- ○ Yes
- ○ No
- ○ Only by evaporation
- ○ Only by boiling

Answer: Yes

5. When particles settle, does suspension scatter light?

- ○ No
- ○ Yes
- ○ More than before
- ○ Same as before

Answer: No

What is a Colloidal Solution?

1. A colloid appears homogeneous but is actually?

- ○ Heterogeneous
- ○ Homogeneous
- ○ Pure
- ○ Element

Answer: Heterogeneous

2. Milk is an example of?

- ○ Colloid
- ○ Suspension
- ○ True solution
- ○ Pure substance

Answer: Colloid

3. Scattering of light by colloidal particles is called?

- ○ Tyndall effect
- ○ Reflection
- ○ Refraction
- ○ Dispersion

Answer: Tyndall effect

4. Are colloidal particles visible to naked eye?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in light

Answer: No

5. Tyndall effect is due to?

- ○ Scattering of light
- ○ Absorption of light
- ○ Transmission of light
- ○ Reflection of light

Answer: Scattering of light

Properties of a Colloid

1. Is a colloid stable?

- ○ Yes, quite stable
- ○ No, unstable
- ○ Settles quickly
- ○ Separates on standing

Answer: Yes, quite stable

2. Can colloids be separated by filtration?

- ○ No
- ○ Yes
- ○ Easily
- ○ Sometimes

Answer: No

3. Technique used to separate colloidal particles is?

- ○ Centrifugation
- ○ Filtration
- ○ Evaporation
- ○ Distillation

Answer: Centrifugation

4. The solute-like component in colloid is?

- ○ Dispersed phase
- ○ Dispersing medium
- ○ Solvent
- ○ Solution

Answer: Dispersed phase

5. Fog is an example of?

- ○ Liquid in gas (Aerosol)
- ○ Solid in gas
- ○ Gas in liquid
- ○ Solid in liquid

Answer: Liquid in gas (Aerosol)

Physical and Chemical Changes

1. Melting of ice is a?

- ○ Physical change
- ○ Chemical change
- ○ Both
- ○ Neither

Answer: Physical change

2. Burning of paper is a?

- ○ Chemical change
- ○ Physical change
- ○ Reversible change
- ○ State change

Answer: Chemical change

3. Physical properties include?

- ○ Colour, hardness, density
- ○ Flammability
- ○ Reactivity
- ○ Acidity

Answer: Colour, hardness, density

4. During a chemical change, we get?

- ○ New substances
- ○ Same substance in new state
- ○ No change
- ○ Mixture

Answer: New substances

5. Rusting of iron is?

- ○ Chemical change
- ○ Physical change
- ○ No change
- ○ Fast change

Answer: Chemical change

What are the Types of Pure Substances?

1. Who defined 'element'?

- ○ Lavoisier
- ○ Boyle
- ○ Dalton
- ○ Newton

Answer: Lavoisier

2. An element is?

- ○ Basic form of matter
- ○ Mixture
- ○ Compound
- ○ Solution

Answer: Basic form of matter

3. Which of these is a property of metals?

- ○ Lustrous and ductile
- ○ Brittle
- ○ Poor conductor
- ○ Non-sonorous

Answer: Lustrous and ductile

4. Mercury is a metal that is?

- ○ Liquid at room temperature
- ○ Gas at room temperature
- ○ Solid at room temperature
- ○ Plasma

Answer: Liquid at room temperature

5. Elements intermediate between metals and non-metals are?

- ○ Metalloids
- ○ Alloys
- ○ Compounds
- ○ Mixtures

Answer: Metalloids

Compounds

1. A compound is composed of?

- ○ Two or more elements chemically combined
- ○ Mixture of elements
- ○ Single element
- ○ Solutions

Answer: Two or more elements chemically combined

2. The composition of a compound is?

- ○ Fixed
- ○ Variable
- ○ Random
- ○ Changing

Answer: Fixed

3. Properties of a compound are?

- ○ Different from constituent elements
- ○ Same as constituent elements
- ○ Average of elements
- ○ None of the above

Answer: Different from constituent elements

4. Water is a?

- ○ Compound
- ○ Element
- ○ Mixture
- ○ Solution

Answer: Compound

5. Constituents of a compound can be separated by?

- ○ Chemical reactions
- ○ Physical methods
- ○ Filtration
- ○ Evaporation

Answer: Chemical reactions

Mixtures vs. Compounds

1. In a mixture, elements?

- ○ Just mix together
- ○ React to form new substance
- ○ Change properties
- ○ Bond chemically

Answer: Just mix together

2. A compound has?

- ○ Fixed composition
- ○ Variable composition
- ○ Any composition
- ○ No composition

Answer: Fixed composition

3. Constituents of a mixture can be separated by?

- ○ Physical methods
- ○ Chemical reactions
- ○ Electrochemical reactions
- ○ Nuclear reactions

Answer: Physical methods

4. Which has variable composition?

- ○ Mixture
- ○ Compound
- ○ Element
- ○ Pure substance

Answer: Mixture

5. Air is a?

- ○ Mixture
- ○ Compound
- ○ Element
- ○ Pure substance

Answer: Mixture

Chapter 3: Atoms and Molecules

Introduction to Atoms and Molecules

1. Who postulated the term 'Parmanu'?

- ○ Maharishi Kanad
- ○ Democritus
- ○ Lavoisier
- ○ Dalton

Answer: Maharishi Kanad

2. What does the Greek word 'atom' mean?

- ○ Indivisible
- ○ Invisible
- ○ Tiny
- ○ Hard

Answer: Indivisible

3. Who laid the foundation of chemical sciences?

- ○ Antoine L. Lavoisier
- ○ John Dalton
- ○ Proust
- ○ Kanad

Answer: Antoine L. Lavoisier

4. When was the idea of divisibility of matter considered in India?

- ○ Around 500 BC
- ○ Around 1800 AD
- ○ Around 100 AD
- ○ Around 2000 BC

Answer: Around 500 BC

5. Who suggested that particles normally exist in a combined form?

- ○ Pakudha Katyayama
- ○ Democritus
- ○ Lavoisier
- ○ Proust

Answer: Pakudha Katyayama

Law of Conservation of Mass

1. The Law of Conservation of Mass states that mass can?

- ○ Neither be created nor destroyed
- ○ Be created but not destroyed
- ○ Be destroyed but not created
- ○ Be created and destroyed

Answer: Neither be created nor destroyed

2. Who established the Law of Conservation of Mass?

- ○ Lavoisier
- ○ Dalton
- ○ Proust
- ○ Bohr

Answer: Lavoisier

3. In a chemical reaction, the total mass of reactants is?

- ○ Equal to total mass of products
- ○ Greater than products
- ○ Less than products
- ○ Variable

Answer: Equal to total mass of products

4. If 10g of A reacts with 5g of B to give C and D, the total mass of C and D is?

- ○ 15g
- ○ 10g
- ○ 5g
- ○ 20g

Answer: 15g

5. Why is a cork put on the flask during the experiment?

- ○ To prevent matter from escaping
- ○ To keep it warm
- ○ To look good
- ○ To mix solutions

Answer: To prevent matter from escaping

Law of Constant Proportions

1. This law is also known as?

- ○ Law of Definite Proportions
- ○ Law of Mass Action
- ○ Law of Multiple Proportions
- ○ Law of Conservation

Answer: Law of Definite Proportions

2. In water, the ratio of Hydrogen to Oxygen by mass is?

- ○ 1:8
- ○ 1:2
- ○ 2:1
- ○ 8:1

Answer: 1:8

3. Who stated the Law of Constant Proportions?

- ○ Proust
- ○ Lavoisier
- ○ Dalton
- ○ Kanad

Answer: Proust

4. In Ammonia (NH3), Nitrogen and Hydrogen are in ratio?

- ○ 14:3
- ○ 1:3
- ○ 3:14
- ○ 14:1

Answer: 14:3

5. If 9g of water is decomposed, we get?

- ○ 1g Hydrogen and 8g Oxygen
- ○ 2g Hydrogen and 16g Oxygen
- ○ 8g Hydrogen and 1g Oxygen
- ○ 4.5g each

Answer: 1g Hydrogen and 8g Oxygen

Dalton's Atomic Theory

1. Dalton's theory was based on?

- ○ Laws of chemical combination
- ○ Law of gravity
- ○ Atomic structure
- ○ Electrons

Answer: Laws of chemical combination

2. According to Dalton, all matter is made of?

- ○ Tiny particles called atoms
- ○ Molecules
- ○ Compounds
- ○ Mixtures

Answer: Tiny particles called atoms

3. Which postulate explains the Law of Conservation of Mass?

- ○ Atoms are indivisible and cannot be created/destroyed
- ○ Atoms combine in whole numbers
- ○ Atoms of different elements differ
- ○ Atoms of same element are identical

Answer: Atoms are indivisible and cannot be created/destroyed

4. Atoms of a given element are identical in?

- ○ Mass and chemical properties
- ○ Size only
- ○ Shape only
- ○ Nothing

Answer: Mass and chemical properties

5. Atoms combine in the ratio of?

- ○ Small whole numbers
- ○ Large fractions
- ○ Decimals
- ○ Random numbers

Answer: Small whole numbers

What is an Atom?

1. The building blocks of all matter are?

- ○ Atoms
- ○ Cells
- ○ Bricks
- ○ Sand

Answer: Atoms

2. Atomic radius is measured in?

- ○ Nanometres
- ○ Metres
- ○ Centimetres
- ○ Kilometres

Answer: Nanometres

3. 1 nanometre is equal to?

- ○ 10^-9 m
- ○ 10^-6 m
- ○ 10^-3 m
- ○ 10^-12 m

Answer: 10^-9 m

4. Can we see atoms with naked eyes?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only large ones

Answer: No

5. Which of these is the smallest?

- ○ Atom of hydrogen
- ○ Molecule of water
- ○ Grain of sand
- ○ Ant

Answer: Atom of hydrogen

Modern Day Symbols of Elements

1. Who was the first scientist to use symbols for elements?

- ○ Dalton
- ○ Lavoisier
- ○ Bohr
- ○ Newton

Answer: Dalton

2. Who approves names of elements?

- ○ IUPAC
- ○ NASA
- ○ WHO
- ○ UN

Answer: IUPAC

3. The symbol for Iron is derived from?

- ○ Ferrum
- ○ Iron
- ○ Ferrous
- ○ Fe

Answer: Ferrum

4. What is the symbol for Sodium?

- ○ Na
- ○ So
- ○ S
- ○ Nu

Answer: Na

5. The symbol for Gold is?

- ○ Au
- ○ Go
- ○ Gd
- ○ Ag

Answer: Au

Atomic Mass

1. The reference atom for atomic mass is?

- ○ Carbon-12
- ○ Oxygen-16
- ○ Hydrogen-1
- ○ Nitrogen-14

Answer: Carbon-12

2. One atomic mass unit (u) is equal to?

- ○ 1/12th the mass of one C-12 atom
- ○ Mass of one C-12 atom
- ○ Mass of one H atom
- ○ 1/16th mass of O atom

Answer: 1/12th the mass of one C-12 atom

3. What is the atomic mass of Oxygen?

- ○ 16 u
- ○ 8 u
- ○ 12 u
- ○ 14 u

Answer: 16 u

4. What is the atomic mass of Hydrogen?

- ○ 1 u
- ○ 2 u
- ○ 12 u
- ○ 16 u

Answer: 1 u

5. Relative atomic mass is defined as?

- ○ Average mass of the atom compared to C-12
- ○ Absolute mass
- ○ Weight of atom
- ○ Mass of nucleus

Answer: Average mass of the atom compared to C-12

How Do Atoms Exist?

1. Can atoms of most elements exist independently?

- ○ No
- ○ Yes
- ○ Always
- ○ Only noble gases

Answer: No

2. Atoms form?

- ○ Molecules and ions
- ○ Only molecules
- ○ Only ions
- ○ Nothing

Answer: Molecules and ions

3. Molecules and ions aggregate to form?

- ○ Matter
- ○ Energy
- ○ Space
- ○ Time

Answer: Matter

4. Which atoms can exist independently?

- ○ Noble gases (e.g., Helium)
- ○ Oxygen
- ○ Hydrogen
- ○ Nitrogen

Answer: Noble gases (e.g., Helium)

5. Why do atoms form molecules?

- ○ To become stable
- ○ To become unstable
- ○ To increase mass
- ○ To decrease size

Answer: To become stable

What is a Molecule?

1. A molecule is a group of atoms held together by?

- ○ Chemical bonds
- ○ Gravity
- ○ Magnetism
- ○ Glue

Answer: Chemical bonds

2. A molecule is capable of?

- ○ Independent existence
- ○ Breathing
- ○ Moving
- ○ Dividing

Answer: Independent existence

3. Can a molecule contain atoms of different elements?

- ○ Yes
- ○ No
- ○ Never
- ○ Only if heated

Answer: Yes

4. What is the smallest particle of a compound?

- ○ Molecule
- ○ Atom
- ○ Ion
- ○ Electron

Answer: Molecule

5. Does a molecule show properties of the substance?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Only in gas

Answer: Yes

Molecules of Elements

1. Molecules of elements contain?

- ○ Same type of atoms
- ○ Different atoms
- ○ Ions
- ○ Mixtures

Answer: Same type of atoms

2. The number of atoms in a molecule is called?

- ○ Atomicity
- ○ Valency
- ○ Atomic mass
- ○ Molecular weight

Answer: Atomicity

3. What is the atomicity of Oxygen?

- ○ Diatomic
- ○ Monoatomic
- ○ Triatomic
- ○ Polyatomic

Answer: Diatomic

4. Ozone (O3) is?

- ○ Triatomic
- ○ Diatomic
- ○ Monoatomic
- ○ Tetra-atomic

Answer: Triatomic

5. Phosphorus (P4) is?

- ○ Tetra-atomic
- ○ Diatomic
- ○ Monoatomic
- ○ Polyatomic

Answer: Tetra-atomic

Molecules of Compounds

1. Molecules of compounds contain?

- ○ Atoms of different elements
- ○ Atoms of same element
- ○ Only ions
- ○ Only metals

Answer: Atoms of different elements

2. In NH3 (Ammonia), the elements are?

- ○ Nitrogen and Hydrogen
- ○ Nitrogen and Helium
- ○ Nickel and Hydrogen
- ○ Neon and Hydrogen

Answer: Nitrogen and Hydrogen

3. The ratio by mass in CO_2 is?

- ○ 3:8
- ○ 1:2
- ○ 12:16
- ○ 1:1

Answer: 3:8

4. Water is a molecule of?

- ○ Compound
- ○ Element
- ○ Mixture
- ○ Ion

Answer: Compound

5. Atoms in a compound are combined in?

- ○ Definite proportions
- ○ Random proportions
- ○ Variable proportions
- ○ No proportions

Answer: Definite proportions

What is an Ion?

1. An ion is a?

- ○ Charged species
- ○ Neutral atom
- ○ Molecule
- ○ Compound

Answer: Charged species

2. A positively charged ion is called?

- ○ Cation
- ○ Anion
- ○ Atom
- ○ Molecule

Answer: Cation

3. A negatively charged ion is called?

- ○ Anion
- ○ Cation
- ○ Positron
- ○ Electron

Answer: Anion

4. A group of atoms carrying a charge is?

- ○ Polyatomic ion
- ○ Monoatomic ion
- ○ Molecule
- ○ Compound

Answer: Polyatomic ion

5. In NaCl, the cation is?

- ○ Sodium (Na+)
- ○ Chloride (Cl-)
- ○ Both
- ○ None

Answer: Sodium (Na+)

Writing Chemical Formulae

1. Combining power of an element is called?

- ○ Valency
- ○ Atomicity
- ○ Atomic number
- ○ Mass

Answer: Valency

2. In a formula, valencies must?

- ○ Balance
- ○ Be equal
- ○ Be zero
- ○ Be negative

Answer: Balance

3. When writing formula for metal and non-metal, which comes first?

- ○ Metal
- ○ Non-metal
- ○ Any
- ○ Heavier one

Answer: Metal

4. Polyatomic ions are enclosed in?

- ○ Brackets
- ○ Quotes
- ○ Commas
- ○ Spaces

Answer: Brackets

5. The formula for Magnesium Hydroxide is?

- ○ Mg(OH)2
- ○ MgOH2
- ○ Mg2OH
- ○ MgO2H2

Answer: Mg(OH)2

Formulae of Simple Compounds

1. Formula of Hydrogen Chloride is?

- ○ HCl
- ○ H2Cl
- ○ HCl2
- ○ HCL

Answer: HCl

2. Formula of Aluminium Oxide is?

- ○ Al2O3
- ○ AlO
- ○ Al3O2
- ○ AlO3

Answer: Al2O3

3. Formula of Sodium Nitrate is?

- ○ NaNO3
- ○ Na2NO3
- ○ Na(NO3)2
- ○ Na3N

Answer: NaNO3

4. Formula of Calcium Oxide is?

- ○ CaO
- ○ Ca2O2
- ○ Ca2O
- ○ CaO2

Answer: CaO

5. In MgCl2, the valency of Mg is?

- ○ 2
- ○ 1
- ○ 3
- ○ 0

Answer: 2

Molecular Mass

1. Molecular mass is the sum of?

- ○ Atomic masses of all atoms
- ○ Atomic numbers
- ○ Valencies
- ○ Electrons

Answer: Atomic masses of all atoms

2. Molecular mass of H2O is?

- ○ 18 u
- ○ 16 u
- ○ 20 u
- ○ 10 u

Answer: 18 u

3. Formula unit mass is used for?

- ○ Ionic compounds
- ○ Elements
- ○ Gases
- ○ Liquids

Answer: Ionic compounds

4. Mass of one mole of a substance is called?

- ○ Molar mass
- ○ Atomic mass
- ○ Molecular mass
- ○ Unit mass

Answer: Molar mass

5. Molecular mass of NaCl (Na=23, Cl=35.5) is?

- ○ 58.5 u
- ○ 58 u
- ○ 23 u
- ○ 35.5 u

Answer: 58.5 u

Chapter 4: Structure of the Atom

Introduction to Structure of Atom

1. What are the fundamental building blocks of matter?

- ○ Atoms and molecules
- ○ Cells
- ○ Tissues
- ○ Organs

Answer: Atoms and molecules

2. Did Dalton propose that atoms are indivisible?

- ○ Yes
- ○ No
- ○ Maybe
- ○ Only for gases

Answer: Yes

3. Are atoms really indivisible?

- ○ No, they have smaller constituents
- ○ Yes, absolutely
- ○ Only hydrogen atoms
- ○ Only metal atoms

Answer: No, they have smaller constituents

4. What makes atoms of different elements different?

- ○ Different constituents
- ○ Color
- ○ Smell
- ○ Taste

Answer: Different constituents

5. When did scientists face the challenge of revealing atom structure?

- ○ End of 19th century
- ○ End of 20th century
- ○ Beginning of 18th century
- ○ Middle of 19th century

Answer: End of 19th century

Charged Particles in Matter

1. What happens when you rub a glass rod with silk?

- ○ It becomes electrically charged
- ○ It melts
- ○ It breaks
- ○ Nothing

Answer: It becomes electrically charged

2. Where does the charge come from?

- ○ From within the atom
- ○ From the air
- ○ From the silk
- ○ Magic

Answer: From within the atom

3. Is an atom divisible?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Only in space

Answer: Yes

4. Comb attracting paper pieces is an example of?

- ○ Static electricity
- ○ Magnetism
- ○ Gravity
- ○ Friction

Answer: Static electricity

5. Charged particles indicate that atoms have?

- ○ Internal structure
- ○ No structure
- ○ Hard shell
- ○ Liquid core

Answer: Internal structure

Discovery of Sub-atomic Particles

1. Who identified the electron?

- ○ J.J. Thomson
- ○ E. Goldstein
- ○ Rutherford
- ○ Bohr

Answer: J.J. Thomson

2. Canal rays led to the discovery of?

- ○ Proton
- ○ Electron
- ○ Neutron
- ○ Nucleus

Answer: Proton

3. What is the charge of a proton?

- ○ Positive
- ○ Negative
- ○ Neutral
- ○ Variable

Answer: Positive

4. The mass of a proton is approximately ___ times that of an electron.

- ○ 2000
- ○ 100
- ○ 10
- ○ 10000

Answer: 2000

5. In general, an electron is represented as?

- ○ e-
- ○ p+
- ○ n
- ○ E

Answer: e-

The Structure of an Atom

1. Dalton's theory failed because?

- ○ Atom is divisible
- ○ Atom is indivisible
- ○ Matter is continuous
- ○ Elements are same

Answer: Atom is divisible

2. Which particles are inside the atom?

- ○ Electrons and protons
- ○ Only electrons
- ○ Only protons
- ○ Dust

Answer: Electrons and protons

3. Who was the first to propose a model for atom structure?

- ○ J.J. Thomson
- ○ Rutherford
- ○ Bohr
- ○ Dalton

Answer: J.J. Thomson

4. Understanding atom structure required?

- ○ New models
- ○ Better microscopes
- ○ More elements
- ○ Less elements

Answer: New models

5. Protons are located?

- ○ In the interior of the atom
- ○ On the surface
- ○ Outside the atom
- ○ Nowhere

Answer: In the interior of the atom

Thomson’s Model of an Atom

1. Thomson compared the atom to a?

- ○ Christmas pudding
- ○ Solar system
- ○ Brick wall
- ○ Cloud

Answer: Christmas pudding

2. In Thomson's model, the positive charge is?

- ○ Spread all over like a sphere
- ○ Concentrated in center
- ○ Absent
- ○ Negative

Answer: Spread all over like a sphere

3. According to Thomson, the atom as a whole is?

- ○ Electrically neutral
- ○ Positively charged
- ○ Negatively charged
- ○ Unstable

Answer: Electrically neutral

4. Electrons in Thomson's model are like?

- ○ Seeds in a watermelon
- ○ Planets around sun
- ○ Birds in sky
- ○ Fish in water

Answer: Seeds in a watermelon

5. Did Thomson's model explain experimental results of other scientists?

- ○ No
- ○ Yes
- ○ Perfectly
- ○ Mostly

Answer: No

Rutherford’s Model of an Atom

1. Rutherford used which particles for his experiment?

- ○ Alpha particles
- ○ Beta particles
- ○ Gamma rays
- ○ X-rays

Answer: Alpha particles

2. He selected a foil made of?

- ○ Gold
- ○ Silver
- ○ Aluminium
- ○ Copper

Answer: Gold

3. Most alpha particles?

- ○ Passed straight through
- ○ Deflected back
- ○ Stopped
- ○ Disappeared

Answer: Passed straight through

4. The positively charged centre is called?

- ○ Nucleus
- ○ Orbit
- ○ Shell
- ○ Proton

Answer: Nucleus

5. The size of the nucleus is ___ compared to the atom.

- ○ Very small
- ○ Very large
- ○ Equal
- ○ Half

Answer: Very small

Drawbacks of Rutherford’s Model

1. A particle in circular orbit would undergo?

- ○ Acceleration
- ○ Deceleration
- ○ Rest
- ○ Linear motion

Answer: Acceleration

2. During acceleration, charged particles?

- ○ Radiate energy
- ○ Gain energy
- ○ Stop moving
- ○ Become neutral

Answer: Radiate energy

3. If Rutherford's model was fully correct, atoms would be?

- ○ Unstable
- ○ Stable
- ○ Invisible
- ○ Solid

Answer: Unstable

4. The revolving electron would eventually?

- ○ Fall into the nucleus
- ○ Escape the atom
- ○ Stop moving
- ○ Grow larger

Answer: Fall into the nucleus

5. Are atoms actually stable?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Only in gas

Answer: Yes

Bohr’s Model of Atom

1. Bohr proposed that electrons revolve in?

- ○ Discrete orbits
- ○ Random paths
- ○ Nucleus
- ○ Straight lines

Answer: Discrete orbits

2. While revolving in discrete orbits, electrons?

- ○ Do not radiate energy
- ○ Radiate energy
- ○ Lose mass
- ○ Gain charge

Answer: Do not radiate energy

3. These orbits are also called?

- ○ Energy levels
- ○ Roads
- ○ Tracks
- ○ Waves

Answer: Energy levels

4. Which letter represents the first shell?

- ○ K
- ○ L
- ○ M
- ○ N

Answer: K

5. Bohr's model explained the?

- ○ Stability of the atom
- ○ Color of atom
- ○ Weight of atom
- ○ Speed of atom

Answer: Stability of the atom

Neutrons

1. Who discovered the neutron?

- ○ J. Chadwick
- ○ Bohr
- ○ Rutherford
- ○ Thomson

Answer: J. Chadwick

2. Neutrons have?

- ○ No charge
- ○ Positive charge
- ○ Negative charge
- ○ Variable charge

Answer: No charge

3. Mass of a neutron is nearly equal to?

- ○ Proton
- ○ Electron
- ○ Alpha particle
- ○ Atom

Answer: Proton

4. Neutrons are present in the nucleus of all atoms except?

- ○ Hydrogen
- ○ Helium
- ○ Carbon
- ○ Oxygen

Answer: Hydrogen

5. Mass of an atom is sum of?

- ○ Protons and neutrons
- ○ Electrons and protons
- ○ Electrons and neutrons
- ○ Only protons

Answer: Protons and neutrons

Distribution of Electrons

1. The maximum number of electrons in a shell is given by?

- ○ 2n^2
- ○ n^2
- ○ 2n
- ○ n

Answer: 2n^2

2. Max electrons in K shell (n=1) is?

- ○ 2
- ○ 8
- ○ 18
- ○ 1

Answer: 2

3. Max electrons in L shell (n=2) is?

- ○ 8
- ○ 2
- ○ 18
- ○ 32

Answer: 8

4. The outermost shell can hold a maximum of?

- ○ 8 electrons
- ○ 18 electrons
- ○ 2 electrons
- ○ 32 electrons

Answer: 8 electrons

5. Shells are filled in a?

- ○ Step-wise manner
- ○ Random manner
- ○ Reverse manner
- ○ Fast manner

Answer: Step-wise manner

Valency

1. Electrons in the outermost shell are called?

- ○ Valence electrons
- ○ Core electrons
- ○ Free electrons
- ○ Nuclear electrons

Answer: Valence electrons

2. Combining capacity of an atom is?

- ○ Valency
- ○ Atomicity
- ○ Atomic mass
- ○ Atomic number

Answer: Valency

3. An outermost shell with 8 electrons possesses?

- ○ An octet
- ○ A doublet
- ○ A triplet
- ○ Zero

Answer: An octet

4. If an atom has 1 electron in outermost shell, its valency is?

- ○ 1
- ○ 7
- ○ 0
- ○ 8

Answer: 1

5. If an atom has 7 electrons in outermost shell, its valency is?

- ○ 1
- ○ 7
- ○ 8
- ○ 0

Answer: 1

Atomic Number

1. Atomic number is denoted by?

- ○ Z
- ○ A
- ○ N
- ○ X

Answer: Z

2. Atomic number is equal to?

- ○ Number of protons
- ○ Number of neutrons
- ○ Number of electrons
- ○ Mass number

Answer: Number of protons

3. Elements are defined by?

- ○ Number of protons
- ○ Number of neutrons
- ○ Mass
- ○ Valency

Answer: Number of protons

4. Atomic number of Carbon is?

- ○ 6
- ○ 12
- ○ 14
- ○ 1

Answer: 6

5. Do all atoms of an element have the same atomic number?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Only isotopes

Answer: Yes

Mass Number

1. Mass number is denoted by?

- ○ A
- ○ Z
- ○ M
- ○ N

Answer: A

2. Mass number is the sum of?

- ○ Protons and neutrons
- ○ Protons and electrons
- ○ Neutrons and electrons
- ○ Only protons

Answer: Protons and neutrons

3. Protons and neutrons are collectively called?

- ○ Nucleons
- ○ Electrons
- ○ Isotopes
- ○ Ions

Answer: Nucleons

4. Mass of Carbon (6 protons + 6 neutrons) is?

- ○ 12 u
- ○ 6 u
- ○ 18 u
- ○ 0 u

Answer: 12 u

5. Where does the mass of an atom reside?

- ○ Nucleus
- ○ Shells
- ○ Electrons
- ○ Space

Answer: Nucleus

Isotopes

1. Isotopes have same atomic number but different?

- ○ Mass numbers
- ○ Protons
- ○ Electrons
- ○ Chemical properties

Answer: Mass numbers

2. Protium, Deuterium, and Tritium are isotopes of?

- ○ Hydrogen
- ○ Carbon
- ○ Oxygen
- ○ Chlorine

Answer: Hydrogen

3. Chemical properties of isotopes are?

- ○ Similar
- ○ Different
- ○ Opposite
- ○ None

Answer: Similar

4. Isotope of Uranium is used in?

- ○ Nuclear reactors
- ○ Treating cancer
- ○ Treating goitre
- ○ Fertilizers

Answer: Nuclear reactors

5. Isotope of Iodine is used for?

- ○ Treating goitre
- ○ Treating cancer
- ○ Fuel
- ○ Dating

Answer: Treating goitre

Isobars

1. Isobars have same mass number but different?

- ○ Atomic numbers
- ○ Neutrons
- ○ Protons
- ○ All of the above

Answer: All of the above

2. Calcium (20) and Argon (18) are?

- ○ Isobars
- ○ Isotopes
- ○ Isomers
- ○ Allotropes

Answer: Isobars

3. Do isobars belong to the same element?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Always

Answer: No

4. Isobars have different?

- ○ Chemical properties
- ○ Mass number
- ○ Nucleon number
- ○ Nothing

Answer: Chemical properties

5. Mass number of Calcium and Argon pair is?

- ○ 40
- ○ 20
- ○ 18
- ○ 38

Answer: 40

Chapter 5: The Fundamental Unit of Life

The Fundamental Unit of Life

1. Who first discovered cells?

- ○ Robert Hooke
- ○ Robert Brown
- ○ Leeuwenhoek
- ○ Schleiden

Answer: Robert Hooke

2. What is the Latin word for 'a little room'?

- ○ Cell
- ○ Nucleus
- ○ Organelle
- ○ Cytoplasm

Answer: Cell

3. Who proposed that all cells arise from pre-existing cells?

- ○ Virchow
- ○ Schwann
- ○ Schleiden
- ○ Hooke

Answer: Virchow

4. When was the electron microscope discovered?

- ○ 1940
- ○ 1665
- ○ 1831
- ○ 1855

Answer: 1940

5. Who discovered the nucleus in the cell?

- ○ Robert Brown
- ○ Robert Hooke
- ○ Purkinje
- ○ Leeuwenhoek

Answer: Robert Brown

What are Living Organisms Made Up of?

1. Organisms made of a single cell are called?

- ○ Unicellular
- ○ Multicellular
- ○ Prokaryotic
- ○ Eukaryotic

Answer: Unicellular

2. Which of the following is a unicellular organism?

- ○ Amoeba
- ○ Fungi
- ○ Plants
- ○ Animals

Answer: Amoeba

3. What is the specific function of nerve cells related to?

- ○ Shape
- ○ Size
- ○ Color
- ○ Smell

Answer: Shape

4. What are the specific components within a cell known as?

- ○ Cell organelles
- ○ Organs
- ○ Tissues
- ○ Molecules

Answer: Cell organelles

5. Where is division of labour seen?

- ○ Both in multicellular organisms and within a single cell
- ○ Only in multicellular organisms
- ○ Only within a single cell
- ○ None of the above

Answer: Both in multicellular organisms and within a single cell

What is a Cell Made Up of?

1. What are the three features in almost every cell?

- ○ Plasma membrane, nucleus and cytoplasm
- ○ Cell wall, nucleus and cytoplasm
- ○ Plasma membrane, cell wall and nucleus
- ○ Plasma membrane, cell wall and cytoplasm

Answer: Plasma membrane, nucleus and cytoplasm

2. What is the jelly-like substance that fills the cell?

- ○ Cytoplasm
- ○ Protoplasm
- ○ Nucleoplasm
- ○ Endoplasm

Answer: Cytoplasm

3. What is the large, centrally located spherical component of the cell?

- ○ Nucleus
- ○ Vacuole
- ○ Plastid
- ○ Mitochondrion

Answer: Nucleus

4. What is the outermost covering of the cell?

- ○ Plasma membrane
- ○ Cell wall
- ○ Nuclear membrane
- ○ Cytoskeleton

Answer: Plasma membrane

5. What are the specialized structures within the cytoplasm called?

- ○ Cell organelles
- ○ Organs
- ○ Tissues
- ○ Molecules

Answer: Cell organelles

Plasma Membrane or Cell Membrane

1. The plasma membrane is called a selectively permeable membrane because:

- ○ It allows entry and exit of some materials and prevents movement of others
- ○ It allows entry and exit of all materials
- ○ It prevents entry and exit of all materials
- ○ None of the above

Answer: It allows entry and exit of some materials and prevents movement of others

2. The movement of water molecules through a selectively permeable membrane is called?

- ○ Osmosis
- ○ Diffusion
- ○ Endocytosis
- ○ Exocytosis

Answer: Osmosis

3. A cell will swell up if the surrounding solution is?

- ○ Hypotonic
- ○ Isotonic
- ○ Hypertonic
- ○ None of the above

Answer: Hypotonic

4. The process by which a cell engulfs food is known as?

- ○ Endocytosis
- ○ Exocytosis
- ○ Osmosis
- ○ Diffusion

Answer: Endocytosis

5. The plasma membrane is made up of:

- ○ Lipids and proteins
- ○ Carbohydrates and proteins
- ○ Lipids and carbohydrates
- ○ Carbohydrates and fats

Answer: Lipids and proteins

Cell Wall

1. Which cells have a cell wall?

- ○ Plant cells
- ○ Animal cells
- ○ Both plant and animal cells
- ○ None of the above

Answer: Plant cells

2. The plant cell wall is mainly composed of?

- ○ Cellulose
- ○ Protein
- ○ Lipid
- ○ Starch

Answer: Cellulose

3. The phenomenon of shrinkage of cell contents away from the cell wall is known as?

- ○ Plasmolysis
- ○ Osmosis
- ○ Diffusion
- ○ Endocytosis

Answer: Plasmolysis

4. What does the cell wall provide to plants?

- ○ Structural strength
- ○ Energy
- ○ Food
- ○ Color

Answer: Structural strength

5. The cell wall permits the cells of which organisms to withstand very dilute external media without bursting?

- ○ Plants, fungi and bacteria
- ○ Only plants
- ○ Only fungi
- ○ Only bacteria

Answer: Plants, fungi and bacteria

Nucleus

1. The nucleus has a double layered covering called?

- ○ Nuclear membrane
- ○ Plasma membrane
- ○ Cell wall
- ○ Cytoplasm

Answer: Nuclear membrane

2. Functional segments of DNA are called?

- ○ Genes
- ○ Chromosomes
- ○ Chromatin
- ○ Nucleoid

Answer: Genes

3. Organisms whose cells lack a nuclear membrane are called?

- ○ Prokaryotes
- ○ Eukaryotes
- ○ Unicellular
- ○ Multicellular

Answer: Prokaryotes

4. The undefined nuclear region in prokaryotes is called?

- ○ Nucleoid
- ○ Nucleus
- ○ Chromosome
- ○ Chromatin

Answer: Nucleoid

5. The nucleus plays a central role in?

- ○ Cellular reproduction
- ○ Protein synthesis
- ○ Energy production
- ○ Lipid synthesis

Answer: Cellular reproduction

Cytoplasm

1. The fluid content inside the plasma membrane is called?

- ○ Cytoplasm
- ○ Protoplasm
- ○ Nucleoplasm
- ○ Endoplasm

Answer: Cytoplasm

2. Which of the following is true for prokaryotes?

- ○ Membrane-bound cell organelles are absent
- ○ Membrane-bound cell organelles are present
- ○ Nuclear membrane is present
- ○ None of the above

Answer: Membrane-bound cell organelles are absent

3. Viruses lack any membranes and hence?

- ○ Do not show characteristics of life until they enter a living body
- ○ Show characteristics of life
- ○ Are unicellular
- ○ Are multicellular

Answer: Do not show characteristics of life until they enter a living body

4. The cytoplasm contains many specialised?

- ○ Cell organelles
- ○ Organs
- ○ Tissues
- ○ Molecules

Answer: Cell organelles

5. Eukaryotic cells have?

- ○ Nuclear membrane as well as membrane-enclosed organelles
- ○ No nuclear membrane
- ○ No membrane-enclosed organelles
- ○ None of the above

Answer: Nuclear membrane as well as membrane-enclosed organelles

Cell Organelles

1. Which of the following are visible only with an electron microscope?

- ○ Some organelles
- ○ All organelles
- ○ No organelles
- ○ None of the above

Answer: Some organelles

2. Which of the following is a feature of eukaryotic cells?

- ○ Membrane-bound little structures (or ‘organelles’) within themselves
- ○ No membrane-bound organelles
- ○ A nucleoid
- ○ None of the above

Answer: Membrane-bound little structures (or ‘organelles’) within themselves

3. Which of the following will we discuss as cell organelles?

- ○ Endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria and plastids
- ○ Only endoplasmic reticulum
- ○ Only Golgi apparatus
- ○ Only lysosomes

Answer: Endoplasmic reticulum, Golgi apparatus, lysosomes, mitochondria and plastids

4. The use of membrane-bound little structures is to?

- ○ Keep the activities of different kinds separate from each other
- ○ Mix the activities of different kinds
- ○ Stop all activities
- ○ None of the above

Answer: Keep the activities of different kinds separate from each other

5. Large and complex cells need a lot of chemical activities to?

- ○ Support their complicated structure and function
- ○ Support their simple structure and function
- ○ Destroy their structure and function
- ○ None of the above

Answer: Support their complicated structure and function

Endoplasmic Reticulum (ER)

1. The two types of ER are?

- ○ Rough ER and Smooth ER
- ○ Long ER and Short ER
- ○ Round ER and Flat ER
- ○ None of the above

Answer: Rough ER and Smooth ER

2. RER looks rough because of?

- ○ Ribosomes
- ○ Lipids
- ○ Proteins
- ○ Carbohydrates

Answer: Ribosomes

3. SER helps in the manufacture of?

- ○ Fat molecules, or lipids
- ○ Proteins
- ○ Carbohydrates
- ○ None of the above

Answer: Fat molecules, or lipids

4. The process of building the cell membrane is known as?

- ○ Membrane biogenesis
- ○ Photosynthesis
- ○ Respiration
- ○ Endocytosis

Answer: Membrane biogenesis

5. In the liver cells of vertebrates, which ER plays a crucial role in detoxifying many poisons and drugs?

- ○ SER
- ○ RER
- ○ Both SER and RER
- ○ None of the above

Answer: SER

Golgi Apparatus

1. The Golgi apparatus was first described by?

- ○ Camillo Golgi
- ○ Robert Hooke
- ○ Robert Brown
- ○ Leeuwenhoek

Answer: Camillo Golgi

2. The Golgi apparatus consists of a system of membrane-bound vesicles arranged in stacks called?

- ○ Cisterns
- ○ Vesicles
- ○ Tubules
- ○ Vacuoles

Answer: Cisterns

3. The Golgi apparatus is involved in the formation of?

- ○ Lysosomes
- ○ Ribosomes
- ○ Mitochondria
- ○ Plastids

Answer: Lysosomes

4. The functions of the Golgi apparatus include?

- ○ Storage, modification and packaging of products
- ○ Protein synthesis
- ○ Energy production
- ○ Lipid synthesis

Answer: Storage, modification and packaging of products

5. In the Golgi apparatus, complex sugars may be made from?

- ○ Simple sugars
- ○ Proteins
- ○ Lipids
- ○ None of the above

Answer: Simple sugars

Lysosomes

1. Lysosomes are also known as the?

- ○ ‘Suicide bags’ of a cell
- ○ ‘Powerhouses’ of a cell
- ○ ‘Kitchens’ of a cell
- ○ ‘Control centers’ of a cell

Answer: ‘Suicide bags’ of a cell

2. Lysosomes contain powerful?

- ○ Digestive enzymes
- ○ Synthetic enzymes
- ○ Respiratory enzymes
- ○ None of the above

Answer: Digestive enzymes

3. Lysosomes are a kind of?

- ○ Waste disposal system of the cell
- ○ Energy production system of the cell
- ○ Protein synthesis system of the cell
- ○ Lipid synthesis system of the cell

Answer: Waste disposal system of the cell

4. The enzymes in lysosomes are made by?

- ○ RER
- ○ SER
- ○ Golgi apparatus
- ○ Mitochondria

Answer: RER

5. What happens when the cell gets damaged?

- ○ Lysosomes may burst and the enzymes digest their own cell
- ○ Lysosomes create a new cell
- ○ Lysosomes repair the cell
- ○ None of the above

Answer: Lysosomes may burst and the enzymes digest their own cell

Mitochondria

1. Mitochondria are known as the?

- ○ ‘Powerhouses’ of the cell
- ○ ‘Suicide bags’ of a cell
- ○ ‘Kitchens’ of a cell
- ○ ‘Control centers’ of a cell

Answer: ‘Powerhouses’ of the cell

2. The energy currency of the cell is?

- ○ ATP
- ○ ADP
- ○ AMP
- ○ None of the above

Answer: ATP

3. Which organelle has its own DNA and ribosomes?

- ○ Mitochondria
- ○ Lysosomes
- ○ Golgi apparatus
- ○ ER

Answer: Mitochondria

4. The outer membrane of mitochondria is?

- ○ Porous
- ○ Not porous
- ○ Deeply folded
- ○ None of the above

Answer: Porous

5. The inner membrane of mitochondria is?

- ○ Deeply folded
- ○ Not folded
- ○ Porous
- ○ None of the above

Answer: Deeply folded

Plastids

1. Plastids are present only in?

- ○ Plant cells
- ○ Animal cells
- ○ Both plant and animal cells
- ○ None of the above

Answer: Plant cells

2. Chromoplasts that contain chlorophyll are known as?

- ○ Chloroplasts
- ○ Leucoplasts
- ○ Chromoplasts
- ○ None of the above

Answer: Chloroplasts

3. The primary function of leucoplasts is?

- ○ Storage
- ○ Photosynthesis
- ○ Respiration
- ○ Protein synthesis

Answer: Storage

4. Like mitochondria, plastids also have their own?

- ○ DNA and ribosomes
- ○ Only DNA
- ○ Only ribosomes
- ○ None of the above

Answer: DNA and ribosomes

5. Chloroplasts are important for?

- ○ Photosynthesis in plants
- ○ Respiration in plants
- ○ Transpiration in plants
- ○ None of the above

Answer: Photosynthesis in plants

Vacuoles

1. Vacuoles are?

- ○ Storage sacs for solid or liquid contents
- ○ Powerhouses of the cell
- ○ Kitchens of the cell
- ○ Control centers of the cell

Answer: Storage sacs for solid or liquid contents

2. Which cells have very large vacuoles?

- ○ Plant cells
- ○ Animal cells
- ○ Both plant and animal cells
- ○ None of the above

Answer: Plant cells

3. In plant cells, vacuoles provide?

- ○ Turgidity and rigidity to the cell
- ○ Energy to the cell
- ○ Food to the cell
- ○ Color to the cell

Answer: Turgidity and rigidity to the cell

4. In Amoeba, the food vacuole contains?

- ○ The food items that the Amoeba has consumed
- ○ Water
- ○ Air
- ○ None of the above

Answer: The food items that the Amoeba has consumed

5. Specialised vacuoles in some unicellular organisms play important roles in?

- ○ Expelling excess water and some wastes from the cell
- ○ Absorbing water
- ○ Storing food
- ○ None of the above

Answer: Expelling excess water and some wastes from the cell

Cell Division

1. The process by which new cells are made is called?

- ○ Cell division
- ○ Cell multiplication
- ○ Cell addition
- ○ Cell subtraction

Answer: Cell division

2. The two main types of cell division are?

- ○ Mitosis and meiosis
- ○ Mitosis and osmosis
- ○ Meiosis and osmosis
- ○ None of the above

Answer: Mitosis and meiosis

3. In mitosis, a mother cell divides to form how many daughter cells?

- ○ Two
- ○ Four
- ○ Six
- ○ Eight

Answer: Two

4. In meiosis, a cell divides to produce how many new cells?

- ○ Four
- ○ Two
- ○ Six
- ○ Eight

Answer: Four

5. In meiosis, the new cells have how many chromosomes compared to the mother cell?

- ○ Half
- ○ Same
- ○ Double
- ○ Triple

Answer: Half

Chapter 6: Tissues

Introduction to Tissues

1. What is a tissue?

- ○ A group of similar cells performing a specific function
- ○ A single cell
- ○ An organ system
- ○ A type of organism

Answer: A group of similar cells performing a specific function

2. Which organism carries out all functions in a single cell?

- ○ Amoeba
- ○ Human
- ○ Plant
- ○ Fish

Answer: Amoeba

3. What is division of labour?

- ○ Different groups of cells doing specific tasks
- ○ Cells dividing rapidly
- ○ Cells stopping work
- ○ None of the above

Answer: Different groups of cells doing specific tasks

4. Which of these is an example of a tissue?

- ○ Blood
- ○ Stomach
- ○ Heart
- ○ Eye

Answer: Blood

5. Why are cells grouped into tissues?

- ○ To increase efficiency
- ○ To look better
- ○ To decrease size
- ○ To stop dividing

Answer: To increase efficiency

Plants vs. Animals Tissues

1. Why do plants need supportive tissue?

- ○ Because they are stationary and need to stand upright
- ○ Because they move a lot
- ○ To store food
- ○ To absorb water

Answer: Because they are stationary and need to stand upright

2. Most plant supportive tissues consist of?

- ○ Dead cells
- ○ Living cells
- ○ Muscle cells
- ○ Nerve cells

Answer: Dead cells

3. Which organisms consume more energy?

- ○ Animals
- ○ Plants
- ○ Both equally
- ○ Neither

Answer: Animals

4. Growth in plants is limited to?

- ○ Certain specific regions
- ○ All over the body
- ○ No regions
- ○ Roots only

Answer: Certain specific regions

5. Cell growth in animals is?

- ○ More uniform
- ○ Localised to tips
- ○ Non-existent
- ○ Only in bones

Answer: More uniform

Meristematic Tissue

1. What is meristematic tissue?

- ○ Dividing tissue
- ○ Dead tissue
- ○ Storage tissue
- ○ Protective tissue

Answer: Dividing tissue

2. Where is apical meristem found?

- ○ Growing tips of stems and roots
- ○ Base of leaves
- ○ Sides of the stem
- ○ In the bark

Answer: Growing tips of stems and roots

3. Which meristem increases the girth of the stem?

- ○ Lateral meristem
- ○ Apical meristem
- ○ Intercalary meristem
- ○ None

Answer: Lateral meristem

4. Cells of meristematic tissue lack?

- ○ Vacuoles
- ○ Nuclei
- ○ Cytoplasm
- ○ Cell walls

Answer: Vacuoles

5. Intercalary meristem is located?

- ○ Near the node
- ○ At the root tip
- ○ In the bark
- ○ In the flower

Answer: Near the node

Permanent Tissue

1. What is differentiation?

- ○ Taking up a permanent shape, size, and function
- ○ Continuous division
- ○ Dying of cells
- ○ Moving of cells

Answer: Taking up a permanent shape, size, and function

2. Permanent tissues are formed from?

- ○ Meristematic tissue
- ○ Dead cells
- ○ Animal cells
- ○ None of the above

Answer: Meristematic tissue

3. Do permanent tissues divide?

- ○ No, they have lost the ability
- ○ Yes, rapidly
- ○ Sometimes
- ○ Only in winter

Answer: No, they have lost the ability

4. Differentiation leads to?

- ○ Various types of permanent tissues
- ○ Meristematic tissue
- ○ Seeds
- ○ Fruits

Answer: Various types of permanent tissues

5. Cells in permanent tissue have?

- ○ Specific roles
- ○ No roles
- ○ Random roles
- ○ Only storage roles

Answer: Specific roles

Simple Permanent Tissue (Parenchyma)

1. What is the most common simple permanent tissue?

- ○ Parenchyma
- ○ Collenchyma
- ○ Sclerenchyma
- ○ Xylem

Answer: Parenchyma

2. What is a main function of parenchyma?

- ○ Storing food
- ○ Mechanical strength
- ○ Transporting water
- ○ Movement

Answer: Storing food

3. Parenchyma with chlorophyll is called?

- ○ Chlorenchyma
- ○ Aerenchyma
- ○ Sclerenchyma
- ○ Epidermis

Answer: Chlorenchyma

4. Aerenchyma helps aquatic plants to?

- ○ Float
- ○ Sink
- ○ Dry out
- ○ Reproduce

Answer: Float

5. Are parenchyma cells living?

- ○ Yes
- ○ No
- ○ Half of them
- ○ Only in roots

Answer: Yes

Collenchyma and Sclerenchyma

1. Which tissue provides flexibility to plants?

- ○ Collenchyma
- ○ Parenchyma
- ○ Sclerenchyma
- ○ Xylem

Answer: Collenchyma

2. Sclerenchyma cells are?

- ○ Dead
- ○ Living
- ○ Dividing
- ○ Photosynthetic

Answer: Dead

3. The husk of a coconut is made of?

- ○ Sclerenchyma
- ○ Collenchyma
- ○ Parenchyma
- ○ Epidermis

Answer: Sclerenchyma

4. What makes sclerenchyma walls thick?

- ○ Lignin
- ○ Suberin
- ○ Pectin
- ○ Cellulose

Answer: Lignin

5. Collenchyma is found in?

- ○ Leaf stalks
- ○ Root tips
- ○ Bark
- ○ Seeds

Answer: Leaf stalks

Protective Tissue

1. The outermost layer of plant cells is?

- ○ Epidermis
- ○ Cortex
- ○ Pith
- ○ Cambium

Answer: Epidermis

2. What are stomata?

- ○ Pores in the leaf epidermis
- ○ Cells in the root
- ○ Hairs on the stem
- ○ Waxy coating

Answer: Pores in the leaf epidermis

3. What is the function of cutin?

- ○ Prevent water loss
- ○ Allow gas exchange
- ○ Absorb water
- ○ Attract insects

Answer: Prevent water loss

4. Cork cells have what substance in their walls?

- ○ Suberin
- ○ Lignin
- ○ Cutin
- ○ Pectin

Answer: Suberin

5. Are cork cells living?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in young plants

Answer: No

Complex Permanent Tissue: Xylem

1. What does xylem transport?

- ○ Water and minerals
- ○ Food
- ○ Air
- ○ Hormones

Answer: Water and minerals

2. Which of these is NOT part of xylem?

- ○ Sieve tubes
- ○ Tracheids
- ○ Vessels
- ○ Xylem parenchyma

Answer: Sieve tubes

3. In which direction does xylem transport?

- ○ Vertically (upwards)
- ○ Downwards only
- ○ Both directions
- ○ Sideways

Answer: Vertically (upwards)

4. Are most xylem cells dead or living at maturity?

- ○ Dead
- ○ Living
- ○ Dividing
- ○ Dormant

Answer: Dead

5. Complex tissues are made of?

- ○ More than one type of cell
- ○ Only one type of cell
- ○ Only dead cells
- ○ Only living cells

Answer: More than one type of cell

Complex Permanent Tissue: Phloem

1. What is the function of phloem?

- ○ Transport food
- ○ Transport water
- ○ Support
- ○ Protection

Answer: Transport food

2. Phloem transport is in which direction?

- ○ Both directions
- ○ Upwards only
- ○ Downwards only
- ○ None

Answer: Both directions

3. Which phloem component is dead?

- ○ Phloem fibres
- ○ Sieve tubes
- ○ Companion cells
- ○ Phloem parenchyma

Answer: Phloem fibres

4. Sieve tubes have?

- ○ Perforated walls
- ○ Thick lignified walls
- ○ No cytoplasm
- ○ No nucleus

Answer: Perforated walls

5. Phloem is an example of?

- ○ Complex permanent tissue
- ○ Simple permanent tissue
- ○ Meristematic tissue
- ○ Protective tissue

Answer: Complex permanent tissue

Animal Tissues Overview

1. Which is NOT a type of animal tissue?

- ○ Meristematic tissue
- ○ Epithelial tissue
- ○ Connective tissue
- ○ Muscular tissue

Answer: Meristematic tissue

2. Tissue responsible for movement is?

- ○ Muscular
- ○ Nervous
- ○ Epithelial
- ○ Connective

Answer: Muscular

3. Tissue responsible for protection is?

- ○ Epithelial
- ○ Muscular
- ○ Connective
- ○ Nervous

Answer: Epithelial

4. Blood belongs to which category?

- ○ Connective tissue
- ○ Epithelial tissue
- ○ Muscular tissue
- ○ Nervous tissue

Answer: Connective tissue

5. The brain is made of?

- ○ Nervous tissue
- ○ Muscular tissue
- ○ Connective tissue
- ○ Epithelial tissue

Answer: Nervous tissue

Epithelial Tissue

1. What type of epithelium lines the mouth?

- ○ Squamous epithelium
- ○ Cuboidal epithelium
- ○ Columnar epithelium
- ○ Glandular epithelium

Answer: Squamous epithelium

2. Which epithelium has hair-like cilia?

- ○ Ciliated columnar
- ○ Stratified squamous
- ○ Cuboidal
- ○ Simple squamous

Answer: Ciliated columnar

3. Where is cuboidal epithelium found?

- ○ Kidney tubules
- ○ Skin
- ○ Lungs
- ○ Stomach

Answer: Kidney tubules

4. The skin is made of?

- ○ Stratified squamous epithelium
- ○ Simple squamous epithelium
- ○ Columnar epithelium
- ○ Cuboidal epithelium

Answer: Stratified squamous epithelium

5. What is the main function of glandular epithelium?

- ○ Secretion
- ○ Movement
- ○ Support
- ○ Conduction

Answer: Secretion

Connective Tissue: Blood and Bone

1. The liquid matrix of blood is called?

- ○ Plasma
- ○ Serum
- ○ Lymph
- ○ Water

Answer: Plasma

2. Bone cells are embedded in a matrix of?

- ○ Calcium and phosphorus
- ○ Proteins and sugars
- ○ Fats
- ○ Silica

Answer: Calcium and phosphorus

3. Is bone flexible?

- ○ No, it is nonflexible
- ○ Yes, very flexible
- ○ Slightly flexible
- ○ Only when young

Answer: No, it is nonflexible

4. What does blood transport?

- ○ Gases, food, and hormones
- ○ Only oxygen
- ○ Only waste
- ○ Nothing

Answer: Gases, food, and hormones

5. RBCs are found in?

- ○ Blood
- ○ Bone
- ○ Cartilage
- ○ Muscle

Answer: Blood

Other Connective Tissues

1. Ligaments connect?

- ○ Bone to bone
- ○ Muscle to bone
- ○ Muscle to muscle
- ○ Skin to muscle

Answer: Bone to bone

2. Tendons connect?

- ○ Muscle to bone
- ○ Bone to bone
- ○ Nerve to muscle
- ○ Skin to bone

Answer: Muscle to bone

3. Cartilage is found in?

- ○ Nose and ear
- ○ Teeth
- ○ Hair
- ○ Nails

Answer: Nose and ear

4. Adipose tissue stores?

- ○ Fat
- ○ Water
- ○ Protein
- ○ Starch

Answer: Fat

5. Areolar tissue is found?

- ○ Between skin and muscles
- ○ In bones
- ○ In teeth
- ○ In hair

Answer: Between skin and muscles

Muscular Tissue

1. Which muscles are voluntary?

- ○ Striated muscles
- ○ Smooth muscles
- ○ Cardiac muscles
- ○ All of them

Answer: Striated muscles

2. Heart muscles are called?

- ○ Cardiac muscles
- ○ Striated muscles
- ○ Smooth muscles
- ○ Skeletal muscles

Answer: Cardiac muscles

3. Which muscles are found in the alimentary canal?

- ○ Smooth muscles
- ○ Striated muscles
- ○ Cardiac muscles
- ○ Voluntary muscles

Answer: Smooth muscles

4. Striated muscles are attached to?

- ○ Bones
- ○ Skin
- ○ Organs
- ○ Nerves

Answer: Bones

5. Muscle cells are called?

- ○ Fibres
- ○ Neurons
- ○ Osteocytes
- ○ Chondrocytes

Answer: Fibres

Nervous Tissue

1. The unit of nervous tissue is?

- ○ Neuron
- ○ Nephron
- ○ Cell body
- ○ Axon

Answer: Neuron

2. The long part of a neuron is called?

- ○ Axon
- ○ Dendrite
- ○ Cell body
- ○ Nucleus

Answer: Axon

3. Branched parts of a neuron are?

- ○ Dendrites
- ○ Axons
- ○ Nerve endings
- ○ Synapses

Answer: Dendrites

4. What passes along the nerve fibre?

- ○ Nerve impulse
- ○ Blood
- ○ Hormones
- ○ Water

Answer: Nerve impulse

5. Nervous tissue allows us to?

- ○ Respond to stimuli
- ○ Digest food
- ○ Transport blood
- ○ Photosynthesize

Answer: Respond to stimuli

Chapter 7: Motion

Introduction to Motion

1. When is an object said to be in motion?

- ○ When its position changes with time
- ○ When it is invisible
- ○ When it is heavy
- ○ When it is hot

Answer: When its position changes with time

2. Can an object be moving for one person and stationary for another?

- ○ Yes, motion is relative
- ○ No, motion is absolute
- ○ Only in space
- ○ Never

Answer: Yes, motion is relative

3. What is indirect evidence of motion?

- ○ Observing effects like dust movement
- ○ Seeing the object move
- ○ Measuring speed
- ○ Hearing sound

Answer: Observing effects like dust movement

4. Which of these is NOT in motion?

- ○ A parked car
- ○ Blood flowing
- ○ Earth rotating
- ○ Atoms vibrating

Answer: A parked car

5. Sunrise and sunset are caused by?

- ○ Motion of the earth
- ○ Motion of the sun
- ○ Motion of the moon
- ○ Motion of stars

Answer: Motion of the earth

Describing Motion

1. To describe position, we need a?

- ○ Reference point
- ○ Stopwatch
- ○ Thermometer
- ○ Compass

Answer: Reference point

2. The reference point is also called?

- ○ Origin
- ○ Destination
- ○ Path
- ○ Vector

Answer: Origin

3. If school is 2km north of station, what is the origin?

- ○ Station
- ○ School
- ○ North
- ○ 2km

Answer: Station

4. Can we choose any reference point?

- ○ Yes
- ○ No
- ○ Only fixed ones
- ○ Only moving ones

Answer: Yes

5. Location depends on?

- ○ Reference point
- ○ Time of day
- ○ Weather
- ○ Speed

Answer: Reference point

Motion Along a Straight Line

1. Total path length covered is called?

- ○ Distance
- ○ Displacement
- ○ Speed
- ○ Velocity

Answer: Distance

2. Shortest distance from initial to final position is?

- ○ Displacement
- ○ Distance
- ○ Path
- ○ Length

Answer: Displacement

3. Displacement has?

- ○ Magnitude and direction
- ○ Only magnitude
- ○ Only direction
- ○ Neither

Answer: Magnitude and direction

4. Can displacement be zero?

- ○ Yes
- ○ No
- ○ Never
- ○ Only for light

Answer: Yes

5. If you go 5m East and 5m West, displacement is?

- ○ 0m
- ○ 10m
- ○ 5m
- ○ 25m

Answer: 0m

Uniform and Non-Uniform Motion

1. Equal distances in equal time intervals is?

- ○ Uniform motion
- ○ Non-uniform motion
- ○ Accelerated motion
- ○ Circular motion

Answer: Uniform motion

2. Unequal distances in equal time intervals is?

- ○ Non-uniform motion
- ○ Uniform motion
- ○ Constant speed
- ○ Rest

Answer: Non-uniform motion

3. A car in crowded traffic typically shows?

- ○ Non-uniform motion
- ○ Uniform motion
- ○ Constant velocity
- ○ Zero acceleration

Answer: Non-uniform motion

4. Planets revolving around sun is?

- ○ Uniform circular motion
- ○ Linear motion
- ○ Random motion
- ○ Zigzag motion

Answer: Uniform circular motion

5. For uniform motion, time interval should be?

- ○ Small
- ○ Large
- ○ Infinite
- ○ Zero

Answer: Small

Measuring the Rate of Motion

1. Rate of motion is measured by?

- ○ Speed
- ○ Distance
- ○ Time
- ○ Mass

Answer: Speed

2. SI unit of speed is?

- ○ m/s
- ○ km/h
- ○ cm/s
- ○ miles/hour

Answer: m/s

3. Average speed is?

- ○ Total distance / Total time
- ○ Total time / Total distance
- ○ Distance x Time
- ○ Speed x Time

Answer: Total distance / Total time

4. Does speed specify direction?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in space

Answer: No

5. An object covers 16m in 4s. Speed is?

- ○ 4 m/s
- ○ 64 m/s
- ○ 12 m/s
- ○ 0.25 m/s

Answer: 4 m/s

Speed with Direction: Velocity

1. Speed with direction is called?

- ○ Velocity
- ○ Acceleration
- ○ Distance
- ○ Displacement

Answer: Velocity

2. Velocity changes if?

- ○ Speed or direction changes
- ○ Only time changes
- ○ Only mass changes
- ○ Nothing changes

Answer: Speed or direction changes

3. Average velocity formula (uniform change) is?

- ○ (u + v) / 2
- ○ u + v
- ○ v - u
- ○ u x v

Answer: (u + v) / 2

4. If a car moves in a circle at constant speed, does velocity change?

- ○ Yes
- ○ No
- ○ Sometimes
- ○ Never

Answer: Yes

5. Unit of velocity is?

- ○ m/s
- ○ m/s^2
- ○ m
- ○ s

Answer: m/s

Rate of Change of Velocity: Acceleration

1. Acceleration is?

- ○ Change in velocity per unit time
- ○ Change in distance
- ○ Change in speed
- ○ Change in position

Answer: Change in velocity per unit time

2. Formula for acceleration is?

- ○ (v - u) / t
- ○ v x t
- ○ u + at
- ○ s / t

Answer: (v - u) / t

3. SI unit of acceleration is?

- ○ m/s^2
- ○ m/s
- ○ km/h
- ○ m

Answer: m/s^2

4. If velocity increases, acceleration is?

- ○ Positive
- ○ Negative
- ○ Zero
- ○ Undefined

Answer: Positive

5. If velocity is constant, acceleration is?

- ○ Zero
- ○ Constant
- ○ Increasing
- ○ Decreasing

Answer: Zero

Graphical Representation: Distance-Time Graphs

1. Slope of distance-time graph gives?

- ○ Speed
- ○ Acceleration
- ○ Displacement
- ○ Time

Answer: Speed

2. For uniform speed, d-t graph is?

- ○ Straight line
- ○ Curved line
- ○ Circle
- ○ Zigzag

Answer: Straight line

3. Graph parallel to time axis means object is?

- ○ At rest
- ○ Moving uniformly
- ○ Accelerating
- ○ Decelerating

Answer: At rest

4. Curved d-t graph indicates?

- ○ Non-uniform speed
- ○ Uniform speed
- ○ Rest
- ○ Zero speed

Answer: Non-uniform speed

5. Distance is plotted on which axis?

- ○ Y-axis
- ○ X-axis
- ○ Z-axis
- ○ Any axis

Answer: Y-axis

Velocity-Time Graphs

1. Area under v-t graph gives?

- ○ Displacement
- ○ Acceleration
- ○ Speed
- ○ Time

Answer: Displacement

2. Slope of v-t graph gives?

- ○ Acceleration
- ○ Displacement
- ○ Speed
- ○ Force

Answer: Acceleration

3. For uniform acceleration, v-t graph is?

- ○ Straight line inclined to axes
- ○ Curved line
- ○ Parallel to time axis
- ○ Parallel to velocity axis

Answer: Straight line inclined to axes

4. If v-t graph is parallel to time axis, acceleration is?

- ○ Zero
- ○ Constant
- ○ Variable
- ○ Infinite

Answer: Zero

5. Retardation graph slope is?

- ○ Negative
- ○ Positive
- ○ Zero
- ○ Undefined

Answer: Negative

Equations of Motion

1. First equation of motion is?

- ○ $v = u + at$
- ○ $s = ut + 1/2at^2$
- ○ $2as = v^2 - u^2$
- ○ $F = ma$

Answer: $v = u + at$

2. Second equation relates?

- ○ Position and time
- ○ Velocity and time
- ○ Position and velocity
- ○ Force and mass

Answer: Position and time

3. Third equation is?

- ○ $2as = v^2 - u^2$
- ○ $v = u + at$
- ○ $s = ut + 1/2at^2$
- ○ $E = mc^2$

Answer: $2as = v^2 - u^2$

4. 'u' stands for?

- ○ Initial velocity
- ○ Final velocity
- ○ Acceleration
- ○ Time

Answer: Initial velocity

5. These equations apply for?

- ○ Uniform acceleration
- ○ Non-uniform acceleration
- ○ Variable acceleration
- ○ Zero velocity

Answer: Uniform acceleration

Uniform Circular Motion

1. Motion in a circle at constant speed is?

- ○ Accelerated motion
- ○ Uniform motion
- ○ Retarded motion
- ○ Rest

Answer: Accelerated motion

2. Why is it accelerated?

- ○ Direction changes continuously
- ○ Speed changes
- ○ Mass changes
- ○ Time stops

Answer: Direction changes continuously

3. Direction of motion at any point is?

- ○ Tangential
- ○ Radial
- ○ Vertical
- ○ Horizontal

Answer: Tangential

4. Formula for circular speed is?

- ○ $v = 2\pi r / t$
- ○ $v = \pi r^2 / t$
- ○ $v = 2r / t$
- ○ $v = r / t$

Answer: $v = 2\pi r / t$

5. Example of uniform circular motion?

- ○ Moon revolving around Earth
- ○ Car on straight road
- ○ Stone falling
- ○ Bullet fired

Answer: Moon revolving around Earth

Chapter 8: Force and Laws of Motion

Force and its Effects

1. What can force do?

- ○ Change speed, direction, or shape
- ○ Only change speed
- ○ Only change direction
- ○ Nothing

Answer: Change speed, direction, or shape

2. Force is based on the concept of?

- ○ Push, hit, or pull
- ○ Mass and volume
- ○ Speed and time
- ○ Energy

Answer: Push, hit, or pull

3. Can force change the shape of an object?

- ○ Yes
- ○ No
- ○ Only for liquids
- ○ Only for gases

Answer: Yes

4. Pushing a stationary object can?

- ○ Put it into motion
- ○ Break it
- ○ Change its color
- ○ Do nothing

Answer: Put it into motion

5. Stopping a moving object requires?

- ○ Effort or force
- ○ No effort
- ○ Magic
- ○ Waiting

Answer: Effort or force

Balanced Forces

1. Balanced forces are?

- ○ Equal in magnitude, opposite in direction
- ○ Unequal in magnitude
- ○ Same direction
- ○ Zero magnitude

Answer: Equal in magnitude, opposite in direction

2. Do balanced forces change the state of motion?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only for light objects

Answer: No

3. If a block is pulled equally from both sides, it?

- ○ Does not move
- ○ Moves right
- ○ Moves left
- ○ Moves up

Answer: Does not move

4. The net force in a balanced system is?

- ○ Zero
- ○ Double
- ○ Half
- ○ Infinite

Answer: Zero

5. Balanced forces can change?

- ○ Shape
- ○ Speed
- ○ Velocity
- ○ Direction

Answer: Shape

Unbalanced Forces

1. Unbalanced forces act in the direction of?

- ○ The greater force
- ○ The smaller force
- ○ Gravity
- ○ Friction

Answer: The greater force

2. What is required to accelerate an object?

- ○ Unbalanced force
- ○ Balanced force
- ○ No force
- ○ Friction only

Answer: Unbalanced force

3. If an unbalanced force acts on an object, it?

- ○ Changes speed or direction
- ○ Stops moving
- ○ Remains at rest
- ○ Disappears

Answer: Changes speed or direction

4. To keep an object moving with uniform velocity, the net force must be?

- ○ Zero
- ○ Positive
- ○ Negative
- ○ Unbalanced

Answer: Zero

5. When you stop pedaling a bicycle, it slows down due to?

- ○ Unbalanced friction force
- ○ Balanced force
- ○ Inertia
- ○ Gravity

Answer: Unbalanced friction force

Friction

1. Friction force acts in which direction?

- ○ Opposite to motion
- ○ Same as motion
- ○ Perpendicular to motion
- ○ Downwards

Answer: Opposite to motion

2. Friction arises between?

- ○ Two surfaces in contact
- ○ Air and water
- ○ Space
- ○ Magnets

Answer: Two surfaces in contact

3. If a pushed box doesn't move, friction is?

- ○ Balancing the push
- ○ Less than the push
- ○ Zero
- ○ Helping the push

Answer: Balancing the push

4. To move a heavy box, pushing force must be?

- ○ Greater than friction
- ○ Equal to friction
- ○ Less than friction
- ○ Zero

Answer: Greater than friction

5. Friction is a type of?

- ○ Contact force
- ○ Non-contact force
- ○ Magnetic force
- ○ Gravitational force

Answer: Contact force

First Law of Motion

1. First Law of Motion is also known as?

- ○ Law of Inertia
- ○ Law of Momentum
- ○ Law of Action-Reaction
- ○ Law of Gravity

Answer: Law of Inertia

2. An object at rest tends to?

- ○ Remain at rest
- ○ Start moving
- ○ Fly
- ○ Vibrate

Answer: Remain at rest

3. An object in uniform motion tends to?

- ○ Keep moving in a straight line
- ○ Stop
- ○ Change direction
- ○ Accelerate

Answer: Keep moving in a straight line

4. What changes the state of motion?

- ○ Applied unbalanced force
- ○ Inertia
- ○ Mass
- ○ Time

Answer: Applied unbalanced force

5. Who presented the three laws of motion?

- ○ Newton
- ○ Galileo
- ○ Einstein
- ○ Darwin

Answer: Newton

Inertia

1. Inertia is the tendency to?

- ○ Resist change in state of motion
- ○ Change state of motion
- ○ Move faster
- ○ Stop moving

Answer: Resist change in state of motion

2. Why do passengers fall back when a bus starts?

- ○ Inertia of rest
- ○ Inertia of motion
- ○ Gravity
- ○ Friction

Answer: Inertia of rest

3. Why do passengers fall forward when a bus stops?

- ○ Inertia of motion
- ○ Inertia of rest
- ○ Acceleration
- ○ Speed

Answer: Inertia of motion

4. Why does a coin fall into a glass when the card is flicked?

- ○ Inertia of the coin
- ○ Gravity only
- ○ Card pushes it
- ○ Coin is heavy

Answer: Inertia of the coin

5. Which objects have inertia?

- ○ All objects
- ○ Only moving objects
- ○ Only heavy objects
- ○ Only solids

Answer: All objects

Inertia and Mass

1. Inertia is measured by?

- ○ Mass
- ○ Volume
- ○ Speed
- ○ Force

Answer: Mass

2. Which has more inertia?

- ○ A stone
- ○ A rubber ball of same size
- ○ Both same
- ○ Depends on speed

Answer: A stone

3. Heavier objects have?

- ○ Larger inertia
- ○ Smaller inertia
- ○ No inertia
- ○ Variable inertia

Answer: Larger inertia

4. Which is harder to push?

- ○ Box full of books
- ○ Empty box
- ○ Small toy
- ○ Feather

Answer: Box full of books

5. Mass is a measure of?

- ○ Inertia
- ○ Velocity
- ○ Acceleration
- ○ Distance

Answer: Inertia

Momentum

1. Formula for momentum (p) is?

- ○ mv
- ○ ma
- ○ 1/2mv^2
- ○ mg

Answer: mv

2. SI unit of momentum is?

- ○ kg m/s
- ○ kg m/s^2
- ○ N
- ○ Joule

Answer: kg m/s

3. Momentum has?

- ○ Magnitude and direction
- ○ Only magnitude
- ○ Only direction
- ○ Neither

Answer: Magnitude and direction

4. Direction of momentum is same as?

- ○ Velocity
- ○ Acceleration
- ○ Force
- ○ Displacement

Answer: Velocity

5. An object at rest has momentum?

- ○ Zero
- ○ Infinite
- ○ Equal to mass
- ○ Variable

Answer: Zero

Second Law of Motion

1. Rate of change of momentum is proportional to?

- ○ Applied unbalanced force
- ○ Velocity
- ○ Mass
- ○ Time

Answer: Applied unbalanced force

2. This law gives a method to measure?

- ○ Force
- ○ Inertia
- ○ Energy
- ○ Work

Answer: Force

3. Force acts in the direction of?

- ○ Change of momentum
- ○ Velocity
- ○ Mass
- ○ Gravity

Answer: Change of momentum

4. A greater force produces?

- ○ Greater change in velocity/momentum
- ○ Less change
- ○ No change
- ○ Constant velocity

Answer: Greater change in velocity/momentum

5. Change in momentum depends on?

- ○ Force and time
- ○ Force only
- ○ Time only
- ○ Mass only

Answer: Force and time

Mathematical Formulation of Second Law

1. Mathematical formula for Second Law is?

- ○ F = ma
- ○ F = mv
- ○ F = m/a
- ○ a = mF

Answer: F = ma

2. Acceleration 'a' is?

- ○ (v - u) / t
- ○ v / t
- ○ u / t
- ○ s / t

Answer: (v - u) / t

3. The constant 'k' in F = kma is?

- ○ 1
- ○ 0
- ○ 10
- ○ 9.8

Answer: 1

4. If mass is 2kg and acceleration is 5m/s^2, Force is?

- ○ 10 N
- ○ 2.5 N
- ○ 7 N
- ○ 3 N

Answer: 10 N

5. If Force is 0, acceleration is?

- ○ 0
- ○ Constant
- ○ Infinite
- ○ 1

Answer: 0

Unit of Force

1. SI unit of force is?

- ○ Newton (N)
- ○ Dyne
- ○ Pascal
- ○ Joule

Answer: Newton (N)

2. 1 Newton is force required to accelerate?

- ○ 1 kg mass at 1 m/s^2
- ○ 1 g mass at 1 cm/s^2
- ○ 1 kg at 10 m/s^2
- ○ 10 kg at 1 m/s^2

Answer: 1 kg mass at 1 m/s^2

3. Symbol for Newton is?

- ○ N
- ○ n
- ○ Kg
- ○ m

Answer: N

4. Force is a?

- ○ Vector quantity
- ○ Scalar quantity
- ○ Fundamental quantity
- ○ None

Answer: Vector quantity

5. kg m s^-2 is equivalent to?

- ○ Newton
- ○ Pascal
- ○ Watt
- ○ Joule

Answer: Newton

Applications of Second Law

1. Why does a fielder pull hands back while catching?

- ○ To increase time and reduce force
- ○ To show style
- ○ To decrease time
- ○ To catch faster

Answer: To increase time and reduce force

2. Increasing time of impact?

- ○ Decreases rate of change of momentum
- ○ Increases force
- ○ Does nothing
- ○ Increases momentum

Answer: Decreases rate of change of momentum

3. High jumpers fall on cushions to?

- ○ Increase time of fall stop
- ○ Decrease time
- ○ Increase force
- ○ Bounce back

Answer: Increase time of fall stop

4. Stopping a ball suddenly causes?

- ○ Large force and injury
- ○ No force
- ○ Less force
- ○ Slow stop

Answer: Large force and injury

5. Karate player breaks ice slab with?

- ○ Single fast blow
- ○ Slow push
- ○ Heavy hammer
- ○ Heat

Answer: Single fast blow

Third Law of Motion

1. Third Law states?

- ○ To every action there is equal and opposite reaction
- ○ Force equals mass times acceleration
- ○ Objects remain at rest
- ○ Energy is conserved

Answer: To every action there is equal and opposite reaction

2. Action and reaction forces act on?

- ○ Two different objects
- ○ Same object
- ○ No object
- ○ One object only

Answer: Two different objects

3. Action and reaction are?

- ○ Simultaneous
- ○ One after another
- ○ Delayed
- ○ Random

Answer: Simultaneous

4. If A exerts force on B, B exerts force on A that is?

- ○ Equal and opposite
- ○ Equal and same direction
- ○ Unequal
- ○ Zero

Answer: Equal and opposite

5. Do action and reaction cancel each other?

- ○ No, because they act on different objects
- ○ Yes
- ○ Sometimes
- ○ Only in space

Answer: No, because they act on different objects

Action and Reaction

1. When walking, we push the ground?

- ○ Backwards
- ○ Forwards
- ○ Downwards
- ○ Upwards

Answer: Backwards

2. The ground pushes us?

- ○ Forwards
- ○ Backwards
- ○ Downwards
- ○ Sideways

Answer: Forwards

3. Why do equal forces produce different accelerations?

- ○ Different masses of objects
- ○ Different times
- ○ Different shapes
- ○ Different colors

Answer: Different masses of objects

4. A sailor jumps forward from a boat. The boat moves?

- ○ Backwards
- ○ Forwards
- ○ Downwards
- ○ Doesn't move

Answer: Backwards

5. This is explained by?

- ○ Third Law of Motion
- ○ First Law
- ○ Second Law
- ○ Law of Gravitation

Answer: Third Law of Motion

Recoil of a Gun

1. Recoil of a gun is due to?

- ○ Third Law of Motion
- ○ First Law
- ○ Friction
- ○ Gravity

Answer: Third Law of Motion

2. Gun exerts forward force on bullet. Bullet exerts?

- ○ Backward force on gun
- ○ Forward force
- ○ No force
- ○ Downward force

Answer: Backward force on gun

3. Why is gun acceleration less than bullet?

- ○ Gun has much greater mass
- ○ Gun is fixed
- ○ Bullet is sharp
- ○ Gun is lighter

Answer: Gun has much greater mass

4. Recoil force is in which direction?

- ○ Opposite to bullet
- ○ Same as bullet
- ○ Perpendicular
- ○ Random

Answer: Opposite to bullet

5. This phenomenon is an example of?

- ○ Conservation of momentum
- ○ Conservation of energy
- ○ Inertia
- ○ Friction

Answer: Conservation of momentum

Chapter 9: Gravitation

Introduction to Gravitation

1. What force keeps the planets moving around the sun?

- ○ Gravitational force
- ○ Magnetic force
- ○ Friction
- ○ Electrostatic force

Answer: Gravitational force

2. Newton saw an apple fall. This led to the idea of?

- ○ Gravity
- ○ Light
- ○ Sound
- ○ Electricity

Answer: Gravity

3. Does the earth attract the moon?

- ○ Yes
- ○ No
- ○ Only during full moon
- ○ Only during eclipse

Answer: Yes

4. Is gravitational force limited to earth?

- ○ No, it is universal
- ○ Yes
- ○ Only solar system
- ○ Only nearby objects

Answer: No, it is universal

5. Who formulated the Universal Law of Gravitation?

- ○ Isaac Newton
- ○ Galileo
- ○ Einstein
- ○ Kepler

Answer: Isaac Newton

Centripetal Force

1. Centripetal force acts towards?

- ○ The centre of the circle
- ○ Away from centre
- ○ Tangent to circle
- ○ Upwards

Answer: The centre of the circle

2. What happens if centripetal force ceases?

- ○ Object flies off along tangent
- ○ Object stops
- ○ Object moves to centre
- ○ Object spirals

Answer: Object flies off along tangent

3. Motion of moon around earth is due to?

- ○ Centripetal force provided by gravity
- ○ Wind
- ○ Magnetic force
- ○ Rocket propulsion

Answer: Centripetal force provided by gravity

4. Does velocity change in uniform circular motion?

- ○ Yes, direction changes
- ○ No
- ○ Only magnitude changes
- ○ Only speed changes

Answer: Yes, direction changes

5. Centripetal means?

- ○ Centre-seeking
- ○ Centre-fleeing
- ○ Circular
- ○ Fast

Answer: Centre-seeking

Universal Law of Gravitation

1. Force is proportional to?

- ○ Product of masses
- ○ Sum of masses
- ○ Difference of masses
- ○ Division of masses

Answer: Product of masses

2. Force is inversely proportional to?

- ○ Square of distance
- ○ Distance
- ○ Cube of distance
- ○ Square root of distance

Answer: Square of distance

3. The value of G (Gravitational Constant) is?

- ○ 6.673 x 10^-11 Nm^2/kg^2
- ○ 9.8 m/s^2
- ○ 10 m/s^2
- ○ 3 x 10^8 m/s

Answer: 6.673 x 10^-11 Nm^2/kg^2

4. Who determined the value of G?

- ○ Henry Cavendish
- ○ Newton
- ○ Galileo
- ○ Kepler

Answer: Henry Cavendish

5. The force acts along?

- ○ Line joining centres of two objects
- ○ Tangent
- ○ Perpendicular
- ○ Random direction

Answer: Line joining centres of two objects

Free Fall

1. Free fall means object falling under?

- ○ Gravity alone
- ○ Air resistance
- ○ Magnetic force
- ○ Wind

Answer: Gravity alone

2. During free fall, what changes?

- ○ Velocity magnitude
- ○ Direction
- ○ Mass
- ○ Shape

Answer: Velocity magnitude

3. Acceleration during free fall is denoted by?

- ○ g
- ○ G
- ○ a
- ○ f

Answer: g

4. Is direction of motion changed in free fall?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Depends on mass

Answer: No

5. Earth attracts objects due to?

- ○ Gravitational force
- ○ Magnetic force
- ○ Electrostatic force
- ○ Friction

Answer: Gravitational force

Acceleration due to Gravity

1. Value of g on earth surface is approx?

- ○ 9.8 m/s^2
- ○ 6.7 m/s^2
- ○ 1.6 m/s^2
- ○ 100 m/s^2

Answer: 9.8 m/s^2

2. Does g depend on mass of the falling object?

- ○ No
- ○ Yes
- ○ Only for heavy objects
- ○ Only for light objects

Answer: No

3. Value of g is greater at?

- ○ Poles
- ○ Equator
- ○ Same everywhere
- ○ Mountain top

Answer: Poles

4. Unit of g is same as?

- ○ Acceleration
- ○ Velocity
- ○ Force
- ○ Work

Answer: Acceleration

5. Formula for g is?

- ○ GM/R^2
- ○ Gm/d^2
- ○ F/m
- ○ ma

Answer: GM/R^2

Motion under Gravity Equations

1. Equation for velocity in free fall?

- ○ v = u + gt
- ○ v = u + at
- ○ s = ut + 1/2gt^2
- ○ v^2 - u^2 = 2gs

Answer: v = u + gt

2. If object is thrown up, g is taken as?

- ○ Negative
- ○ Positive
- ○ Zero
- ○ Constant

Answer: Negative

3. At maximum height, velocity is?

- ○ Zero
- ○ Maximum
- ○ Minimum
- ○ 9.8 m/s

Answer: Zero

4. Distance formula in free fall?

- ○ s = ut + 1/2gt^2
- ○ s = vt
- ○ s = u + v
- ○ s = gt

Answer: s = ut + 1/2gt^2

5. If dropped from rest, initial velocity u is?

- ○ 0
- ○ 9.8
- ○ Maximum
- ○ 1

Answer: 0

Mass vs Weight

1. Mass is a measure of?

- ○ Inertia
- ○ Gravity
- ○ Weight
- ○ Force

Answer: Inertia

2. Does mass change on the moon?

- ○ No
- ○ Yes
- ○ Becomes zero
- ○ Increases

Answer: No

3. Weight is defined as?

- ○ Force with which earth attracts an object
- ○ Mass x Volume
- ○ Inertia
- ○ Quantity of matter

Answer: Force with which earth attracts an object

4. SI unit of Weight is?

- ○ Newton
- ○ Kilogram
- ○ Pascal
- ○ Joule

Answer: Newton

5. Formula for Weight is?

- ○ W = mg
- ○ W = ma
- ○ W = m/g
- ○ W = mv

Answer: W = mg

Weight on the Moon

1. Weight on moon is what fraction of weight on earth?

- ○ 1/6
- ○ 1/2
- ○ 1/10
- ○ Same

Answer: 1/6

2. Why is weight less on moon?

- ○ Moon has less mass and weaker gravity
- ○ Moon has no atmosphere
- ○ Moon is smaller
- ○ Moon is far

Answer: Moon has less mass and weaker gravity

3. If mass is 6kg on earth, mass on moon is?

- ○ 6kg
- ○ 1kg
- ○ 36kg
- ○ 0kg

Answer: 6kg

4. If weight is 60N on earth, weight on moon is?

- ○ 10N
- ○ 6N
- ○ 60N
- ○ 360N

Answer: 10N

5. Does g value change on moon?

- ○ Yes, it is less
- ○ No, it is constant
- ○ Yes, it is more
- ○ It is zero

Answer: Yes, it is less

Thrust and Pressure

1. Thrust is force acting?

- ○ Perpendicular to surface
- ○ Parallel to surface
- ○ At any angle
- ○ Opposite to gravity

Answer: Perpendicular to surface

2. Pressure is?

- ○ Thrust per unit area
- ○ Force x Area
- ○ Mass per unit volume
- ○ Thrust x Time

Answer: Thrust per unit area

3. SI unit of pressure is?

- ○ Pascal
- ○ Newton
- ○ Joule
- ○ Watt

Answer: Pascal

4. For same force, smaller area gives?

- ○ Larger pressure
- ○ Smaller pressure
- ○ Same pressure
- ○ Zero pressure

Answer: Larger pressure

5. Why do school bags have wide straps?

- ○ To reduce pressure on shoulders
- ○ To look good
- ○ To increase weight
- ○ To increase pressure

Answer: To reduce pressure on shoulders

Pressure Examples

1. Why are knives sharp?

- ○ To increase pressure for cutting
- ○ To decrease pressure
- ○ To look shiny
- ○ To serve food

Answer: To increase pressure for cutting

2. Why do camels walk easily on sand?

- ○ Broad feet reduce pressure
- ○ Sharp feet
- ○ Heavy weight
- ○ Long legs

Answer: Broad feet reduce pressure

3. Why do trucks have wide tyres?

- ○ To distribute weight and reduce pressure
- ○ To move fast
- ○ To look big
- ○ To increase friction

Answer: To distribute weight and reduce pressure

4. A sharp nail penetrates easily because?

- ○ Small area exerts high pressure
- ○ It is made of iron
- ○ It is heavy
- ○ It is long

Answer: Small area exerts high pressure

5. Walking on sand is harder than lying down because?

- ○ Feet have smaller area, exert more pressure
- ○ Feet are heavy
- ○ Sand is hot
- ○ Lying increases weight

Answer: Feet have smaller area, exert more pressure

Buoyancy

1. Upward force exerted by fluid is called?

- ○ Buoyant force
- ○ Gravitational force
- ○ Friction
- ○ Tension

Answer: Buoyant force

2. Another name for buoyant force is?

- ○ Upthrust
- ○ Downthrust
- ○ Weight
- ○ Pressure

Answer: Upthrust

3. Does air exert buoyant force?

- ○ Yes
- ○ No
- ○ Only on balloons
- ○ Only on birds

Answer: Yes

4. Magnitude of buoyant force depends on?

- ○ Density of fluid
- ○ Color of fluid
- ○ Temperature of object
- ○ Shape of container

Answer: Density of fluid

5. Why does a mug feel lighter in water?

- ○ Due to buoyancy
- ○ Water reduces mass
- ○ Gravity stops working
- ○ Mug absorbs water

Answer: Due to buoyancy

Why Objects Float or Sink

1. An object floats if its density is?

- ○ Less than liquid
- ○ More than liquid
- ○ Equal to liquid
- ○ Zero

Answer: Less than liquid

2. An object sinks if its density is?

- ○ Greater than liquid
- ○ Less than liquid
- ○ Equal to liquid
- ○ Very low

Answer: Greater than liquid

3. Cork floats on water because?

- ○ Density of cork < Density of water
- ○ Cork is heavy
- ○ Cork is wood
- ○ Water pushes it down

Answer: Density of cork < Density of water

4. Iron nail sinks because?

- ○ Density of iron > Density of water
- ○ Iron is magnetic
- ○ Iron is solid
- ○ Water pulls it

Answer: Density of iron > Density of water

5. Density is defined as?

- ○ Mass per unit volume
- ○ Volume per unit mass
- ○ Weight per area
- ○ Force per volume

Answer: Mass per unit volume

Archimedes' Principle

1. Archimedes' Principle states upward force equals?

- ○ Weight of fluid displaced
- ○ Weight of object
- ○ Volume of object
- ○ Density of fluid

Answer: Weight of fluid displaced

2. Who discovered this principle?

- ○ Archimedes
- ○ Newton
- ○ Pascal
- ○ Bernoulli

Answer: Archimedes

3. This principle applies to?

- ○ Both liquids and gases (fluids)
- ○ Only water
- ○ Only gases
- ○ Only solids

Answer: Both liquids and gases (fluids)

4. When body is fully immersed, volume of fluid displaced equals?

- ○ Volume of body
- ○ Weight of body
- ○ Mass of body
- ○ Area of body

Answer: Volume of body

5. Eureka means?

- ○ I have found it
- ○ I am lost
- ○ Water is hot
- ○ Gold is pure

Answer: I have found it

Applications of Archimedes' Principle

1. Which instrument measures purity of milk?

- ○ Lactometer
- ○ Hydrometer
- ○ Barometer
- ○ Thermometer

Answer: Lactometer

2. Which instrument measures density of liquids?

- ○ Hydrometer
- ○ Lactometer
- ○ Voltmeter
- ○ Speedometer

Answer: Hydrometer

3. Archimedes' principle is used in designing?

- ○ Ships and submarines
- ○ Cars
- ○ Planes
- ○ Rockets

Answer: Ships and submarines

4. Why do steel ships float?

- ○ They displace water equal to their weight
- ○ Steel is light
- ○ Engines push them up
- ○ Air holds them

Answer: They displace water equal to their weight

5. A submarine dives by?

- ○ Taking in water to increase weight
- ○ Releasing air
- ○ Using propeller
- ○ Dropping anchor

Answer: Taking in water to increase weight

Summary of Gravitation

1. Gravitational force is a?

- ○ Weak force unless large masses involved
- ○ Strong force
- ○ Repulsive force
- ○ Short range force

Answer: Weak force unless large masses involved

2. Weight varies because?

- ○ g varies from place to place
- ○ Mass varies
- ○ Earth is round
- ○ Air pressure varies

Answer: g varies from place to place

3. Value of g decreases with?

- ○ Altitude
- ○ Depth
- ○ Both A and B
- ○ Neither

Answer: Both A and B

4. Mass is scalar or vector?

- ○ Scalar
- ○ Vector
- ○ Neither
- ○ Both

Answer: Scalar

5. Weight is scalar or vector?

- ○ Vector
- ○ Scalar
- ○ Neither
- ○ Both

Answer: Vector

Chapter 10: Work and Energy

Introduction to Work and Energy

1. What is needed for life processes?

- ○ Energy
- ○ Sleep
- ○ Darkness
- ○ Stillness

Answer: Energy

2. Where does energy for living beings come from?

- ○ Food
- ○ Sun directly
- ○ Soil
- ○ Water only

Answer: Food

3. Do machines need energy?

- ○ Yes
- ○ No
- ○ Only large ones
- ○ Only small ones

Answer: Yes

4. Which activity requires more energy?

- ○ Running
- ○ Sleeping
- ○ Reading
- ○ Sitting

Answer: Running

5. Engines often require fuel like?

- ○ Petrol and diesel
- ○ Water
- ○ Sand
- ○ Stones

Answer: Petrol and diesel

Scientific Conception of Work

1. Is reading a book considered work in science?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only if loud

Answer: No

2. If you push a wall and it doesn't move, is work done?

- ○ No
- ○ Yes
- ○ A lot of work
- ○ Negative work

Answer: No

3. Work in science depends on?

- ○ Force and displacement
- ○ Effort
- ○ Time spent
- ○ Sweat

Answer: Force and displacement

4. Mental labor is considered work in science?

- ○ No
- ○ Yes
- ○ Depends on subject
- ○ Only math

Answer: No

5. Standing with a heavy load is?

- ○ No work
- ○ Hard work
- ○ Positive work
- ○ Maximum work

Answer: No work

Two Conditions for Work

1. What must act on an object for work to be done?

- ○ A force
- ○ A thought
- ○ A shadow
- ○ A sound

Answer: A force

2. What must happen to the object for work to be done?

- ○ It must be displaced
- ○ It must stay still
- ○ It must heat up
- ○ It must change color

Answer: It must be displaced

3. If a bullock pulls a cart and it moves, is work done?

- ○ Yes
- ○ No
- ○ Maybe
- ○ Only if fast

Answer: Yes

4. Is work done if displacement is zero?

- ○ No
- ○ Yes
- ○ Infinite
- ○ Cannot say

Answer: No

5. Lifting a book involves work because?

- ○ Force is applied and it moves
- ○ Book is heavy
- ○ Gravity exists
- ○ It takes time

Answer: Force is applied and it moves

Work Done by a Constant Force

1. Formula for work is?

- ○ W = F x s
- ○ W = F / s
- ○ W = s / F
- ○ W = F + s

Answer: W = F x s

2. Work is a scalar or vector quantity?

- ○ Scalar
- ○ Vector
- ○ Neither
- ○ Both

Answer: Scalar

3. Unit of work is?

- ○ Joule
- ○ Newton
- ○ Watt
- ○ Pascal

Answer: Joule

4. 1 Joule is defined as?

- ○ 1 N force displacing by 1 m
- ○ 1 kg mass moving 1 m
- ○ 1 N force for 1 sec
- ○ 1 Watt power

Answer: 1 N force displacing by 1 m

5. If F=0, work done is?

- ○ Zero
- ○ Infinite
- ○ One
- ○ Constant

Answer: Zero

Positive and Negative Work

1. Work is positive when force acts in?

- ○ Direction of displacement
- ○ Opposite direction
- ○ Perpendicular direction
- ○ Random direction

Answer: Direction of displacement

2. Work is negative when force acts in?

- ○ Opposite direction to displacement
- ○ Same direction
- ○ Any direction
- ○ Vertical direction

Answer: Opposite direction to displacement

3. Gravity doing work on a ball thrown upwards is?

- ○ Negative
- ○ Positive
- ○ Zero
- ○ Undefined

Answer: Negative

4. Gravity doing work on a falling ball is?

- ○ Positive
- ○ Negative
- ○ Zero
- ○ Variable

Answer: Positive

5. Force of friction always does?

- ○ Negative work
- ○ Positive work
- ○ Zero work
- ○ Maximum work

Answer: Negative work

Energy

1. Energy is defined as?

- ○ Capacity to do work
- ○ Rate of work
- ○ Force applied
- ○ Momentum

Answer: Capacity to do work

2. Unit of energy is?

- ○ Joule
- ○ Newton
- ○ Watt
- ○ Pascal

Answer: Joule

3. Object doing work?

- ○ Loses energy
- ○ Gains energy
- ○ Keeps energy
- ○ Destroys energy

Answer: Loses energy

4. Object on which work is done?

- ○ Gains energy
- ○ Loses energy
- ○ Has no energy
- ○ Stops moving

Answer: Gains energy

5. Biggest natural source of energy is?

- ○ Sun
- ○ Moon
- ○ Earth
- ○ Ocean

Answer: Sun

Forms of Energy

1. Which is NOT a form of energy?

- ○ Force
- ○ Heat
- ○ Light
- ○ Chemical

Answer: Force

2. Mechanical energy is sum of?

- ○ Kinetic and Potential energy
- ○ Heat and Light
- ○ Chemical and Electrical
- ○ Sound and Heat

Answer: Kinetic and Potential energy

3. Energy stored in a battery is?

- ○ Chemical energy
- ○ Kinetic energy
- ○ Heat energy
- ○ Mechanical energy

Answer: Chemical energy

4. Energy from a bulb includes?

- ○ Light and heat
- ○ Sound only
- ○ Kinetic only
- ○ Potential only

Answer: Light and heat

5. Energy of a moving car is?

- ○ Kinetic energy
- ○ Potential energy
- ○ Chemical energy
- ○ Nuclear energy

Answer: Kinetic energy

Kinetic Energy

1. Kinetic energy is due to?

- ○ Motion
- ○ Position
- ○ Shape
- ○ Temperature

Answer: Motion

2. A faster moving object has?

- ○ More kinetic energy
- ○ Less kinetic energy
- ○ Zero kinetic energy
- ○ Same energy

Answer: More kinetic energy

3. Which possesses kinetic energy?

- ○ Blowing wind
- ○ Stretched bow
- ○ Water in dam
- ○ Compressed spring

Answer: Blowing wind

4. Kinetic energy depends on?

- ○ Mass and velocity
- ○ Mass and height
- ○ Weight and height
- ○ Force and time

Answer: Mass and velocity

5. Can kinetic energy be negative?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in space

Answer: No

Formula for Kinetic Energy

1. Formula for kinetic energy is?

- ○ 1/2 mv^2
- ○ mgh
- ○ mv
- ○ ma

Answer: 1/2 mv^2

2. If mass doubles, kinetic energy?

- ○ Doubles
- ○ Halves
- ○ Quadruples
- ○ Remains same

Answer: Doubles

3. If velocity doubles, kinetic energy?

- ○ Quadruples
- ○ Doubles
- ○ Halves
- ○ Triples

Answer: Quadruples

4. Work done to stop a moving object equals?

- ○ Its kinetic energy
- ○ Its potential energy
- ○ Its mass
- ○ Its weight

Answer: Its kinetic energy

5. If velocity is zero, kinetic energy is?

- ○ Zero
- ○ Infinite
- ○ Equal to mass
- ○ Maximum

Answer: Zero

Potential Energy

1. Potential energy is due to?

- ○ Position or configuration
- ○ Motion
- ○ Speed
- ○ Time

Answer: Position or configuration

2. Energy in a stretched rubber band is?

- ○ Potential energy
- ○ Kinetic energy
- ○ Heat energy
- ○ Sound energy

Answer: Potential energy

3. Water stored in a dam has?

- ○ Potential energy
- ○ Kinetic energy
- ○ Electrical energy
- ○ Solar energy

Answer: Potential energy

4. Winding a toy car stores energy in its?

- ○ Spring
- ○ Wheels
- ○ Body
- ○ Key

Answer: Spring

5. Released arrow from a bow gets energy from?

- ○ Potential energy of bow
- ○ Kinetic energy of hand
- ○ Gravity
- ○ Wind

Answer: Potential energy of bow

Potential Energy of an Object at a Height

1. Formula for gravitational potential energy is?

- ○ mgh
- ○ 1/2 mv^2
- ○ ma
- ○ mg

Answer: mgh

2. Work done against gravity depends on?

- ○ Vertical height difference
- ○ Path taken
- ○ Time taken
- ○ Speed of lifting

Answer: Vertical height difference

3. If height doubles, potential energy?

- ○ Doubles
- ○ Halves
- ○ Quadruples
- ○ Remains same

Answer: Doubles

4. Energy is gained because work is done against?

- ○ Gravity
- ○ Friction
- ○ Air resistance
- ○ Magnetism

Answer: Gravity

5. The value of g is approximately?

- ○ 9.8 m/s^2
- ○ 100 m/s^2
- ○ 1 m/s^2
- ○ 0.1 m/s^2

Answer: 9.8 m/s^2

Interconversion of Energy

1. Can energy change forms?

- ○ Yes
- ○ No
- ○ Only in machines
- ○ Never

Answer: Yes

2. Green plants convert solar energy to?

- ○ Chemical energy
- ○ Kinetic energy
- ○ Heat energy
- ○ Nuclear energy

Answer: Chemical energy

3. An electric iron converts electrical energy to?

- ○ Heat energy
- ○ Sound energy
- ○ Chemical energy
- ○ Potential energy

Answer: Heat energy

4. Hydroelectric plants convert potential energy of water to?

- ○ Electrical energy
- ○ Chemical energy
- ○ Nuclear energy
- ○ Solar energy

Answer: Electrical energy

5. Burning coal converts chemical energy to?

- ○ Heat and light
- ○ Electricity only
- ○ Sound
- ○ Potential energy

Answer: Heat and light

Law of Conservation of Energy

1. Law of Conservation of Energy states energy can?

- ○ Neither be created nor destroyed
- ○ Be created
- ○ Be destroyed
- ○ Disappear

Answer: Neither be created nor destroyed

2. Total energy during transformation?

- ○ Remains constant
- ○ Increases
- ○ Decreases
- ○ Becomes zero

Answer: Remains constant

3. During free fall, potential energy converts to?

- ○ Kinetic energy
- ○ Heat energy
- ○ Sound energy
- ○ Chemical energy

Answer: Kinetic energy

4. Sum of kinetic and potential energy is?

- ○ Mechanical energy
- ○ Total energy
- ○ Chemical energy
- ○ Heat energy

Answer: Mechanical energy

5. Just before hitting ground, a falling object has maximum?

- ○ Kinetic energy
- ○ Potential energy
- ○ Height
- ○ Rest

Answer: Kinetic energy

Rate of Doing Work (Power)

1. Power is defined as?

- ○ Rate of doing work
- ○ Capacity to do work
- ○ Total work done
- ○ Force applied

Answer: Rate of doing work

2. Formula for power is?

- ○ Work / Time
- ○ Work x Time
- ○ Force x Dist
- ○ Mass x Vel

Answer: Work / Time

3. SI unit of power is?

- ○ Watt
- ○ Joule
- ○ Newton
- ○ Pascal

Answer: Watt

4. 1 Watt equals?

- ○ 1 Joule/second
- ○ 1 Joule/minute
- ○ 1 Newton/meter
- ○ 1 kg m/s

Answer: 1 Joule/second

5. 1 kilowatt equals?

- ○ 1000 Watts
- ○ 100 Watts
- ○ 10 Watts
- ○ 10000 Watts

Answer: 1000 Watts

Commercial Unit of Energy

1. Commercial unit of energy is?

- ○ Kilowatt-hour (kWh)
- ○ Joule
- ○ Watt
- ○ Newton

Answer: Kilowatt-hour (kWh)

2. 1 kWh is commonly known as?

- ○ 1 unit
- ○ 1 volt
- ○ 1 amp
- ○ 1 degree

Answer: 1 unit

3. 1 kWh equals how many Joules?

- ○ 3.6 x 10^6 J
- ○ 1000 J
- ○ 3600 J
- ○ 10^6 J

Answer: 3.6 x 10^6 J

4. Energy used by 1000W appliance in 1 hour is?

- ○ 1 kWh
- ○ 100 kWh
- ○ 0.1 kWh
- ○ 10 kWh

Answer: 1 kWh

5. Is kWh a unit of power or energy?

- ○ Energy
- ○ Power
- ○ Force
- ○ Time

Answer: Energy

Chapter 11: Sound

Production of Sound

1. Sound is produced by?

- ○ Vibrating objects
- ○ Moving objects
- ○ Stationary objects
- ○ Heated objects

Answer: Vibrating objects

2. Vibration is a?

- ○ Rapid to and fro motion
- ○ Slow circular motion
- ○ Linear motion
- ○ Random motion

Answer: Rapid to and fro motion

3. Human voice is produced by vibrations in?

- ○ Vocal cords
- ○ Tongue
- ○ Lips
- ○ Lungs

Answer: Vocal cords

4. Can sound be produced without vibration?

- ○ No
- ○ Yes
- ○ Sometimes
- ○ Only in space

Answer: No

5. Which energy is required to produce sound?

- ○ Mechanical energy
- ○ Heat energy
- ○ Light energy
- ○ Chemical energy

Answer: Mechanical energy

Propagation of Sound

1. Substance through which sound travels is called?

- ○ Medium
- ○ Vacuum
- ○ Ether
- ○ Space

Answer: Medium

2. Can sound travel through vacuum?

- ○ No
- ○ Yes
- ○ Only high frequency
- ○ Only low frequency

Answer: No

3. In sound propagation, what travels?

- ○ Disturbance/Energy
- ○ Particles of medium
- ○ Source of sound
- ○ Air

Answer: Disturbance/Energy

4. Do particles of medium travel to the ear?

- ○ No, they oscillate
- ○ Yes
- ○ Sometimes
- ○ Only in solids

Answer: No, they oscillate

5. Sound is a?

- ○ Mechanical wave
- ○ Electromagnetic wave
- ○ Transverse wave
- ○ Light wave

Answer: Mechanical wave

Sound Waves are Longitudinal

1. A region of high pressure is called?

- ○ Compression
- ○ Rarefaction
- ○ Crest
- ○ Trough

Answer: Compression

2. A region of low pressure is called?

- ○ Rarefaction
- ○ Compression
- ○ Valley
- ○ Peak

Answer: Rarefaction

3. In longitudinal waves, particles move?

- ○ Parallel to wave direction
- ○ Perpendicular to wave direction
- ○ In circles
- ○ Randomly

Answer: Parallel to wave direction

4. Sound waves in air are?

- ○ Longitudinal
- ○ Transverse
- ○ Electromagnetic
- ○ None

Answer: Longitudinal

5. Light is a?

- ○ Transverse wave
- ○ Longitudinal wave
- ○ Mechanical wave
- ○ Sound wave

Answer: Transverse wave

Characteristics of a Sound Wave

1. A peak in the sound wave curve represents?

- ○ Maximum compression
- ○ Maximum rarefaction
- ○ Minimum density
- ○ Zero pressure

Answer: Maximum compression

2. A valley in the sound wave curve represents?

- ○ Maximum rarefaction
- ○ Maximum compression
- ○ High pressure
- ○ Crest

Answer: Maximum rarefaction

3. Which characteristic distinguishes sound waves?

- ○ Frequency, Amplitude, Speed
- ○ Mass, Volume, Density
- ○ Color, Shape, Size
- ○ Heat, Light, Electricity

Answer: Frequency, Amplitude, Speed

4. Compressions are regions of?

- ○ High density and pressure
- ○ Low density and pressure
- ○ Zero density
- ○ Low pressure

Answer: High density and pressure

5. Rarefactions are regions where particles are?

- ○ Spread apart
- ○ Crowded
- ○ Stationary
- ○ Fast

Answer: Spread apart

Wavelength and Frequency

1. Distance between two consecutive compressions is?

- ○ Wavelength
- ○ Frequency
- ○ Amplitude
- ○ Speed

Answer: Wavelength

2. SI unit of wavelength is?

- ○ Metre
- ○ Hertz
- ○ Second
- ○ Pascal

Answer: Metre

3. Number of oscillations per unit time is?

- ○ Frequency
- ○ Time period
- ○ Wavelength
- ○ Speed

Answer: Frequency

4. SI unit of frequency is?

- ○ Hertz
- ○ Metre
- ○ Second
- ○ Decibel

Answer: Hertz

5. Relation between frequency (v) and time period (T) is?

- ○ v = 1/T
- ○ v = T
- ○ v = T^2
- ○ v = 1/T^2

Answer: v = 1/T

Pitch and Loudness

1. Pitch determines?

- ○ Shrillness of sound
- ○ Loudness
- ○ Quality
- ○ Speed

Answer: Shrillness of sound

2. Pitch depends on?

- ○ Frequency
- ○ Amplitude
- ○ Speed
- ○ Medium

Answer: Frequency

3. Loudness depends on?

- ○ Amplitude
- ○ Frequency
- ○ Wavelength
- ○ Time period

Answer: Amplitude

4. Higher amplitude means?

- ○ Louder sound
- ○ Higher pitch
- ○ Lower pitch
- ○ Softer sound

Answer: Louder sound

5. Single frequency sound is called?

- ○ Tone
- ○ Note
- ○ Noise
- ○ Music

Answer: Tone

Speed of Sound

1. Formula for speed of sound is?

- ○ v = wavelength x frequency
- ○ v = wavelength / frequency
- ○ v = frequency / wavelength
- ○ v = wavelength + frequency

Answer: v = wavelength x frequency

2. Speed of sound depends on?

- ○ Properties of medium
- ○ Source of sound
- ○ Frequency only
- ○ Amplitude only

Answer: Properties of medium

3. Speed of sound is maximum in?

- ○ Solids
- ○ Liquids
- ○ Gases
- ○ Vacuum

Answer: Solids

4. Speed of sound in air at 22°C is approx?

- ○ 344 m/s
- ○ 330 m/s
- ○ 1500 m/s
- ○ 5000 m/s

Answer: 344 m/s

5. As temperature increases, speed of sound?

- ○ Increases
- ○ Decreases
- ○ Remains same
- ○ Becomes zero

Answer: Increases

Reflection of Sound

1. Does sound reflect like light?

- ○ Yes
- ○ No
- ○ Only in water
- ○ Only in vacuum

Answer: Yes

2. Angle of incidence equals?

- ○ Angle of reflection
- ○ Angle of refraction
- ○ 90 degrees
- ○ 0 degrees

Answer: Angle of reflection

3. Reflection of sound requires?

- ○ Large obstacle
- ○ Small obstacle
- ○ Transparent medium
- ○ Vacuum

Answer: Large obstacle

4. Law of reflection holds for?

- ○ Sound and light
- ○ Only light
- ○ Only sound
- ○ Neither

Answer: Sound and light

5. Incident sound, reflected sound and normal lie in?

- ○ Same plane
- ○ Different planes
- ○ Perpendicular planes
- ○ Parallel planes

Answer: Same plane

Echo

1. Repetition of sound due to reflection is?

- ○ Echo
- ○ Reverberation
- ○ Noise
- ○ Note

Answer: Echo

2. Minimum time interval to hear echo is?

- ○ 0.1 s
- ○ 1 s
- ○ 0.01 s
- ○ 0.5 s

Answer: 0.1 s

3. Minimum distance for echo at 22°C is?

- ○ 17.2 m
- ○ 34.4 m
- ○ 10 m
- ○ 100 m

Answer: 17.2 m

4. Why 0.1 s?

- ○ Persistence of hearing
- ○ Speed of light
- ○ Brain processing
- ○ Ear drum limit

Answer: Persistence of hearing

5. Rolling of thunder is due to?

- ○ Multiple reflections
- ○ Single reflection
- ○ Refraction
- ○ Interference

Answer: Multiple reflections

Reverberation

1. Persistence of sound in a hall is called?

- ○ Reverberation
- ○ Echo
- ○ Resonance
- ○ Vibration

Answer: Reverberation

2. Reverberation is caused by?

- ○ Repeated reflection
- ○ Refraction
- ○ Absorption
- ○ Diffraction

Answer: Repeated reflection

3. To reduce reverberation, we use?

- ○ Sound-absorbent materials
- ○ Mirrors
- ○ Metal sheets
- ○ Glass

Answer: Sound-absorbent materials

4. Excessive reverberation is?

- ○ Undesirable
- ○ Desirable
- ○ Good for music
- ○ Necessary

Answer: Undesirable

5. Example of sound absorbent is?

- ○ Compressed fibreboard
- ○ Steel
- ○ Marble
- ○ Plastic

Answer: Compressed fibreboard

Uses of Multiple Reflection

1. Which instrument uses multiple reflection?

- ○ Megaphone
- ○ Guitar
- ○ Drum
- ○ Flute

Answer: Megaphone

2. Stethoscopes work on the principle of?

- ○ Multiple reflection
- ○ Refraction
- ○ Interference
- ○ Doppler effect

Answer: Multiple reflection

3. Why are concert hall ceilings curved?

- ○ To reflect sound to all corners
- ○ For decoration
- ○ To absorb sound
- ○ To reduce echo

Answer: To reflect sound to all corners

4. Sound board in halls helps to?

- ○ Spread sound evenly
- ○ Absorb sound
- ○ Stop sound
- ○ Increase pitch

Answer: Spread sound evenly

5. Horns and trumpets send sound in?

- ○ Particular direction
- ○ All directions
- ○ Backward direction
- ○ Upward direction

Answer: Particular direction

Range of Hearing

1. Audible range for humans is?

- ○ 20 Hz to 20000 Hz
- ○ 0 to 20 Hz
- ○ Above 20000 Hz
- ○ 10 to 100 Hz

Answer: 20 Hz to 20000 Hz

2. Children under five can hear up to?

- ○ 25 kHz
- ○ 10 kHz
- ○ 50 kHz
- ○ 100 kHz

Answer: 25 kHz

3. As people grow older, ears become less sensitive to?

- ○ Higher frequencies
- ○ Lower frequencies
- ○ Middle frequencies
- ○ All frequencies

Answer: Higher frequencies

4. 1 kHz equals?

- ○ 1000 Hz
- ○ 100 Hz
- ○ 10 Hz
- ○ 10000 Hz

Answer: 1000 Hz

5. Dogs can hear?

- ○ Ultrasound
- ○ Only infrasound
- ○ Only low pitch
- ○ Nothing

Answer: Ultrasound

Infrasound and Ultrasound

1. Sound below 20 Hz is?

- ○ Infrasound
- ○ Ultrasound
- ○ Audible sound
- ○ Noise

Answer: Infrasound

2. Sound above 20 kHz is?

- ○ Ultrasound
- ○ Infrasound
- ○ Sonic
- ○ Subsonic

Answer: Ultrasound

3. Which animal produces infrasound?

- ○ Rhinoceros
- ○ Bat
- ○ Dolphin
- ○ Rat

Answer: Rhinoceros

4. Which animal produces ultrasound?

- ○ Bat
- ○ Elephant
- ○ Whale
- ○ Rhino

Answer: Bat

5. Earthquakes produce?

- ○ Low-frequency infrasound
- ○ High-frequency ultrasound
- ○ Audible sound only
- ○ No sound

Answer: Low-frequency infrasound

Applications of Ultrasound

1. Ultrasound is used for cleaning because?

- ○ High frequency detaches dirt
- ○ It is hot
- ○ It is loud
- ○ It is chemical

Answer: High frequency detaches dirt

2. To detect cracks in metal blocks, we use?

- ○ Ultrasound
- ○ Infrasound
- ○ X-rays
- ○ Light

Answer: Ultrasound

3. If there is a flaw in metal, ultrasound?

- ○ Reflects back
- ○ Passes through
- ○ Absorbs
- ○ Speeds up

Answer: Reflects back

4. Ordinary sound is not used for flaw detection because?

- ○ It bends around corners
- ○ It is too fast
- ○ It is too slow
- ○ It is weak

Answer: It bends around corners

5. Ultrasound travels along?

- ○ Well-defined paths
- ○ Random paths
- ○ Curved paths
- ○ Zigzag paths

Answer: Well-defined paths

Medical Applications

1. Technique to image the heart is?

- ○ Echocardiography
- ○ ECG
- ○ EEG
- ○ X-ray

Answer: Echocardiography

2. Ultrasonography is used for?

- ○ Getting images of internal organs
- ○ Cleaning teeth
- ○ Hearing aid
- ○ Measuring height

Answer: Getting images of internal organs

3. Ultrasound can break kidney stones into?

- ○ Fine grains
- ○ Large pieces
- ○ Gas
- ○ Liquid

Answer: Fine grains

4. Ultrasonography uses?

- ○ Ultrasonic waves
- ○ Infrasonic waves
- ○ Radio waves
- ○ Light waves

Answer: Ultrasonic waves

5. Examination of foetus is done by?

- ○ Ultrasonography
- ○ X-ray
- ○ CT Scan
- ○ MRI

Answer: Ultrasonography

Chapter 12: Improvement in Food Resources

Introduction to Food Resources

1. What do all living organisms need for development and health?

- ○ Food
- ○ Shelter
- ○ Clothing
- ○ Entertainment

Answer: Food

2. What are the major sources of food for humans?

- ○ Plants and animals
- ○ Rocks and minerals
- ○ Air and water
- ○ Chemicals

Answer: Plants and animals

3. Why is it necessary to increase production efficiency?

- ○ Limited land for cultivation
- ○ Unlimited land
- ○ Decreasing population
- ○ None of the above

Answer: Limited land for cultivation

4. Increasing food production should be done without?

- ○ Degrading the environment
- ○ Using water
- ○ Using seeds
- ○ Using labor

Answer: Degrading the environment

5. Sustainable practices are needed in?

- ○ Agriculture and animal husbandry
- ○ Mining
- ○ Construction
- ○ Manufacturing

Answer: Agriculture and animal husbandry

Improvement in Crop Yields

1. Which crop provides carbohydrates?

- ○ Wheat
- ○ Gram
- ○ Mustard
- ○ Soyabean

Answer: Wheat

2. Pulses are a good source of?

- ○ Protein
- ○ Fats
- ○ Carbohydrates
- ○ Vitamins

Answer: Protein

3. Kharif crops are grown in which season?

- ○ Rainy season
- ○ Winter season
- ○ Summer season
- ○ Spring season

Answer: Rainy season

4. Which of these is a Rabi crop?

- ○ Wheat
- ○ Paddy
- ○ Maize
- ○ Cotton

Answer: Wheat

5. From 1952 to 2010, food grain production increased by?

- ○ Four times
- ○ Two times
- ○ Ten times
- ○ No increase

Answer: Four times

Crop Variety Improvement

1. How can desirable characters be incorporated into crop varieties?

- ○ Hybridisation
- ○ Irrigation
- ○ Weeding
- ○ Harvesting

Answer: Hybridisation

2. Genetically modified crops are produced by?

- ○ Introducing a gene
- ○ Adding manure
- ○ Changing soil
- ○ Adding water

Answer: Introducing a gene

3. Which is a biotic resistance factor?

- ○ Resistance to insects
- ○ Resistance to drought
- ○ Resistance to heat
- ○ Resistance to salinity

Answer: Resistance to insects

4. Why is short maturity duration desirable?

- ○ It is economical and allows multiple rounds of crops
- ○ It reduces yield
- ○ It increases cost
- ○ It requires more water

Answer: It is economical and allows multiple rounds of crops

5. Developing varieties for wider adaptability helps in?

- ○ Stabilising crop production
- ○ Reducing production
- ○ Limiting growth
- ○ None of the above

Answer: Stabilising crop production

Crop Production Management

1. Farming practices are decided by?

- ○ Farmer's purchasing capacity
- ○ Weather only
- ○ Soil color
- ○ Seed size

Answer: Farmer's purchasing capacity

2. Nutrients are supplied to plants by?

- ○ Air, water, and soil
- ○ Only soil
- ○ Only water
- ○ Only air

Answer: Air, water, and soil

3. How many nutrients does soil supply to plants?

- ○ Thirteen
- ○ Six
- ○ Seven
- ○ Two

Answer: Thirteen

4. Nutrients required in large quantities are called?

- ○ Macronutrients
- ○ Micronutrients
- ○ Trace elements
- ○ Essential elements

Answer: Macronutrients

5. Which of these is a macronutrient?

- ○ Nitrogen
- ○ Iron
- ○ Zinc
- ○ Copper

Answer: Nitrogen

Nutrient Management

1. Which of these is a micronutrient?

- ○ Iron
- ○ Calcium
- ○ Magnesium
- ○ Potassium

Answer: Iron

2. Deficiency of nutrients affects?

- ○ Physiological processes
- ○ Color of soil
- ○ Size of field
- ○ Amount of rain

Answer: Physiological processes

3. To increase yield, soil can be enriched with?

- ○ Manure and fertilizers
- ○ Plastic
- ○ Sand
- ○ Stones

Answer: Manure and fertilizers

4. What is the source of Carbon for plants?

- ○ Air
- ○ Soil
- ○ Water
- ○ Fertilizer

Answer: Air

5. What is the source of Hydrogen for plants?

- ○ Water
- ○ Air
- ○ Soil
- ○ Sunlight

Answer: Water

Manure

1. Manure is prepared by the decomposition of?

- ○ Animal excreta and plant waste
- ○ Chemicals
- ○ Rocks
- ○ Plastic

Answer: Animal excreta and plant waste

2. Manure helps in enriching soil with?

- ○ Nutrients and organic matter
- ○ Chemicals
- ○ Pests
- ○ Weeds

Answer: Nutrients and organic matter

3. In sandy soils, organic matter helps in?

- ○ Increasing water holding capacity
- ○ Drainage
- ○ Aeration
- ○ None of the above

Answer: Increasing water holding capacity

4. Which manure uses earthworms?

- ○ Vermi-compost
- ○ Green manure
- ○ Compost
- ○ Fertilizer

Answer: Vermi-compost

5. Green manure enriches soil mainly in?

- ○ Nitrogen and phosphorus
- ○ Iron and zinc
- ○ Calcium and magnesium
- ○ Carbon and oxygen

Answer: Nitrogen and phosphorus

Fertilizers

1. Fertilizers mainly supply?

- ○ Nitrogen, phosphorus, and potassium
- ○ Carbon, hydrogen, oxygen
- ○ Iron, zinc, copper
- ○ Calcium, magnesium, sulphur

Answer: Nitrogen, phosphorus, and potassium

2. Excessive use of fertilizers can lead to?

- ○ Water pollution
- ○ Soil enrichment
- ○ Better microbial life
- ○ Less weeds

Answer: Water pollution

3. Continuous use of fertilizers can destroy?

- ○ Soil fertility
- ○ Pests
- ○ Weeds
- ○ Crops

Answer: Soil fertility

4. Organic farming involves?

- ○ Minimal or no use of chemicals
- ○ Maximum use of chemicals
- ○ No manure
- ○ No irrigation

Answer: Minimal or no use of chemicals

5. Fertilizers ensure good?

- ○ Vegetative growth
- ○ Root rot
- ○ Weed growth
- ○ Pest growth

Answer: Vegetative growth

Irrigation

1. Most agriculture in India is?

- ○ Rain-fed
- ○ Canal-fed
- ○ Well-fed
- ○ Tank-fed

Answer: Rain-fed

2. Wells that tap water from deeper strata are?

- ○ Tube wells
- ○ Dug wells
- ○ Canals
- ○ Tanks

Answer: Tube wells

3. River lift systems are used where?

- ○ Canal flow is insufficient
- ○ Rain is heavy
- ○ Groundwater is high
- ○ Soils are sandy

Answer: Canal flow is insufficient

4. Rainwater harvesting increases?

- ○ Ground water levels
- ○ River flow
- ○ Sea level
- ○ Rainfall

Answer: Ground water levels

5. Check-dams help to?

- ○ Reduce soil erosion
- ○ Increase flooding
- ○ Increase evaporation
- ○ Reduce crop yield

Answer: Reduce soil erosion

Cropping Patterns

1. Growing two or more crops simultaneously on the same land is?

- ○ Mixed cropping
- ○ Crop rotation
- ○ Monoculture
- ○ Fallow land

Answer: Mixed cropping

2. Growing crops in a definite row pattern is?

- ○ Inter-cropping
- ○ Mixed cropping
- ○ Crop rotation
- ○ Organic farming

Answer: Inter-cropping

3. Growing different crops in succession is?

- ○ Crop rotation
- ○ Mixed cropping
- ○ Inter-cropping
- ○ Hybridisation

Answer: Crop rotation

4. Inter-cropping ensures?

- ○ Maximum utilisation of nutrients
- ○ Maximum pests
- ○ Minimum yield
- ○ Soil erosion

Answer: Maximum utilisation of nutrients

5. Mixed cropping reduces?

- ○ Risk of crop failure
- ○ Yield
- ○ Soil fertility
- ○ Water availability

Answer: Risk of crop failure

Crop Protection Management

1. Xanthium and Parthenium are examples of?

- ○ Weeds
- ○ Crops
- ○ Pests
- ○ Fertilizers

Answer: Weeds

2. Weeds compete with crops for?

- ○ Food, space, and light
- ○ Oxygen
- ○ Carbon dioxide
- ○ Pollinators

Answer: Food, space, and light

3. Insect pests affect crop health by?

- ○ Cutting parts and sucking sap
- ○ Pollinating flowers
- ○ Adding nutrients
- ○ Aerating soil

Answer: Cutting parts and sucking sap

4. Diseases in plants are caused by?

- ○ Pathogens
- ○ Weeds
- ○ Fertilizers
- ○ Water

Answer: Pathogens

5. Summer ploughing is a method for?

- ○ Weed and pest control
- ○ Irrigation
- ○ Harvesting
- ○ Sowing

Answer: Weed and pest control

Storage of Grains

1. Which is a biotic factor causing storage loss?

- ○ Insects
- ○ Temperature
- ○ Moisture
- ○ Container material

Answer: Insects

2. Which is an abiotic factor causing storage loss?

- ○ Moisture
- ○ Rodents
- ○ Fungi
- ○ Mites

Answer: Moisture

3. Storage losses lead to?

- ○ Poor germinability and quality
- ○ Better taste
- ○ Increased weight
- ○ Higher price

Answer: Poor germinability and quality

4. A preventive measure for storage is?

- ○ Strict cleaning and proper drying
- ○ Wetting the grains
- ○ Leaving grains in open
- ○ Mixing with soil

Answer: Strict cleaning and proper drying

5. Chemicals used to kill pests in storage are called?

- ○ Fumigants
- ○ Fertilizers
- ○ Manure
- ○ Irrigants

Answer: Fumigants

Animal Husbandry & Cattle Farming

1. Milk-producing females are called?

- ○ Milch animals
- ○ Draught animals
- ○ Broilers
- ○ Layers

Answer: Milch animals

2. Exotic breeds like Jersey are selected for?

- ○ Long lactation periods
- ○ Disease resistance
- ○ Hard work
- ○ Small size

Answer: Long lactation periods

3. Local breeds like Red Sindhi are known for?

- ○ Disease resistance
- ○ Long lactation
- ○ High milk yield
- ○ Fast growth

Answer: Disease resistance

4. Roughage in animal feed is largely?

- ○ Fibre
- ○ Protein
- ○ Fat
- ○ Vitamin

Answer: Fibre

5. Flukes damage which part of cattle?

- ○ Liver
- ○ Stomach
- ○ Skin
- ○ Lungs

Answer: Liver

Poultry Farming

1. Poultry farming is undertaken for?

- ○ Egg and meat production
- ○ Milk production
- ○ Wool production
- ○ Honey production

Answer: Egg and meat production

2. Birds grown for meat are called?

- ○ Broilers
- ○ Layers
- ○ Milch animals
- ○ Draught animals

Answer: Broilers

3. Broiler feed is rich in?

- ○ Protein and fat
- ○ Fibre
- ○ Carbohydrates only
- ○ Water

Answer: Protein and fat

4. A desirable trait in poultry cross-breeding is?

- ○ Summer adaptation
- ○ Low egg production
- ○ High maintenance
- ○ Large size

Answer: Summer adaptation

5. Layers are raised for?

- ○ Eggs
- ○ Meat
- ○ Feathers
- ○ Labour

Answer: Eggs

Fish Production

1. Obtaining fish from natural resources is called?

- ○ Capture fishing
- ○ Culture fishery
- ○ Aquaculture
- ○ Mariculture

Answer: Capture fishing

2. Farming marine fish is called?

- ○ Mariculture
- ○ Aquaculture
- ○ Apiculture
- ○ Sericulture

Answer: Mariculture

3. In composite fish culture, how many species are used?

- ○ Five or six
- ○ Only one
- ○ Two
- ○ Ten

Answer: Five or six

4. Catlas are?

- ○ Surface feeders
- ○ Bottom feeders
- ○ Middle-zone feeders
- ○ Weed feeders

Answer: Surface feeders

5. A major problem in fish farming is?

- ○ Lack of quality seed
- ○ Too much water
- ○ Too much food
- ○ Lack of space

Answer: Lack of quality seed

Bee-keeping

1. Apis cerana indica is known as?

- ○ Indian bee
- ○ Rock bee
- ○ Little bee
- ○ Italian bee

Answer: Indian bee

2. Which variety is commonly used for commercial honey production?

- ○ Italian bee (A. mellifera)
- ○ Rock bee
- ○ Little bee
- ○ Indian bee

Answer: Italian bee (A. mellifera)

3. Pasturage refers to?

- ○ Flowers available for nectar and pollen
- ○ Beehive structure
- ○ Honey extractor
- ○ Bee wax

Answer: Flowers available for nectar and pollen

4. Bee-keeping is done to obtain?

- ○ Honey and wax
- ○ Milk
- ○ Silk
- ○ Wool

Answer: Honey and wax

5. Italian bees are known for?

- ○ High honey collection capacity
- ○ Stinging more
- ○ Staying for short periods
- ○ Poor breeding

Answer: High honey collection capacity