AISSEE General Science

Sample Paper – 7

Duration: 30 Minutes **Maximum Marks: 50**

Instructions

- This paper has **25 questions** carrying **2 marks** each. Total: **50 marks**.
- All questions are MCQs with four options (A/B/C/D). Choose the single correct answer.
- **No negative marking.** Wrong or blank answers carry zero marks.
- Attempt all questions. Do not leave any answer blank.

Section A: Human Body

Q1. Which part of the human eye controls the amount of light entering it by changing its size?

(A) Retina

(B) Cornea

(C) Pupil

(D) Lens

Answer: (C)

Solution

The **pupil** is the dark circular opening in the iris that controls how much light enters the eye. In bright light the pupil contracts (gets smaller); in dim light it dilates (gets larger). The retina detects light at the back of the eye, and the cornea is the transparent outer covering.

Q2. The transparent outer covering of the eyeball that helps to focus light onto the retina is called the:

(A) Retina

(B) Cornea

(C) Iris

(D) Pupil

Answer: (B)

Solution

The **cornea** is the clear, dome-shaped front surface of the eye. It performs most of the eye's optical focusing. The **retina** is the light-sensitive layer at the back that converts light into nerve signals sent to the brain.

Q3. The diagram shows the five basic human senses. How many senses does the human body have in total?

The Five Basic Senses

(A) 3

(B) 4

(C) 6

(D) 5

Answer: (D)

Solution

The human body has **five** basic senses: sight (eyes), hearing (ears), smell (nose), taste (tongue), and touch (skin). Each sense organ collects information from the environment and sends it to the brain through nerves.

Q4. The eardrum (tympanic membrane), which vibrates when sound waves hit it, is located in the:

(A) Outer ear

(B) Middle ear

(C) Inner ear

(D) Brain

Answer: (B)

Solution

The **middle ear** contains the eardrum (tympanic membrane) and three tiny bones (malleus, incus, stapes) that amplify vibrations. The outer ear collects sound; the inner ear (cochlea) converts vibrations into nerve signals.

Q5. Which sense organ allows us to feel touch, pressure, pain, and temperature changes?

(A) Nose

(B) Eyes

(C) Ears

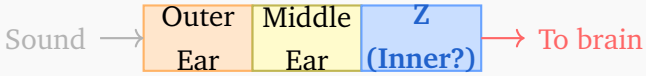
(D) Skin

Answer: (D)

Solution

The **skin** is the sense organ for touch. It contains millions of tiny nerve endings (receptors) that detect touch, pressure, pain, heat, and cold. Being the largest organ of the body, it gives us a continuous picture of our physical environment.

Q6. The diagram shows the three regions of the human ear. Which region (labelled **Z**) contains the cochlea and converts vibrations into nerve signals that go to the brain?



(A) Outer ear

(B) Middle ear

(C) Inner ear

(D) Eardrum

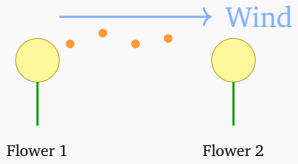
Answer: (C)

Solution

The **inner ear** contains the cochlea (a fluid-filled spiral structure) that converts mechanical vibrations into electrical nerve signals. The auditory nerve then carries these signals to the brain, where sound is interpreted. The inner ear also contains the semicircular canals which help with balance.

Section B: Plants and Animals

Q7. The diagram shows pollen grains being carried from one flower to another without any animal involved. Which type of pollination is shown?



(A) Insect pollination

(B) Wind pollination

(C) Water pollination

(D) Self-pollination

Answer: (B)

Solution

The diagram shows **wind pollination**, where pollen grains are carried by the wind from one flower to another. Grasses, wheat, and maize are common wind-pollinated plants. Their pollen grains are very light and produced in large quantities. Insect-pollinated flowers are usually brightly coloured and have nectar to attract insects.

Q8. Dandelion seeds have feathery tufts (like tiny parachutes) attached to them. This adaptation helps the seeds disperse by:

(A) Animals (eaten and excreted)

(B) Water (floating downstream)

(C) Wind (carried through the air)

(D) Explosive splitting of the seed pod

Answer: (C)

Solution

Dandelion seeds are dispersed by **wind**. The feathery tuft (pappus) acts like a parachute, allowing the seed to float long distances. Other wind-dispersed seeds include maple (winged keys) and cotton (fluffy fibres). Water-dispersed seeds (e.g. coconut) float; animal-dispersed seeds have hooks or are inside fleshy fruits.

Q9. Which part of the plant is often called the *"food factory"* because it is where most of the plant's food (glucose) is made by photosynthesis?

(A) Root

(B) Leaf

(C) Stem

(D) Flower

Answer: (B)

Solution

The **leaf** is the plant's food factory. Its cells contain chlorophyll (the green pigment in chloroplasts) that captures sunlight. Using this energy, the leaf combines carbon dioxide from the air with water from the roots to produce glucose and oxygen. The roots absorb water; the stem transports it upwards.

Q10. The tough outer layer of a tree trunk is called the bark. What is the main function of bark?

(A) Absorb sunlight directly for photosynthesis

(B) Carry water upward from roots to leaves

(C) Protect the tree from pests, disease, and water loss

(D) Produce pollen for reproduction

Answer: (C)

Solution

Bark acts as a protective outer covering for the tree. It shields the inner living tissues (cambium, phloem, xylem) from insects, fungi, bacteria, extreme temperatures, and water loss. Some trees (e.g. cork oak) produce thick bark that humans harvest for cork. Water travels up through the xylem inside the trunk, not through the bark.

Q11. Plants that complete their entire life cycle (germination, growth, flowering, seeding) in one growing season and then die are called:

(A) Perennial plants

(B) Aquatic plants

(C) Evergreen plants

(D) Annual (seasonal) plants

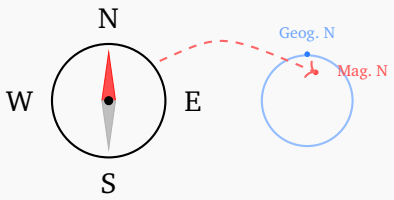
Answer: (D)

Solution

Annual (seasonal) plants live for only one growing season – they germinate, grow, flower, set seed, and die within a single year. Examples include marigold, sunflower, and wheat. **Perennial plants** (e.g. mango trees, roses) live for many years, growing and flowering repeatedly each season.

Section C: Force, Motion, and Simple Machines

Q12. The diagram shows a compass needle pointing north. The magnetic north pole that a compass points to is:



(A) Not at exactly the same location as the geographic North Pole

(B) Exactly at the geographic North Pole

(C) Located in the Southern Hemisphere

(D) At the equator

Answer: (A)

Solution

The **magnetic north pole** is not the same as the geographic North Pole. They are about 500 km apart. The geographic North Pole is the point around which the Earth rotates; the magnetic north pole is where Earth's magnetic field points downward vertically. Compasses point to the magnetic north pole, not true north.

Q13. An iron nail is placed near a strong bar magnet. While near the magnet, the nail attracts paper clips. When the magnet is removed, the nail can no longer attract paper clips. The nail is an example of a:

(A) Temporary magnet

(B) Permanent magnet

(C) Natural magnet

(D) Ceramic magnet

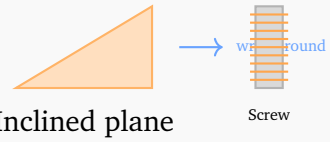
Answer: (A)

Solution

The iron nail is a **temporary magnet** – it gains magnetic properties when near a strong magnet (due to induction), but loses them when the magnet is removed. **Permanent magnets** (e.g. bar magnets made of steel) retain their magnetism. Electromagnets are

also temporary magnets – they are magnetic only when current flows through the coil.

Q14. A screw can be thought of as a simple machine. Which description best explains how a screw is formed?



(A) A wheel and axle wrapped in a spiral

(B) A pulley thread coiled around a rod

(C) An inclined plane wound around a cylinder

(D) A wedge bent into a circular shape

Answer: (C)

Solution

A **screw** is essentially an **inclined plane wound (wrapped) around a cylinder**. As the screw turns, the spiral thread (helix) moves it forward, converting rotational motion to linear motion. Examples: wood screws, bottle caps, jar lids, bolts, and screw jacks.

Q15. A spring balance (spring scale) is an instrument used to measure:

(A) Mass in kilograms

(B) Temperature in degrees Celsius

(C) Volume in litres

(D) Force (weight) in newtons

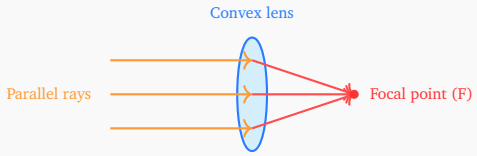
Answer: (D)

Solution

A **spring balance** measures **force** (including weight) in **newtons (N)**. When a force is applied, the spring stretches proportionally; the scale reads the force. Mass (in kg) is measured on a beam balance or digital scale. Temperature is measured with a thermometer; volume with a measuring cylinder.

Section D: Light, Sound, Heat, and Chemistry

Q16. A magnifying glass uses a *convex* lens. The diagram shows parallel rays of light passing through such a lens. What does a convex lens do to the light rays?



(A) Converges (brings together) the light rays to a focal point

(B) Diverges (spreads apart) the light rays

(C) Reflects light back like a mirror

(D) Absorbs all light falling on it

Answer: (A)

Solution

A **convex lens converges** (bends inward) parallel light rays so they meet at the **focal point**. This is why a magnifying glass can focus sunlight and why it makes objects appear larger. A **concave lens** diverges (spreads out) light rays and is used to correct short-sightedness.

Q17. Boiling and evaporation both convert liquid water into water vapour. What is the key difference between them?

(A) Boiling is a cooling process; evaporation heats the liquid

(B) Evaporation only happens in ice; boiling only in liquid water

(C) They are exactly the same process with different names

(D) Boiling occurs throughout the whole liquid at a fixed temperature; evaporation occurs only at the surface and at any temperature

Answer: (D)

Solution

The key difference: **boiling** occurs at a fixed temperature (100°C for water at sea level) **throughout the whole liquid**, forming bubbles. **Evaporation** occurs only at the **surface** of the liquid and can happen at **any temperature** (e.g. puddles drying on a cool day). Both convert liquid to vapour, but by different mechanisms.

Q18. When a candle burns, it produces heat and light energy and releases them into the surroundings. This type of chemical reaction that *releases* heat is called:

(A) Exothermic reaction

(B) Endothermic reaction

(C) Neutralisation reaction

(D) Decomposition reaction

Answer: (A)

Solution

An **exothermic reaction** releases heat (and sometimes light) to the surroundings. Examples: burning (combustion) of wood or wax, rusting of iron, respiration. An **endothermic reaction** absorbs heat from the surroundings (e.g. photosynthesis, dissolving ammonium nitrate in water, melting ice).

Q19. Tearing a sheet of paper into small pieces changes its size and shape. No new substance is formed. This is an example of a:

(A) Chemical change

(B) Combustion reaction

(C) Physical change

(D) Decomposition reaction

Answer: (C)

Solution

Tearing paper is a **physical change** – the paper's composition (cellulose) does not change, only its size and shape. Physical changes are usually reversible (though torn

paper is hard to reassemble). A **chemical change** produces a new substance with different properties (e.g. burning paper produces ash and gases – this cannot be reversed).

Q20. In a science laboratory, a colorimeter is an instrument used to measure:

(A) The intensity (concentration) of colour in a solution

(B) The temperature of a coloured gas

(C) The volume of a coloured liquid

(D) The mass of coloured solids

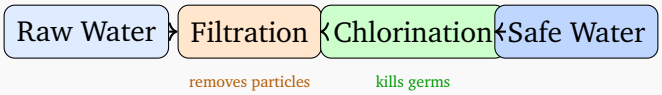
Answer: (A)

Solution

A **colorimeter** measures how much light is absorbed by a coloured solution. The more concentrated (darker) the solution, the more light it absorbs. Scientists use colorimeters to determine the concentration of dissolved substances – for example, measuring blood glucose or the amount of a dye in water. It works on the principle that colour intensity relates to concentration.

Section E: Environmental Science

Q21. The diagram shows the main steps in treating water to make it safe for drinking. Which pair of steps correctly describes the process?



(A) Filtration removes particles; chlorination kills harmful micro-organisms

(B) Boiling only, under very high pressure

(C) Adding salt to remove impurities, then cooling

(D) Exposing to sunlight for 24 hours to purify

Answer: (A)

Solution

Water treatment involves two key stages: (1) **Filtration** – water passes through sand and gravel filters to remove suspended particles, mud, and large impurities; (2) **Chlorination** – small amounts of chlorine are added to kill harmful bacteria and viruses. Sometimes sedimentation (allowing particles to settle) and aeration (adding oxygen) are also done before filtration.

Q22. Sewage treatment plants clean wastewater before releasing it into rivers. The step in which harmful bacteria and pathogens in the treated water are destroyed is called:

(A) Adding sugar to the water

(B) Disinfection using chlorine or UV light

(C) Freezing the water to $-10°C$

(D) Mixing with fresh seawater

Answer: (B)

Solution

In sewage treatment, the final **disinfection** stage uses **chlorine or ultraviolet (UV) light** to kill remaining bacteria and pathogens before the treated water is released. Before this, the sewage undergoes screening (removing large solids), sedimentation (settling of sludge), and biological treatment (bacteria break down organic matter).

Q23. Factories and industries that release untreated smoke, toxic chemical gases, and liquid waste directly into the air, rivers, and land are the main cause of:

(A) Industrial pollution

(B) Agricultural pollution

(C) Domestic pollution

(D) Noise pollution from road traffic

Answer: (A)

Solution

Untreated factory emissions and waste cause **industrial pollution**. It affects air (smoke, sulphur dioxide, nitrogen oxides), water (heavy metals, chemicals), and soil. Industrial pollution is a major cause of acid rain, smog, and water poisoning. Laws require industries to treat their waste before releasing it. Agricultural pollution comes from pesticides and fertilisers; domestic pollution comes from households.

Q24. Coal, petroleum (crude oil), and natural gas are all called *fossil fuels*. Why are they given this name?

(A) They are found near fossil dinosaur bones

(B) They are made entirely from rocks and minerals

(C) They are collected from museums as fossil specimens

(D) They were formed from the remains of ancient plants and animals buried over millions of years

Answer: (D)

Solution

Fossil fuels are called that because they were formed from the **remains (fossils) of ancient living organisms** – plants and animals that died hundreds of millions of years ago. Heat and pressure underground slowly converted these organic remains into coal (from plants), petroleum (from marine organisms), and natural gas. Because they take millions of years to form, they are non-renewable resources.

Q25. Forests and large areas of plants are called *"carbon sinks"*. This is because:

(A) They release large amounts of CO_2 into the atmosphere at night

(B) They absorb CO_2 during photosynthesis and store the carbon in their wood and soil

(C) They produce carbon monoxide which cools the Earth

(D) Carbon dioxide gas sinks downward and settles on the ground near forests

Answer: (B)

Solution

Forests are **carbon sinks** because plants absorb **carbon dioxide (CO_2)** from the atmosphere during photosynthesis and lock the carbon in their trunks, branches, roots, leaves, and in the soil. This reduces the amount of CO_2 (a greenhouse gas) in the atmosphere. Deforestation releases this stored carbon back as CO_2, worsening climate change. Protecting forests is therefore a key climate strategy.

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	D	4	B	5	D
6	C	7	B	8	C	9	B	10	C
11	D	12	A	13	A	14	C	15	D
16	A	17	D	18	A	19	C	20	A
21	A	22	B	23	A	24	D	25	B