AISSEE General Science

Sample Paper – 8

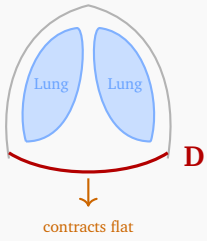
Duration: 30 Minutes **Maximum Marks: 50**

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. The diagram shows the chest cavity during breathing. What is the role of the **diaphragm** (labelled D)?



(A) Produces sound by vibrating

(B) Contracts and flattens to expand the lungs, helping us breathe in

(C) Filters blood coming from the lungs

(D) Stores extra air between breaths

Answer: (B)

Solution

The **diaphragm** is a dome-shaped muscle below the lungs. When it **contracts and flattens**, the chest cavity expands, drawing air into the lungs (inhalation). When it relaxes, air is pushed out (exhalation). It is the main muscle of breathing.

Q2. Humans have four main blood groups: A, B, AB, and O. Which blood group is called the "universal donor" because it can be given to people of *any* other blood group in an emergency?

(A) O

(B) A

(C) B

(D) AB

Answer: (A)

Solution

Blood group O is the universal donor because it lacks the A and B antigens on its red blood cells, so it does not trigger rejection in people with other blood groups. **AB** is the universal recipient (can receive from any group).

Q3. The thyroid gland is a small gland located in the neck. Which hormone does it produce?

(A) Insulin

(B) Adrenaline

(C) Oestrogen

(D) Thyroxin

Answer: (D)

Solution

The **thyroid gland** produces **thyroxin**, a hormone that controls the body's metabolic rate (how fast the body uses energy). Iodine in diet is needed for thyroxin production. Insulin is produced by the pancreas; adrenaline by the adrenal glands.

Q4. As a person grows older, the body shows signs of ageing such as wrinkles and slower healing. Which of the following *best* explains why this happens?

(A) The heart pumps more blood as we age

(B) Bones become lighter and hollow with age

(C) Cell replacement slows down and cells become less efficient over time

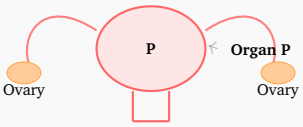
(D) The lungs stop producing carbon dioxide with age

Answer: (C)

Solution

As we age, the rate of **cell replacement slows down** and existing cells become less efficient at carrying out their functions. This leads to wrinkles, reduced healing speed, and weaker muscles and bones. This is a natural biological process.

Q5. The diagram shows part of the female reproductive system. In which labelled organ does a baby develop during pregnancy?



(A) Ovary

(B) Uterus

(C) Fallopian tube

(D) Oviduct (same as fallopian tube, external name)

Answer: (B)

Solution

Organ P is the **uterus** (womb). A fertilised egg implants in the uterine wall and develops into a baby over nine months. The **ovaries** produce eggs; the **fallopian tubes** carry eggs from ovaries to the uterus.

Q6. A person with blood group **AB** can safely receive blood from:

(A) Only AB group donors

(B) Only O group donors

(C) Only A and B group donors

(D) Donors of any blood group (A, B, AB, or O)

Answer: (D)

Solution

AB is the **universal recipient**: a person with AB blood has both A and B antigens and carries no antibodies against either, so they can receive blood from any group (A, B, AB, or O) without triggering rejection.

Section B: Plants and Animals

Q7. An **epiphyte** is a type of plant found growing high up on the branches of large forest trees. What best describes an epiphyte?

(A) A plant that grows on another plant for support, without taking nutrients from it

(B) A plant that traps and digests insects for nutrients

(C) A plant that lives entirely underwater

(D) A plant that has lost all its leaves to survive drought

Answer: (A)

Solution

Epiphytes (e.g. orchids, mosses, ferns) grow on the surface of other plants, using them only for physical support. They are **not parasites** – they obtain water from rain and nutrients from the air or debris. They grow high up to get more sunlight.

Q8. Cacti and aloe vera are called *succulent* plants. How do they survive in very dry deserts?

(A) They do not need water at all to survive

(B) They store large amounts of water in their thick, fleshy leaves or stems

(C) They absorb moisture directly from sunlight

(D) They are active only at night and shut down during the day

Answer: (B)

Solution

Succulent plants have thick, fleshy leaves or stems that act as water reservoirs, storing water collected during rare rains for use during dry periods. Cacti also have spines instead of flat leaves to reduce water loss through transpiration.

Q9. **Mycorrhiza** is a beneficial relationship found in the soil. This relationship exists between:

(A) Two different animals sharing a burrow

(B) A plant and a bird that nests in it

(C) Two plants competing for the same sunlight

(D) Fungi and plant roots, helping the plant absorb more water and nutrients

Answer: (D)

Solution

Mycorrhiza is a mutually beneficial (symbiotic) relationship between **fungi** and **plant roots**. The fungal threads extend the root network, helping the plant absorb more water and minerals. In return, the fungus receives sugars from the plant.

Q10. Farmers often grow peas or beans in a field before planting other crops. This is because these plants enrich the soil. Which group of plants is known to *fix* atmospheric nitrogen into the soil through bacteria in their root nodules?

(A) Legumes (peas, beans, lentils, groundnuts)

(B) Grasses (wheat, rice, maize)

(C) Ferns and mosses

(D) Large trees such as oak and teak

Answer: (A)

Solution

Legumes have special bacteria (*Rhizobium*) living in nodules on their roots. These bacteria convert atmospheric nitrogen (N_2) into ammonia, which enriches the soil with nitrogen compounds. This is called **nitrogen fixation** and reduces the need for chemical fertilisers.

Q11. Trees provide many important benefits to the environment and to people. Which of the following is *NOT* a benefit provided by trees?

(A) They produce oxygen and absorb carbon dioxide

(B) They provide shade, shelter, and habitat for wildlife

(C) They increase air pollution in cities

(D) They hold soil together and prevent erosion

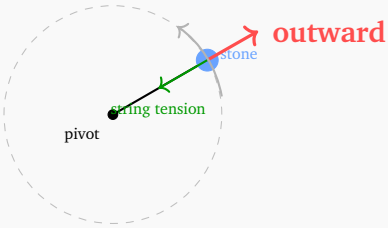
Answer: (C)

Solution

Trees **reduce** air pollution by absorbing dust, smoke particles, and CO_2 – they do **not** increase it. All other options are genuine benefits: trees produce O_2, support wildlife, provide shade, and their roots hold soil, preventing erosion and landslides.

Section C: Force, Motion, and Simple Machines

Q12. The diagram shows a stone tied to a string being swung in a circle. The stone tends to fly *outward*. This outward tendency felt during circular motion is called:



(A) Gravitational force

(B) Centrifugal tendency (outward tendency in circular motion)

(C) Magnetic force

(D) Frictional force

Answer: (B)

Solution

The **centrifugal tendency** is the apparent outward push felt by an object moving in a circle (e.g. passengers leaning outward in a turning car, clothes pushed to the drum walls in a washing machine). The inward pull keeping the object in the circle is the **centripetal force**.

Q13. A satellite orbits the Earth continuously without firing its engine. What keeps the satellite moving in its orbit?

(A) The satellite's own engine fires continuously

(B) Solar wind from the Sun pushes the satellite along

(C) Earth's gravity continuously pulls the satellite inward, curving its path into an orbit

(D) Magnetic force from Earth's iron core propels the satellite

Answer: (C)

Solution

A satellite stays in orbit because **Earth's gravity** continuously bends its path into a curve. The satellite moves fast enough that as it falls toward Earth, Earth's surface curves away

equally – so it keeps circling. This is the same gravity that makes apples fall from trees.

Q14. Astronauts aboard a space station appear to float and feel *weightless*, even though Earth's gravity still acts on them. What is the correct explanation?

(A) Both the astronaut and the space station are in continuous free fall around Earth, so neither feels a normal reaction force

(B) There is absolutely no gravity in space

(C) The spacecraft has special anti-gravity panels on its walls

(D) They are too far away for Earth's gravity to reach them

Answer: (A)

Solution

Weightlessness in orbit is not the absence of gravity – it is **free fall**. Both the astronaut and the spacecraft are falling toward Earth at the same rate. Since there is nothing to push back (normal force = 0), the astronaut feels weightless. Gravity still acts at orbital heights.

Q15. Mountain climbers at very high altitudes need oxygen cylinders. This is related to how atmospheric pressure changes with altitude. Which statement is correct?

(A) Atmospheric pressure increases as you climb higher

(B) Atmospheric pressure stays the same at all altitudes

(C) Atmospheric pressure decreases as you climb higher, so air becomes thinner

(D) Atmospheric pressure only changes over oceans, not on land

Answer: (C)

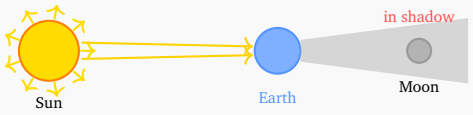
Solution

Atmospheric pressure decreases with altitude because there is less air above you. At high altitudes, the air is "thinner" (fewer oxygen molecules per breath), which is why

mountaineers carry oxygen cylinders. Aircraft cabins are pressurised to keep passengers comfortable.

Section D: Light, Sound, Heat, and Chemistry

Q16. The diagram shows three celestial bodies. In which arrangement does a **lunar eclipse** occur?



(A) The Moon comes between the Earth and the Sun

(B) The Sun comes between the Earth and the Moon

(C) The Earth comes between the Sun and the Moon

(D) The Moon moves too far away from Earth

Answer: (C)

Solution

A **lunar eclipse** occurs when **Earth comes between the Sun and the Moon**: Earth's shadow falls on the Moon, making it appear dark or reddish. A **solar eclipse** is when the Moon comes between the Sun and Earth, blocking sunlight from reaching parts of Earth.

Q17. Optical fibres are thin glass or plastic strands used to transmit data (internet, phone calls) over long distances at very high speeds. They carry information using:

(A) Electrical current flowing through copper wires

(B) Magnetic waves bouncing between metal walls

(C) Sound waves that travel inside the fibre

(D) Light signals that travel by total internal reflection inside the fibre

Answer: (D)

Solution

Optical fibres use **light** (laser pulses) to carry information. The light travels by **total internal reflection** – it bounces off the inner walls of the glass fibre without escaping. This allows signals to travel very fast over long distances with minimal loss.

Q18. When wood burns, it releases heat and light into the surroundings. This type of chemical reaction, which *releases* energy to the surroundings, is called:

(A) Exothermic reaction

(B) Endothermic reaction

(C) Neutralisation reaction

(D) Decomposition reaction

Answer: (A)

Solution

An **exothermic reaction** releases energy (heat/light) to the surroundings. Examples: burning, respiration. An **endothermic reaction** absorbs energy from the surroundings (e.g. photosynthesis, dissolving ammonium chloride in water). "Exo" means outside; "endo" means inside.

Q19. When a spoon of sugar is dissolved in a glass of water, a *solution* is formed. In this solution, what is the sugar called?

(A) Solute

(B) Solvent

(C) Solution

(D) Mixture

Answer: (A)

Solution

In a solution, the substance that dissolves is the **solute** (sugar); the liquid it dissolves in is the **solvent** (water); and the resulting mixture is the **solution** (sugar water). A solution is a homogeneous mixture – it is the same throughout.

Q20. A strip of litmus paper turns **red** when dipped in lemon juice (an acid) and **blue** when dipped in soap solution (an alkali). Because it changes colour to identify whether a substance is acidic or basic, litmus paper is called:

(A) A catalyst

(B) An indicator

(C) A solvent

(D) A reactant

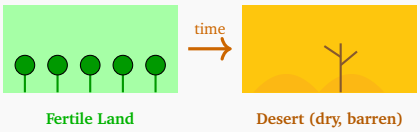
Answer: (B)

Solution

Litmus paper is an **indicator** – a substance that changes colour depending on whether the solution is acidic or basic (alkaline). Red litmus stays red in acid and turns blue in alkali; blue litmus stays blue in alkali and turns red in acid. Other indicators include turmeric and phenolphthalein.

Section E: Environmental Science

Q21. The diagram shows a region changing over time. What process does this represent?



(A) Afforestation – spreading forests into new areas

(B) Flooding – fertile land covered by rising seas

(C) Glaciation – land covered by advancing ice

(D) Desertification – fertile land gradually becomes dry, barren desert

Answer: (D)

Solution

Desertification is the process by which fertile land becomes barren, dry desert due to factors such as deforestation, overgrazing, poor farming, and climate change. It affects millions of people worldwide by reducing land available for food production.

Q22. When a plant or animal species is brought into a new region (where it did not naturally exist), it sometimes spreads rapidly and harms local wildlife and ecosystems. Such a species is called:

(A) A native species that supports local biodiversity

(B) An endemic species found only in the ocean

(C) A migratory species that returns each season

(D) An invasive species

Answer: (D)

Solution

An **invasive species** is one introduced to a new region (by accident or intentionally) where it has no natural predators, allowing it to spread rapidly, outcompete native species, and disrupt the ecosystem. Examples: water hyacinth in Indian lakes, lantana in Indian forests.

Q23. Coral reefs are called the "rainforests of the sea" because of the rich variety of marine life they support. **Coral bleaching** (corals turning white and dying) is mainly caused by:

(A) Unusually heavy rainfall filling the ocean with fresh water

(B) Abnormally cold ocean temperatures

(C) Abnormally warm ocean temperatures (often driven by climate change)

(D) An increase in the population of reef fish

Answer: (C)

Solution

Coral bleaching happens when ocean water becomes too warm. Corals expel the colourful algae (*zooxanthellae*) living in their tissues – losing their colour and their main food source. Prolonged bleaching kills the coral. Rising sea temperatures due to climate change is the main cause of mass bleaching events.

Q24. A mango grown in Maharashtra is shipped by truck to Delhi, then flown to a supermarket in London. The environmental impact of this transport is measured as a "food mile." What does the term **food mile** mean?

(A) The distance food travels from the farm to the consumer, used as a measure of the carbon footprint of food

(B) The amount of food (in kilograms) that a person eats each day

(C) The length of the rows in a farm used for growing crops

(D) The total weight of food exported by a country in one year

Answer: (A)

Solution

A **food mile** measures the **distance food travels** from where it is produced to where it is eaten. Long food miles mean more fuel is burned and more CO_2 is released (a larger carbon footprint). Buying locally grown food reduces food miles and helps the environment.

Q25. A swinging pendulum slows down and stops, but the total energy of the system (pendulum + surroundings) does not disappear. This is explained by the *law of conservation of energy*. Which statement best describes this law?

(A) New energy is created every time a fuel burns

(B) Energy can neither be created nor destroyed; it can only be converted from one form to another

(C) All energy eventually turns into light and escapes into space

(D) The total amount of energy in the universe decreases a little each year

Answer: (B)

Solution

The **law of conservation of energy** states that energy cannot be created or destroyed – it only changes form. The pendulum's kinetic energy converts to heat (through air resistance and friction at the pivot), warming the surroundings. Total energy is always conserved.

Answer Key

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