

AISSEE General Science

Sample Paper – 5

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 lymphatic system is a network of vessels and organs throughout the body. What is the PRIMARY role of the lymphatic system?

- (A) Digest proteins and carbohydrates in the small intestine
- (B) Pump oxygenated blood to all parts of the body
- (C) Regulate body temperature through sweating
- (D) Drain excess fluid from tissues and defend the body against infection

Answer: (D)

Solution

The **lymphatic system** drains excess interstitial (tissue) fluid back into the bloodstream and is a key part of the immune system. It contains lymphocytes (white blood cells) that fight pathogens. Lymph nodes act as filters, trapping bacteria and cancer cells.



Q2. Which structures, located at the back of the throat, are part of the immune system and act as the body's first defence by trapping germs that enter through the mouth and nose?

- (A) Tonsils
- (B) Vocal cords
- (C) Salivary glands
- (D) Sinuses

Answer: (A)

Solution

The **tonsils** are masses of lymphoid tissue at the back of the throat. They trap bacteria and viruses entering through the mouth and nose and trigger an immune response. They are part of the lymphatic system. Infection of the tonsils causes tonsillitis.

Q3. The liver is the largest internal organ of the human body. Which of the following is a key function of the liver?

- (A) Pumps blood to all parts of the body
- (B) Controls balance and muscular coordination
- (C) Stores urine before it leaves the body
- (D) Produces bile, which helps in the digestion of fats

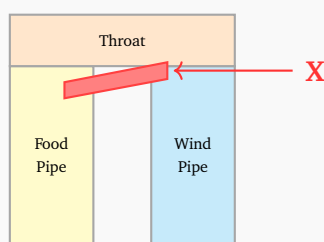
Answer: (D)

Solution

The **liver** produces **bile**, a digestive fluid stored in the gall bladder and released into the small intestine to emulsify (break up) fats for easier digestion. The liver also detoxifies blood, stores glucose as glycogen, and produces blood-clotting proteins.



Q4. The diagram shows a simplified view of the throat region. Structure X acts like a lid that closes over the windpipe during swallowing, preventing food from entering it. What is structure X?



- (A) Epiglottis
- (B) Oesophagus
- (C) Larynx
- (D) Trachea

Answer: (A)

Solution

The **epiglottis** is a leaf-shaped flap of cartilage that folds over the entrance to the trachea (windpipe) every time you swallow, directing food and drink into the oesophagus (food pipe). If food accidentally enters the windpipe, coughing removes it.

Q5. Which glands produce a salty liquid that continuously washes the surface of the eye, keeping it moist, clean, and protected against infection?

- (A) Lacrimal (tear) glands
- (B) Sebaceous glands
- (C) Sweat glands
- (D) Pituitary glands

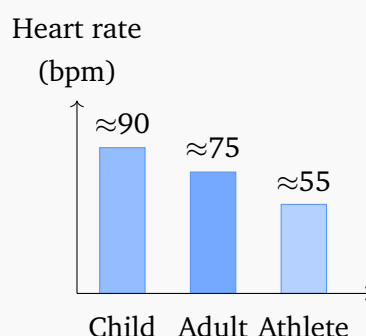
Answer: (A)

Solution

The **lacrimal (tear) glands** are located above each eye and produce tears that lubricate and clean the eye surface. Tears wash away dust and germs and contain an antibacterial enzyme called **lysozyme**. Excess tears drain into the nose through tiny channels — which is why crying causes a runny nose.



Q6. The bar chart shows average resting heart rates for different types of people. What is the typical resting heart rate for a healthy adult?



- (A) About 30–40 beats per minute
- (B) About 50–55 beats per minute
- (C) About 70–80 beats per minute
- (D) About 100–120 beats per minute

Answer: (C)

Solution

A healthy adult has an average resting heart rate of **70–80 beats per minute**. Children tend to have higher rates (~90 bpm) due to a faster metabolism, while trained athletes often have lower rates (~50–60 bpm) because their hearts are stronger and pump more blood per beat.

Section B: Plants and Animals

Q7. The process by which pollen grains are transferred from the *anther* (male part) of a flower to the *stigma* (female part) of the same or another flower is called:

- (A) Pollination
- (B) Fertilisation
- (C) Germination
- (D) Transpiration

Answer: (A)



Solution

Pollination is the transfer of pollen from the anther to the stigma. It can be carried out by wind, water, insects (e.g. bees), or birds. After pollination, **fertilisation** occurs when pollen reaches the egg cell in the ovary, leading to seed formation.

Q8. In which organelle (part) of a plant cell does photosynthesis take place?

- (A) Mitochondria
- (B) Chloroplast
- (C) Nucleus
- (D) Vacuole

Answer: (B)

Solution

Photosynthesis takes place in the **chloroplasts**, which contain the green pigment **chlorophyll**. Chlorophyll absorbs sunlight and uses its energy to convert carbon dioxide and water into glucose and oxygen. Mitochondria are the site of respiration (energy release).

Q9. A cactus lives in a hot, dry desert and rarely receives water. Which combination of features helps a cactus survive with very little water?

- (A) Broad flat leaves and shallow roots
- (B) Thin transparent skin and many stomata on the leaves
- (C) Thick waxy skin, spines instead of leaves, and a swollen stem to store water
- (D) Large flowers that open only at night and closed stomata during the day

Answer: (C)

Solution

A cactus has a **thick waxy coating** to reduce water loss, **spines** instead of leaves (reducing evaporation surface), and a **swollen stem** that stores water. Its roots are wide and shallow to absorb rainwater quickly over a large area after rare showers.



Q10. Which feature of the water lily is a key adaptation that helps it survive in its aquatic (water) habitat?

- (A) Broad, flat leaves that float on the water surface to capture sunlight
- (B) Very thick waxy skin to prevent absorbing too much water
- (C) Long sharp thorns to protect against water predators
- (D) An absence of roots so it can float freely

Answer: (A)

Solution

Water lily leaves are **broad and flat**, allowing them to float on the surface and capture maximum sunlight for photosynthesis. The upper surface is waxy to repel water and keep stomata open. Air spaces inside the leaf and stem keep the plant buoyant.

Q11. When a seed begins to germinate (sprout), which part of the seedling emerges FIRST from the seed coat?

- (A) Plumule (embryonic shoot that becomes the stem and leaves)
- (B) Cotyledon (seed leaf)
- (C) True leaf
- (D) Radicle (the first root)

Answer: (D)

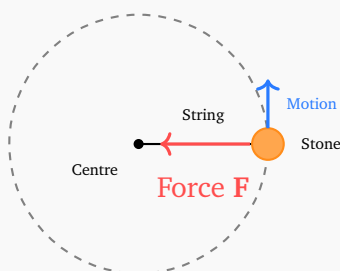
Solution

During germination, the **radicle** (embryonic root) is always the first part to emerge from the seed. It grows downward into the soil to absorb water and anchor the seedling. The **plumule** (embryonic shoot) emerges next and grows upward toward the light.

Section C: Force, Motion, and Simple Machines



Q12. The diagram shows a stone tied to a string and whirled in a horizontal circle. The force labelled **F**, directed towards the centre, keeps the stone moving in its circular path. What is this force called?



- (A) Gravitational force
- (B) Frictional force
- (C) Centripetal force
- (D) Magnetic force

Answer: (C)

Solution

Centripetal force acts towards the centre of a circular path and keeps an object moving in a circle. For the stone on a string, the tension in the string provides this force. Without centripetal force, the stone would fly off in a straight line (tangentially to the circle).

Q13. When a swimmer pushes backward against the water, she moves forward. When a rocket expels gases downward, it rises upward. Both of these are examples of:

- (A) Newton's First Law — an object at rest stays at rest
- (B) Newton's Third Law — every action has an equal and opposite reaction
- (C) Newton's Second Law — force equals mass times acceleration
- (D) The Law of Gravitation — objects attract each other

Answer: (B)



Solution

Newton's Third Law states: for every action there is an equal and opposite reaction. The swimmer pushes water backward (action) and water pushes the swimmer forward (reaction). A rocket expels gases downward (action) and is pushed upward (reaction).

Q14. In a simple electrical circuit containing a battery, connecting wires, a bulb, and a switch, the bulb will glow only when:

- (A) The switch is open (the circuit is broken)
- (B) The bulb is removed from the circuit
- (C) The battery is removed from the circuit
- (D) The switch is closed (the circuit is complete)

Answer: (D)

Solution

A bulb lights up only in a **closed (complete) circuit** where there is a continuous conducting path for electric current to flow from the battery, through the wires and bulb, and back to the battery. An open circuit has a break in the path — current cannot flow and the bulb does not glow.

Q15. The energy stored in food, coal, petrol, and wood — released when these substances are digested or burned — is a form of stored energy. What type of energy is this?

- (A) Solar energy
- (B) Chemical energy
- (C) Mechanical energy
- (D) Wind energy

Answer: (B)

Solution

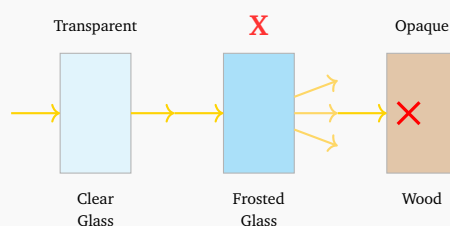
Chemical energy is the energy stored in the chemical bonds of substances such as food, petrol, coal, and batteries. When these substances are burned or metabolised, chemical energy is converted to heat and light (or electrical energy in a battery). Our bodies run



on chemical energy from food.

Section D: Light, Sound, Heat, and Chemistry

Q16. The diagram shows how light behaves when it hits three different materials. Material X allows some light through but scatters it, so objects cannot be seen clearly through it. What type of material is X?



- (A) Transparent
- (B) Opaque
- (C) Translucent
- (D) Luminous

Answer: (C)

Solution

A **translucent** material (e.g. frosted glass, tissue paper, butter paper) allows some light through but scatters it, so objects appear blurry. A **transparent** material (e.g. clear glass) lets light pass without scattering. An **opaque** material (e.g. wood, metal) blocks all light.

Q17. The number of complete vibrations (oscillations) produced by a sound source in one second is called the:

- (A) Amplitude of the sound
- (B) Wavelength of the sound
- (C) Frequency of the sound
- (D) Pitch range of the sound

Answer: (C)



Solution

Frequency is the number of vibrations per second, measured in **Hertz (Hz)**. A higher frequency produces a higher-pitched sound; a lower frequency produces a lower-pitched sound. Humans can hear sounds from about 20 Hz to 20,000 Hz. Sounds above this range are called *ultrasound*.

Q18. Water is used as a coolant in car engines and is vital for regulating body temperature because it can absorb a very large amount of heat before its temperature rises significantly. This property is water's high:

- (A) Density
- (B) Specific heat capacity
- (C) Electrical conductivity
- (D) Viscosity

Answer: (B)

Solution

Specific heat capacity is the amount of heat needed to raise the temperature of 1 kg of a substance by 1°C. Water has a very high specific heat capacity (4200 J/kg/°C), so it heats up and cools down slowly. This makes it an excellent coolant and helps moderate Earth's climate near oceans.

Q19. Iron objects left outdoors in damp conditions develop a reddish-brown coating called rust. Rust forms when iron reacts with which two substances?

- (A) Iron reacts with carbon dioxide only
- (B) Iron reacts with nitrogen only
- (C) Iron reacts with salt and carbon dioxide
- (D) Iron reacts with oxygen and water

Answer: (D)



Solution

Rust forms when iron reacts with both **oxygen** (from air) and **water** (moisture). Both are required — iron kept completely dry, or submerged in oil away from oxygen, does not rust. This is why iron objects are painted, galvanised with zinc, or oiled to prevent rusting.

Q20. When a sheet of paper is burnt, it turns to ash and smoke. Which of the following BEST describes this change?

- (A) A reversible physical change, because water can be extracted from the smoke
- (B) A reversible chemical change, because the ash still contains carbon
- (C) An irreversible chemical change, because the original paper cannot be recovered
- (D) A physical change, because the paper only changed its shape and colour

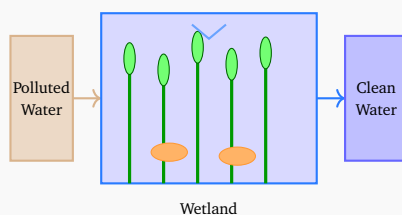
Answer: (C)

Solution

Burning paper is an **irreversible chemical change**. New substances (ash, carbon dioxide, water vapour, smoke) are formed, and the original paper cannot be recovered. It is a *chemical* change because the molecular composition of the paper changes completely during combustion.

Section E: Environmental Science

Q21. The diagram shows a wetland ecosystem. Wetlands such as marshes and swamps are very important. Which of the following is a key ecological role of wetlands?



- (A) They are barren, waterlogged areas of no ecological value
- (B) They act as natural water filters and provide habitat for many species
- (C) They prevent all plant growth due to permanently flooded soil
- (D) They cause nearby land to become permanently dry and infertile

Answer: (B)

Solution

Wetlands are biodiversity hotspots. They filter pollutants from water, recharge groundwater, protect coastlines from floods, and provide habitat for birds, fish, amphibians, and unique plant species. The Ramsar Convention (1971) protects important wetlands internationally.

Q22. Mangrove forests grow along tropical coastlines in salty or brackish water. Which of the following is the MOST important environmental benefit of mangrove forests?

- (A) They protect coastlines from erosion and act as a natural barrier against storm waves and tsunamis
- (B) They increase the salinity of seawater to levels harmful to marine life
- (C) They block sunlight from reaching the ocean, preventing fish from surviving
- (D) They cause sea levels to rise by holding large volumes of water in their roots

Answer: (A)



Solution

Mangrove forests protect coastlines from erosion and storm damage. Their dense interlocking roots trap sediment and reduce erosion, while their canopy absorbs the energy of storm waves and tsunamis. They also serve as nursery habitat for fish and shelter for birds, crabs, and other wildlife.

Q23. In the carbon cycle, which of the following correctly describes the role of green plants?

- (A) Green plants absorb carbon dioxide (CO_2) from the atmosphere during photosynthesis and store carbon in their tissues
- (B) Green plants only release carbon dioxide at all times, day and night
- (C) Green plants do not interact with atmospheric carbon at all
- (D) Green plants absorb nitrogen from the air and release it as carbon dioxide

Answer: (A)

Solution

In the carbon cycle, green plants **absorb** CO_2 from the atmosphere during photosynthesis and convert it to glucose (organic carbon) stored in their tissues. When plants respire, are eaten by animals, or decompose, carbon returns to the atmosphere as CO_2 . Animals also release CO_2 through respiration.

Q24. Soil erosion is the removal of the fertile top layer of soil by wind or water. Which of the following is the MAIN human activity that accelerates soil erosion?

- (A) Planting more trees and shrubs on hillsides
- (B) Deforestation (cutting down trees and clearing forests)
- (C) Building check dams on rivers to slow water flow
- (D) Adding compost and organic matter to the soil

Answer: (B)



Solution

Deforestation removes the tree roots that bind soil together, leaving bare earth exposed to wind and rain. Without plant cover, topsoil is easily washed away by rainwater (water erosion) or blown away by wind. This leads to loss of fertile land, flooding, landslides, and desertification.

Q25. Conservation organisations classify some animal species as “endangered.” What does the term *endangered* mean?

- (A) The species has recently been discovered for the first time by scientists
- (B) The species now lives only in zoos and is no longer found in the wild
- (C) The species is found in very large, stable numbers all over the world
- (D) The species has declined so much in number that it faces a high risk of becoming extinct

Answer: (D)

Solution

An **endangered species** faces a very high risk of extinction in the wild. Causes include habitat loss, illegal hunting (poaching), pollution, and climate change. Examples of endangered Indian animals include the Bengal tiger, the Asiatic lion, and the Indian rhinoceros. Conservation measures include wildlife sanctuaries, national parks, and captive breeding programmes.

Answer Key

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

