JCECE Biology Sample Paper – 6

Duration: 60 Minutes **Maximum Marks: 50**

Instructions

- This paper contains **50** Multiple Choice Questions (Single Correct Answer), modelled on the Biology portion of **JCECE** entrance.
- Each correct answer carries **+1 mark**. There is -0.25 **mark** for each incorrect answer; unattempted questions get 0.
- Only **one** option is correct. Choose carefully.
- Syllabus level: **Class 11 and Class 12 NCERT Biology (Jharkhand JAC / CBSE aligned) – Botany and Zoology.**
- Use of mobile phones, calculators, or electronic gadgets is strictly prohibited.

Q1. Archaebacteria are placed in kingdom Monera but are remarkable for surviving in the harshest habitats on Earth. Which group of archaebacteria lives in the gut of ruminant animals and produces methane (biogas)?

(A) halophiles (salt-loving forms)

(B) thermoacidophiles (hot-spring forms)

(C) cyanobacteria (blue-green algae)

(D) methanogens

Q2. A taxonomic key is an analytical tool used for the identification of plants and animals. Each step of such a key offers two contrasting choices, and is therefore based on a pair of statements called a:

(A) monograph

(B) couplet

(C) flora

(D) manual

Q3. In the life cycle of a moss, a haploid gametophyte alternates with a diploid sporophyte. This regular alternation between a gamete-producing haploid phase and a spore-producing diploid phase is known as:

(A) alternation of generations

(B) double fertilization

(C) apomixis

(D) isogamy

Q4. Arthropoda is the largest phylum of the animal kingdom. The chief excretory organs by which most insects (such as the cockroach) remove nitrogenous waste are the:

(A) flame cells

(B) Malpighian tubules

(C) nephridia

(D) green (antennal) glands

Q5. During secondary growth of a dicot stem, the vascular cambium cuts off new cells on both its sides. The cells produced *towards the inside* (centre) of the stem mature into:

(A) secondary phloem

(B) cork (phellem)

(C) secondary cortex

(D) secondary xylem (wood)

Q6. Both cartilage and bone are specialised connective tissues, but they differ in the nature of their matrix. The hard, non-pliable strength of bone matrix is mainly due to the deposition of:

(A) chondroitin sulphate alone

(B) calcium salts (calcium phosphate)

(C) collagen fibres only

(D) a fluid plasma matrix

Q7. A fruit that develops from the condensed inflorescence (whole flower cluster) rather than from a single flower, as seen in pineapple and jackfruit, is called a:

(A) aggregate fruit

(B) composite (multiple) fruit

(C) simple fleshy drupe

(D) true single berry

Q8. The frog is able to breathe through more than one surface. When it is submerged under water for a long time, the frog respires mainly through its:

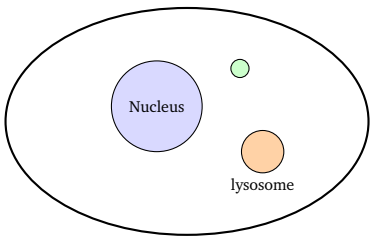
(A) lungs (pulmonary respiration)

(B) buccal cavity lining only

(C) gills throughout adult life

(D) moist skin (cutaneous respiration)

Q9. In the animal cell shown below, the single-membrane vesicle marked is rich in hydrolytic (digestive) enzymes and is often called the cell's 'suicide bag'. Its principal function is to:



(A) carry out intracellular digestion of worn-out organelles and engulfed material

(B) synthesise ATP by oxidative phosphorylation

(C) assemble ribosomal subunits

(D) trap light energy for photosynthesis

Q10. The bulk uptake of large solid particles or fluid droplets into a cell, by the infolding of the plasma membrane to form a vesicle, is called:

(A) endocytosis

(B) exocytosis

(C) simple diffusion

(D) passive osmosis

Q11. Among the following, the storage polysaccharide that serves as the principal reserve carbohydrate in the liver and muscles of animals is:

(A) cellulose

(B) chitin

(C) sucrose

(D) glycogen

Q12. Enzymes accelerate the rate of a biochemical reaction. They do this primarily by:

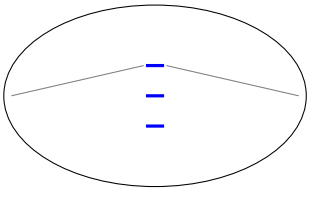
(A) raising the temperature of the reactants

(B) changing the equilibrium point of the reaction

(C) adding extra energy to the substrate molecules

(D) lowering the activation energy of the reaction

Q13. The figure shows chromosomes aligned at the equator at mitotic metaphase, with spindle fibres from two poles. Before a cell reaches this M phase it passes through interphase. In which sub-phase of interphase does DNA replication (synthesis) actually take place?



(A) the S phase

(B) the G_1 phase

(C) the G_2 phase

(D) the M (mitotic) phase

Q14. During meiosis I, homologous chromosomes that have undergone crossing over remain joined at certain X-shaped points where the exchange of chromatid segments occurred. These points of attachment are called:

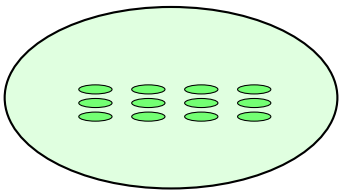
(A) centromeres

(B) chiasmata

(C) kinetochores

(D) synaptonemal junctions

Q15. The chloroplast shown contains stacked grana. During the light reaction, water is split on the inner side of the thylakoid membrane. This photolysis (splitting) of water directly releases:



(A) carbon dioxide gas

(B) oxygen, protons (H^+) and electrons

(C) glucose and water

(D) nitrogen gas

Q16. The respiratory quotient (RQ) is the ratio of the volume of CO_2 evolved to the volume of O_2 consumed in respiration. For the complete aerobic oxidation of a carbohydrate such as glucose, the RQ is:

(A) greater than 1

(B) zero

(C) exactly 1.0

(D) about 0.7

Q17. When dry pea or gram seeds are soaked in water they swell up and increase in volume. This special type of diffusion, by which water is adsorbed onto hydrophilic colloids of the seed, is called:

(A) guttation

(B) transpiration

(C) imbibition

(D) plasmolysis

Q18. Leguminous plants such as pea and gram can enrich the soil with nitrogen because their root nodules harbour a symbiotic bacterium that fixes atmospheric nitrogen. This bacterium is:

(A) *Rhizobium*

(B) *Nitrobacter*

(C) *Lactobacillus*

(D) *Pseudomonas*

Q19. Some plants flower only when the day length (photoperiod) is appropriate. The response of plants to the relative lengths of day and night, which determines the time of flowering, is called:

(A) vernalization

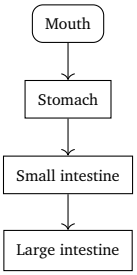
(B) phototropism

(C) photoperiodism

(D) apical dominance

Q20. The flow diagram shows the human alimentary canal. The food that is swallowed is pushed along the gut from one region to the next by

rhythmic waves of contraction and relaxation of the gut wall muscles. These waves are called:



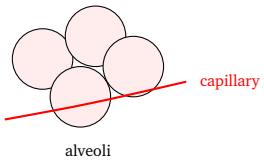
(A) peristalsis

(B) filtration

(C) emulsification

(D) deamination

Q21. Gas exchange occurs across the thin alveolar walls shown. A graph of the percentage saturation of haemoglobin with oxygen plotted against the partial pressure of oxygen gives a curve that is:



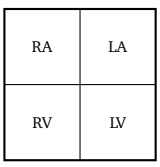
(A) a straight diagonal line

(B) sigmoid (S-shaped)

(C) a flat horizontal line

(D) an inverted U shape

Q22. The four-chambered human heart pumps blood that is able to clot when a vessel is injured. In the blood-clotting (coagulation) cascade, the soluble plasma protein fibrinogen is converted into insoluble threads of:



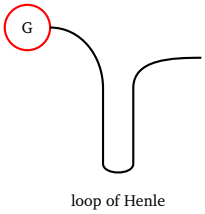
(A) heparin

(B) albumin

(C) fibrin

(D) haemoglobin

Q23. In the nephron shown, the filtrate is finally processed into urine, which is stored in the urinary bladder. The act of expelling this stored urine from the bladder to the outside through the urethra is called:



(A) micturition

(B) ultrafiltration

(C) reabsorption

(D) secretion

Q24. In a striated muscle fibre the functional contractile unit lies between two successive Z-lines. This unit, which is the distance from one Z-line to the next, is called the:

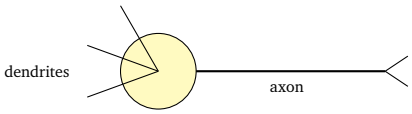
(A) sarcolemma

(B) sarcoplasm

(C) sarcoplasmic reticulum

(D) sarcomere

Q25. In the neuron diagram, signals travel along the labelled processes. In a simple spinal reflex arc (such as the knee-jerk), the correct path of impulse flow is:



(A) receptor → sensory neuron → spinal cord → motor neuron → effector

(B) effector → motor neuron → receptor

(C) motor neuron → receptor → sensory neuron

(D) brain → receptor → effector directly

Q26. The parathyroid glands secrete parathyroid hormone (PTH). The chief effect of this hormone in the body is to:

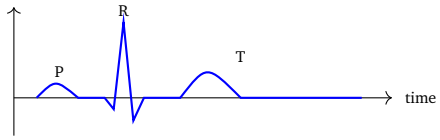
(A) lower the blood glucose level

(B) raise the basal metabolic rate

(C) raise the level of calcium (Ca^{2+}) in the blood

(D) promote water reabsorption in the kidney

Q27. The ECG trace below records the electrical events of the heartbeat. The phase of the cardiac cycle in which the heart muscle *contracts* and pumps blood out of a chamber is called:



(A) diastole

(B) systole

(C) the resting potential

(D) repolarisation

Q28. Immediately after an action potential passes, there is a brief interval during which a region of the nerve fibre cannot be stimulated to fire a second impulse, no matter how strong the stimulus. This interval is called the:

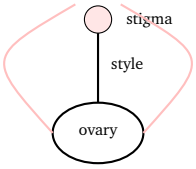
(A) resting period

(B) depolarisation period

(C) refractory period

(D) latent summation period

Q29. The longitudinal section of a flower is shown. The mature pollen grain represents the male gametophyte of an angiosperm. At the time it is shed, a typical pollen grain is usually:



(A) single-celled and undivided

(B) 7-celled and 8-nucleate

(C) fully diploid with eight nuclei

(D) 2-celled (a vegetative cell and a generative cell)

Q30. In the embryo sac of a flowering plant, the second male gamete fuses with the two polar nuclei (or the secondary nucleus). This triple fusion produces the primary endosperm nucleus, which is:

(A) haploid (n)

(B) diploid (2n)

(C) triploid (3n)

(D) tetraploid (4n)

Q31. In the human male, the accessory gland that surrounds the upper part of the urethra and adds its secretion to the semen is the:

(A) Cowper's gland only

(B) seminiferous tubule

(C) Bartholin's gland

(D) prostate gland

Q32. After fertilization, the zygote undergoes a series of rapid mitotic divisions as it moves down the fallopian tube. This early sequence of divisions, which is not accompanied by growth of the embryo, is called:

(A) gastrulation

(B) ovulation

(C) parturition

(D) cleavage

Q33. Amniocentesis is a prenatal diagnostic technique, legally banned for sex determination to curb female foeticide. It detects chromosomal abnormalities and disorders of the foetus by analysing:

(A) the mother's blood hormone levels

(B) foetal cells and chromosomes present in the amniotic fluid

(C) the father's karyotype

(D) ultrasound images of the foetus only

Q34. In pea plants tallness (T) is dominant over dwarfness (t). A tall plant whose genetic make-up is Tt has the same outward appearance as a TT plant. The actual genetic constitution (TT or Tt) of an organism is referred to as its:

(A) genotype

(B) phenotype

(C) karyotype

(D) ecotype

Q35. In some cases a single gene exerts its effect on many different characters of the organism at the same time. This phenomenon, where one gene influences several phenotypic traits, is called:

(A) incomplete dominance

(B) codominance

(C) pleiotropy

(D) polygenic inheritance

Q36. Genes located on the X chromosome show a characteristic pattern of inheritance in which the trait passes from a carrier mother chiefly to her sons. Such genes (and the traits they control) are described as:

(A) X-linked (sex-linked)

(B) autosomal dominant

(C) Y-linked (holandric)

(D) maternally inherited cytoplasmic

Q37. Red–green colour blindness is a recessive sex-linked disorder in humans. A man who is colour-blind marries a woman who is homozygous normal (not a carrier). With respect to colour vision, their children will be:

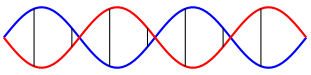
(A) all children with normal colour vision (daughters being carriers)

(B) all sons colour-blind, all daughters normal

(C) all daughters colour-blind, all sons normal

(D) half of all children colour-blind

Q38. The DNA double helix is shown. In a eukaryotic chromosome the long DNA thread is packaged by winding around a core of basic proteins. The repeating bead-like unit formed by DNA wrapped around a histone octamer is called the:



double helix

(A) codon

(B) nucleosome

(C) operon

(D) centromere

Q39. During DNA replication, new nucleotides are added one by one to the growing daughter strand using the parental strand as a template. The enzyme that catalyses this template-directed synthesis of the new DNA strand is:

(A) RNA polymerase

(B) DNA ligase

(C) DNA polymerase

(D) restriction endonuclease

Q40. The forelimbs of a whale, a bat and a human have a similar internal bone plan but perform different functions. Such organs, which share a common basic structure and ancestry but differ in function, are called:

(A) analogous organs

(B) vestigial organs

(C) homologous organs

(D) atavistic organs

Q41. Pneumonia is an infection of the lungs in which the alveoli get filled with fluid. The bacterium most commonly responsible for pneumonia in humans is:

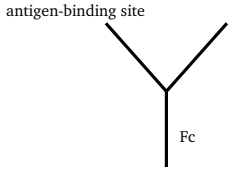
(A) *Plasmodium vivax*

(B) *Streptococcus pneumoniae*

(C) *Entamoeba histolytica*

(D) *Wuchereria bancrofti*

Q42. The Y-shaped antibody molecule is shown. Vaccination protects against disease on a simple principle. A vaccine works by:



(A) supplying ready-made antibodies that act for life

(B) destroying all the body's existing antibodies

(C) directly killing the pathogen with antibiotics

(D) introducing a weakened/inactivated antigen so the body forms antibodies and memory cells

Q43. In the biological control of plant diseases and pests, a free-living fungus that is used as a biocontrol agent against several plant-pathogenic fungi is:

(A) *Penicillium*

(B) *Saccharomyces*

(C) *Trichoderma*

(D) *Aspergillus*

Q44. Breeding crops with improved levels of vitamins, minerals or proteins to enhance the nutritional quality of food and improve public health is known as:

(A) biofortification

(B) somatic hybridization

(C) micropropagation

(D) mutation breeding

Q45. A cloning vector usually carries a gene (for example, one giving antibiotic resistance) that helps in identifying and selecting the host cells that have taken up the recombinant DNA. Such a gene is called a:

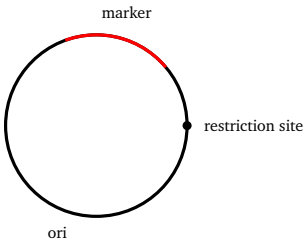
(A) selectable marker

(B) promoter sequence

(C) origin of replication

(D) recognition (restriction) site

Q46. The plasmid cloning vector is shown. After the desired product has been formed inside a bioreactor, it must still be separated and purified before it can be marketed. All the processes of separation, purification and formulation carried out after the biosynthesis are together called:



(A) gene amplification

(B) transformation

(C) ligation

(D) downstream processing

Q47. In India, the organisation that examines the validity and safety of genetically modified (GM) research and decides whether GM organisms may be introduced for public use is the:

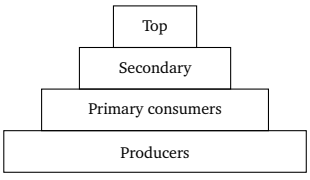
(A) ICAR (Indian Council of Agricultural Research)

(B) GEAC (Genetic Engineering Appraisal Committee)

(C) WHO (World Health Organization)

(D) IUCN (International Union for Conservation of Nature)

Q48. The ecological pyramid shown places producers at the base. In the carbon cycle, carbon enters the living (biotic) part of an ecosystem chiefly when producers fix atmospheric CO_2 through the process of:



(A) respiration

(B) combustion

(C) decomposition

(D) photosynthesis

Q49. An interaction between two species in which one species is benefited while the other is *neither benefited nor harmed* is called:

(A) mutualism

(B) commensalism

(C) parasitism

(D) competition

Q50. Certain species are found naturally in a single geographical region or country and nowhere else in the world. Species with such a restricted, exclusive distribution are said to be:

(A) keystone

(B) exotic (alien)

(C) endemic

(D) cosmopolitan

Detailed Solutions

Q1.

Solution

Concept — Archaebacteria: Archaebacteria live in extreme habitats and include halophiles (salty places), thermoacidophiles (hot, acidic springs) and methanogens (oxygen-free marshy and gut environments).

Step 1 — Read the clue: living in the gut of ruminants and producing methane.

Step 2 — Match the group: methanogens live in the gut of cattle, produce methane (biogas), and help in cellulose breakdown.

Why other options are wrong:

- (A) halophiles live in highly saline (salty) habitats.
- (B) thermoacidophiles live in hot and acidic springs.
- (C) cyanobacteria are photosynthetic eubacteria, not archaebacteria.

Final Answer: methanogens $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q1

Q2.

Solution

Concept — Taxonomic keys: A taxonomic key is based on contrasting characters. At each step it offers two opposite choices, and one statement of this pair leads on while the other is rejected.

Step 1 — Recall the structure of a key: each pair of contrasting statements forms one step.

Step 2 — Name the pair: this pair of contrasting statements is called a couplet, and each statement in it is a lead.

Why other options are wrong:

- (A) a monograph is a detailed account of a single taxon.
- (C) a flora is a record of the plants of a given area.
- (D) a manual provides information for identification of an area's plants/animals.

Final Answer: couplet $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q2

Q3.

Solution

Concept — Alternation of generations: In plants like mosses and ferns, a haploid gamete-producing gametophyte and a diploid spore-producing sporophyte follow one another in the life cycle.

Step 1 — Identify the two phases: a haploid (n) gametophyte and a diploid (2n) sporophyte.

Step 2 — Name the alternation: their regular alternation is called alternation of generations.

Why other options are wrong:

- (B) double fertilization is the two fusions seen in angiosperms.
- (C) apomixis is seed formation without fertilization.
- (D) isogamy is fusion of morphologically similar gametes.

Final Answer: alternation of generations $\Rightarrow$ A

Answer: (A) Go Back to Q3

Q4.

Solution

Concept — Arthropoda excretion: Insects and many other arthropods excrete nitrogenous wastes (mainly uric acid) through thin blind tubules attached to the gut, called Malpighian tubules.

Step 1 — Recall the insect excretory organ: Malpighian tubules open into the gut at the junction of midgut and hindgut.

Step 2 — Confirm: they remove uric acid, making insects uricotelic.

Why other options are wrong:

- (A) flame cells are the excretory cells of flatworms.
- (C) nephridia are the excretory organs of annelids (earthworm).
- (D) green (antennal) glands are excretory organs of crustaceans like the prawn, not insects.

Final Answer: Malpighian tubules $\Rightarrow$ B

Answer: (B) Go Back to Q4

Q5.

Solution

Concept — Vascular cambium activity: The vascular cambium forms secondary tissues. Cells cut off towards the inside become secondary xylem (wood), and cells cut off towards the outside become secondary phloem.

Step 1 — Note the direction: cells produced on the inner (central) side of the cambium.

Step 2 — Identify the tissue: these mature into secondary xylem (wood); much more xylem than phloem is formed.

Why other options are wrong:

- (A) secondary phloem is cut off towards the outside.
- (B) cork (phellem) is produced by the cork cambium, not the vascular cambium.
- (C) secondary cortex (phelloderm) is produced inward by the cork cambium.

Final Answer: secondary xylem (wood) $\Rightarrow$ D

Answer: (D) Go Back to Q5

Q6.

Solution

Concept — Cartilage vs bone: Both are connective tissues with a solid matrix. Cartilage matrix is pliable due to chondroitin salts, whereas bone matrix is hard and rigid because of deposited calcium salts (mainly calcium phosphate) along with collagen.

Step 1 — Compare the matrices: cartilage = soft and flexible; bone = hard and non-pliable.

Step 2 — Identify the cause of hardness: deposition of calcium salts (calcium phosphate) makes bone matrix hard.

Why other options are wrong:

- (A) chondroitin sulphate gives cartilage its pliability, not bone its hardness.
- (C) collagen fibres give tensile strength but not the rigid hardness.

- (D) a fluid plasma matrix is the feature of blood, not bone.

Final Answer: calcium salts (calcium phosphate) $\Rightarrow$ B

Answer: (B) Go Back to Q6

Q7.

Solution

Concept — Fruit types: A simple fruit develops from one ovary, an aggregate fruit from many ovaries of one flower, and a composite (multiple) fruit from the whole inflorescence (a cluster of flowers).

Step 1 — Read the clue: fruit develops from an entire inflorescence (pineapple, jackfruit).

Step 2 — Name the type: this is a composite or multiple fruit.

Why other options are wrong:

- (A) an aggregate fruit forms from many free carpels of a *single* flower (e.g. strawberry).
- (C) a drupe is a simple fleshy fruit from one ovary (e.g. mango).
- (D) a true berry develops from a single ovary, not an inflorescence.

Final Answer: composite (multiple) fruit $\Rightarrow$ B

Answer: (B) Go Back to Q7

Q8.

Solution

Concept — Frog respiration: The frog respires through lungs (pulmonary), through the buccal cavity, and through the moist skin (cutaneous). When submerged in water for long, it depends mainly on cutaneous respiration.

Step 1 — Note the condition: the frog is under water for a long time, so pulmonary breathing is not possible.

Step 2 — Identify the surface: exchange of gases then occurs across the moist, vascular skin.

Why other options are wrong:

- (A) lungs are used for breathing in air on land, not under water.

- (B) the buccal cavity lining helps only in air, not as the main underwater route.
- (C) the adult frog has no gills; gills are present only in the tadpole.

Final Answer: moist skin (cutaneous respiration) $\Rightarrow$ D

Answer: (D) Go Back to Q8

Q9.

Solution

Concept — Lysosome: Lysosomes are single-membrane vesicles packed with hydrolytic (digestive) enzymes. They digest worn-out organelles, food particles and foreign bodies, and on rupture can destroy the cell — hence the name 'suicide bags'.

Step 1 — Identify the organelle: the enzyme-rich 'suicide bag' is the lysosome.

Step 2 — State its job: intracellular digestion of worn-out organelles and engulfed material.

Why other options are wrong:

- (B) ATP synthesis by oxidative phosphorylation is done by mitochondria.
- (C) ribosomal subunits are assembled in the nucleolus.
- (D) trapping light energy is the role of chloroplasts.

Final Answer: intracellular digestion $\Rightarrow$ A

Answer: (A) Go Back to Q9

Q10.

Solution

Concept — Endocytosis: Endocytosis is the bulk intake of material into the cell by inward folding of the plasma membrane to enclose the material in a vesicle. It includes phagocytosis (solids) and pinocytosis (fluids).

Step 1 — Read the key words: bulk uptake *into* the cell by membrane infolding.

Step 2 — Match: this is endocytosis.

Why other options are wrong:

- (B) exocytosis is the bulk *export* of material out of the cell.

- (C) simple diffusion moves only small molecules down a gradient, not bulk material.
- (D) osmosis is the passive movement of water across a membrane.

Final Answer: endocytosis $\Rightarrow$ $\boxed{A}$

Answer: (A) Go Back to Q10

Q11.

Solution

Concept — Storage polysaccharides: Glycogen is the branched storage polysaccharide of animals, stored in liver and muscle; starch is the plant store; cellulose and chitin are structural polysaccharides.

Step 1 — Read the clue: reserve carbohydrate of animal liver and muscle.

Step 2 — Name it: glycogen ('animal starch').

Why other options are wrong:

- (A) cellulose is a structural polysaccharide of plant cell walls.
- (B) chitin is the structural polysaccharide of arthropod exoskeletons and fungal walls.
- (C) sucrose is a disaccharide, not a storage polysaccharide.

Final Answer: glycogen $\Rightarrow$ $\boxed{D}$

Answer: (D) Go Back to Q11

Q12.

Solution

Concept — Enzyme action: An enzyme speeds up a reaction by providing an alternative path with a lower activation energy, so that more substrate molecules can cross the energy barrier per unit time. It does not change the equilibrium position.

Step 1 — Recall how catalysts work: they reduce the energy barrier (activation energy).

Step 2 — Apply to enzymes: enzymes lower the activation energy of the reaction.

Why other options are wrong:

- (A) enzymes do not raise the temperature of the reactants.
- (B) enzymes speed up both forward and reverse rates equally, so the equilibrium point is unchanged.
- (C) they do not add energy to substrate molecules; they lower the barrier instead.

Final Answer: lowering the activation energy $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q12

Q13.

Solution

Concept — Interphase sub-phases: Interphase has three sub-phases: G_1 (growth, normal functioning), S (synthesis, when DNA is replicated and content doubles), and G_2 (further growth, preparation for mitosis).

Step 1 — Locate DNA replication: DNA is duplicated during the synthesis phase.

Step 2 — Name the sub-phase: this is the S phase.

Why other options are wrong:

- (B) G_1 precedes S; the cell grows but DNA is not yet copied.
- (C) G_2 follows S; the DNA is already replicated by then.
- (D) the M phase is the actual division, not DNA synthesis.

Final Answer: the S phase $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q13

Q14.

Solution

Concept — Chiasmata: After crossing over in prophase I, the homologous chromosomes of a bivalent stay attached at X-shaped points called chiasmata, which mark the sites of chromatid exchange and hold the homologues together until anaphase I.

Step 1 — Read the clue: X-shaped points of attachment after crossing over.

Step 2 — Name them: chiasmata (singular: chiasma).

Why other options are wrong:

- (A) the centromere joins the two sister chromatids of one chromosome.
- (C) the kinetochore is the protein plate on the centromere where spindle fibres attach.
- (D) the synaptonemal complex forms the pairing scaffold earlier (zygotene), and is not the X-shaped cross point.

Final Answer: chiasmata $\Rightarrow$ B

Answer: (B) Go Back to Q14

Q15.

Solution

Concept — Photolysis of water: In the light reaction, water is split (photolysis) on the inner side of the thylakoid membrane. This releases oxygen (given off as a by-product), protons (H^+) and electrons that replace those lost by the reaction centre.

Step 1 — Recall the products of splitting water: $2H_2O \rightarrow 4H^+ + 4e^- + O_2$.

Step 2 — Match the option: oxygen, protons and electrons are released.

Why other options are wrong:

- (A) carbon dioxide is fixed in the dark reaction; it is not a product of photolysis.
- (C) glucose is made later in the Calvin cycle, not by photolysis.
- (D) nitrogen gas has no role in photolysis of water.

Final Answer: oxygen, protons and electrons $\Rightarrow$ B

Answer: (B) Go Back to Q15

Q16.

Solution

Concept — Respiratory quotient: $\text{RQ} = \dfrac{\text{volume of } CO_2 \text{ evolved}}{\text{volume of } O_2 \text{ consumed}}$. For carbohydrate, equal volumes of CO_2 are released and O_2 are used, so RQ $= 1$.

Step 1 — Write the equation for glucose: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$.

Step 2 — Compute RQ: $6\,CO_2/6\,O_2 = 1.0$.

Why other options are wrong:

- (A) RQ greater than 1 occurs in organic-acid respiration / anaerobic conditions.
- (B) RQ is zero only if no CO_2 is released, which is not true here.
- (D) RQ ≈ 0.7 is the value for fats, not carbohydrates.

Final Answer: exactly $1.0 \Rightarrow$ C

Answer: (C) Go Back to Q16

Q17.

Solution

Concept — Imbibition: Imbibition is a special type of diffusion in which water is adsorbed by solid hydrophilic colloids (such as the proteins and starch of seeds), causing them to swell and exert imbibitional pressure.

Step 1 — Read the clue: dry seeds swell when soaked in water.

Step 2 — Name the process: this swelling by adsorption of water is imbibition.

Why other options are wrong:

- (A) guttation is loss of liquid water droplets through hydathodes.
- (B) transpiration is loss of water as vapour from aerial parts.
- (D) plasmolysis is shrinkage of protoplasm when a cell is placed in a hypertonic solution.

Final Answer: imbibition $\Rightarrow$ C

Answer: (C) Go Back to Q17

Q18.

Solution

Concept — Symbiotic nitrogen fixation: *Rhizobium* lives symbiotically in the root nodules of leguminous plants and fixes atmospheric N_2 into ammonia, enriching the soil with usable nitrogen.

Step 1 — Read the clue: bacterium in root nodules of legumes fixing atmospheric nitrogen.

Step 2 — Name it: *Rhizobium*.

Why other options are wrong:

- (B) *Nitrobacter* oxidises nitrite to nitrate (nitrification); it is free-living, not a nodule symbiont.
- (C) *Lactobacillus* forms curd from milk and has no role in nitrogen fixation.
- (D) *Pseudomonas* carries out denitrification, returning nitrogen to the air.

Final Answer: *Rhizobium* $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q18

Q19.

Solution

Concept — Photoperiodism: The response of plants to the relative duration of light and dark periods (day length), especially in the induction of flowering, is called photoperiodism. Plants are classed as short-day, long-day or day-neutral.

Step 1 — Read the clue: flowering controlled by day length.

Step 2 — Name it: photoperiodism.

Why other options are wrong:

- (A) vernalization is the promotion of flowering by low-temperature (cold) treatment.
- (B) phototropism is the bending of a plant organ towards or away from light.
- (D) apical dominance is the suppression of lateral buds by the shoot tip.

Final Answer: photoperiodism $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q19

Q20.

Solution

Concept — Peristalsis: The wall of the alimentary canal has smooth muscle that contracts and relaxes in successive waves. These peristaltic waves push the swallowed food forward from one region of the gut to the next.

Step 1 — Read the clue: rhythmic waves of contraction and relaxation moving food along.

Step 2 — Name them: peristalsis.

Why other options are wrong:

- (B) filtration is a process in the kidney, not gut movement.
- (C) emulsification is the breaking of fat into droplets by bile.
- (D) deamination is the removal of an amino group from amino acids in the liver.

Final Answer: peristalsis $\Rightarrow$ A

Answer: (A) Go Back to Q20

Q21.

Solution

Concept — Oxygen dissociation curve: A plot of percentage saturation of haemoglobin against the partial pressure of oxygen (pO_2) is a sigmoid (S-shaped) curve. Its shape reflects the cooperative binding of O_2 by haemoglobin.

Step 1 — Recall the curve: it is not linear; binding of one O_2 eases the binding of the next.

Step 2 — Identify the shape: the resulting curve is sigmoid (S-shaped).

Why other options are wrong:

- (A) a straight line would mean no cooperativity, which is not the case.
- (C) a flat horizontal line would mean no change in saturation, which is false.
- (D) the curve is not an inverted U; it rises and then levels off.

Final Answer: sigmoid (S-shaped) $\Rightarrow$ B

Answer: (B) Go Back to Q21

Q22.

Solution

Concept — Blood coagulation: In the clotting cascade, prothrombin is converted to thrombin, which then converts the soluble plasma protein fibrinogen into insoluble threads of fibrin. The fibrin mesh traps blood cells to form the clot.

Step 1 — Track the conversion: fibrinogen (soluble) $\rightarrow$ fibrin (insoluble) by thrombin.

Step 2 — Name the threads: fibrin.

Why other options are wrong:

- (A) heparin is an anticoagulant that *prevents* clotting.
- (B) albumin is a plasma protein for osmotic balance, not clot formation.
- (D) haemoglobin is the oxygen-carrying pigment of red blood cells.

Final Answer: fibrin $\Rightarrow$ C

Answer: (C) Go Back to Q22

Q23.

Solution

Concept — Micturition: The urine formed by the nephrons is stored in the urinary bladder. When the bladder fills, a reflex causes its muscular wall to contract and the urethral sphincter to relax, releasing urine. This release is called micturition.

Step 1 — Read the clue: expelling stored urine from the bladder through the urethra.

Step 2 — Name it: micturition.

Why other options are wrong:

- (B) ultrafiltration is the formation of filtrate in Bowman's capsule.
- (C) reabsorption is the recovery of useful substances from the filtrate in the tubule.
- (D) secretion is the active addition of wastes into the filtrate in the tubule.

Final Answer: micturition $\Rightarrow$ A

Answer: (A) Go Back to Q23

Q24.

Solution

Concept — Sarcomere: A myofibril is made of repeating contractile units. The portion between two consecutive Z-lines is the sarcomere, the functional unit of muscle contraction; it contains overlapping actin and myosin filaments.

Step 1 — Read the clue: the unit lying between two successive Z-lines.

Step 2 — Name it: sarcomere.

Why other options are wrong:

- (A) the sarcolemma is the plasma membrane of the muscle fibre.
- (B) the sarcoplasm is the cytoplasm of the muscle fibre.
- (C) the sarcoplasmic reticulum is the calcium store, not the contractile unit.

Final Answer: sarcomere $\Rightarrow$ D

Answer: (D) Go Back to Q24

Q25.

Solution

Concept — Reflex arc: A reflex arc is the pathway of a reflex action. The impulse flows: receptor $\rightarrow$ sensory (afferent) neuron $\rightarrow$ spinal cord (CNS) $\rightarrow$ motor (efferent) neuron $\rightarrow$ effector (muscle/gland).

Step 1 — Start at the stimulus: the receptor detects the stimulus.

Step 2 — Trace the path: receptor $\rightarrow$ sensory neuron $\rightarrow$ spinal cord $\rightarrow$ motor neuron $\rightarrow$ effector.

Why other options are wrong:

- (B) it begins at the effector, which is the wrong (reversed) end.
- (C) it places the receptor after the motor neuron, which is reversed.
- (D) a spinal reflex is processed in the spinal cord, and the receptor does not connect directly to the effector.

Final Answer: receptor $\rightarrow$ sensory neuron $\rightarrow$ spinal cord $\rightarrow$ motor neuron $\rightarrow$ effector $\Rightarrow$ A

Answer: (A) Go Back to Q25

Q26.

Solution

Concept — Parathyroid hormone: PTH is the hypercalcaemic hormone. It raises blood calcium by promoting bone resorption, increasing calcium reabsorption in the kidney, and aiding calcium absorption from the gut.

Step 1 — Recall PTH action: it increases blood Ca^{2+}.

Step 2 — Match the option: raises the level of calcium in the blood.

Why other options are wrong:

- (A) lowering blood glucose is the role of insulin.
- (B) raising the basal metabolic rate is the role of thyroxine.
- (D) promoting kidney water reabsorption is the role of ADH.

Final Answer: raises blood calcium $\Rightarrow$ C

Answer: (C) Go Back to Q26

Q27.

Solution

Concept — Systole and diastole: In the cardiac cycle, systole is the contraction phase during which a chamber pumps blood out, and diastole is the relaxation phase during which a chamber fills with blood.

Step 1 — Read the clue: contraction of the heart muscle that pumps blood out.

Step 2 — Name the phase: systole.

Why other options are wrong:

- (A) diastole is the relaxation (filling) phase, not the pumping phase.
- (C) the resting potential is an electrical state of a cell, not a cardiac phase.
- (D) repolarisation is the recovery of electrical charge, not the contraction itself.

Final Answer: systole $\Rightarrow$ B

Answer: (B) Go Back to Q27

Q28.

Solution

Concept — Refractory period: Just after an action potential, the membrane is briefly unable to respond to a fresh stimulus. During this refractory period the sodium channels are inactivated, so a second impulse cannot be generated however strong the stimulus.

Step 1 — Read the clue: a brief interval after an impulse when no second impulse can be fired.

Step 2 — Name it: the refractory period.

Why other options are wrong:

- (A) the resting period is the normal polarised state, when the fibre *can* be stimulated.
- (B) depolarisation is the rising phase of the impulse itself.
- (D) 'latent summation period' is not a recognised term for this interval.

Final Answer: refractory period $\Rightarrow$ C

Answer: (C) Go Back to Q28

Q29.

Solution

Concept — Male gametophyte: The pollen grain is the male gametophyte. When shed, most pollen grains are 2-celled, containing a larger vegetative (tube) cell and a smaller generative cell; the generative cell later divides to form two male gametes.

Step 1 — Recall the state at shedding: usually two cells per pollen grain.

Step 2 — Name the two cells: a vegetative cell and a generative cell.

Why other options are wrong:

- (A) a single undivided cell describes the young microspore, not the shed pollen.
- (B) 7-celled, 8-nucleate describes the female embryo sac, not the pollen.
- (C) the pollen grain is haploid, not diploid with eight nuclei.

Final Answer: 2-celled (vegetative + generative) $\Rightarrow$ D

Answer: (D) Go Back to Q29

Q30.

Solution

Concept — Triple fusion: In double fertilization, one male gamete (n) fuses with the two polar nuclei (n + n) of the central cell. This triple fusion gives the primary endosperm nucleus, which is therefore triploid (3n).

Step 1 — Count the nuclei fusing: one male gamete (n) + two polar nuclei (n + n).

Step 2 — Add the ploidy: $n + n + n = 3n$ (triploid).

Why other options are wrong:

- (A) haploid (n) describes a gamete, not the product of three fusing nuclei.
- (B) diploid (2n) is the zygote, formed by syngamy of two nuclei.
- (D) tetraploid (4n) would need four sets, which is not the case here.

Final Answer: triploid (3n) $\Rightarrow$ C

Answer: (C) Go Back to Q30

Q31.

Solution

Concept — Male accessory glands: The male accessory glands are the paired seminal vesicles, a single prostate gland and the paired bulbourethral (Cowper's) glands. The prostate is a single gland that encircles the upper urethra and adds an alkaline secretion to the semen.

Step 1 — Read the clue: gland surrounding the upper urethra, adding to semen.

Step 2 — Name it: the prostate gland.

Why other options are wrong:

- (A) Cowper's glands are paired and lie below the prostate; they are not the gland encircling the upper urethra.
- (B) the seminiferous tubule makes sperms; it is not an accessory gland.
- (C) Bartholin's glands are female accessory glands.

Final Answer: prostate gland $\Rightarrow$ D

Answer: (D) Go Back to Q31

Q32.

Solution

Concept — Cleavage: Cleavage is the series of rapid mitotic divisions of the zygote as it travels down the fallopian tube. The cells (blastomeres) become smaller with each division, since cleavage is not accompanied by growth; it leads to the morula and then the blastocyst.

Step 1 — Read the clue: rapid divisions of the zygote without growth.

Step 2 — Name them: cleavage divisions.

Why other options are wrong:

- (A) gastrulation is the later rearrangement of cells into germ layers.
- (B) ovulation is the release of the egg from the ovary, before fertilization.
- (C) parturition is the act of childbirth.

Final Answer: cleavage $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q32

Q33.

Solution

Concept — Amniocentesis: A sample of amniotic fluid is withdrawn from the pregnant uterus; it contains sloughed-off foetal cells whose chromosomes are studied to detect genetic and chromosomal disorders.

Step 1 — Identify what is analysed: the foetal cells and chromosomes in the amniotic fluid.

Step 2 — Note the legal point: the test is banned for sex determination to prevent female foeticide.

Why other options are wrong:

- (A) maternal blood hormones are not the basis of amniocentesis.
- (C) the father's karyotype is not examined in this test.
- (D) ultrasound is a separate imaging technique, not the basis of amniocentesis.

Final Answer: foetal cells and chromosomes in the amniotic fluid $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q33

Q34.

Solution

Concept — Genotype vs phenotype: The genotype is the genetic constitution (the alleles, e.g. TT or Tt) of an organism, while the phenotype is its observable appearance (e.g. tall). A TT and a Tt plant share the same phenotype but differ in genotype.

Step 1 — Read the clue: the actual genetic make-up (TT or Tt).

Step 2 — Name it: the genotype.

Why other options are wrong:

- (B) the phenotype is the visible appearance, which is the same for TT and Tt.
- (C) the karyotype is the complete set of chromosomes of an individual.
- (D) an ecotype is a population adapted to a particular environment.

Final Answer: genotype ⇒ A

Answer: (A) Go Back to Q34

Q35.

Solution

Concept — Pleiotropy: Pleiotropy is the condition in which a single gene affects multiple, seemingly unrelated phenotypic traits. A classic example is the gene for sickle-cell anaemia / phenylketonuria, which influences several characters together.

Step 1 — Read the clue: one gene influencing several traits.

Step 2 — Name it: pleiotropy.

Why other options are wrong:

- (A) incomplete dominance gives an intermediate phenotype of the heterozygote.
- (B) codominance is the simultaneous expression of both alleles (e.g. AB blood group).
- (D) polygenic inheritance is the reverse case — many genes controlling one trait.

Final Answer: pleiotropy ⇒ C

Answer: (C) Go Back to Q35

Q36.

Solution

Concept — Sex-linked inheritance: Genes located on the X chromosome are X-linked (sex-linked). A recessive X-linked allele carried by a heterozygous mother passes chiefly to her sons, because sons receive their only X from the mother.

Step 1 — Locate the gene: on the X chromosome.

Step 2 — Name the pattern: X-linked (sex-linked) inheritance.

Why other options are wrong:

- (B) autosomal dominant traits are not carried on sex chromosomes.
- (C) Y-linked (holandric) genes pass only from father to son.
- (D) cytoplasmic (mitochondrial) inheritance is maternal but does not involve X-chromosome genes.

Final Answer: X-linked (sex-linked) $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q36

Q37.

Solution

Concept — Colour blindness cross: Let the colour-blind allele be X^c. The father is X^cY (colour-blind) and the mother is X^NX^N (homozygous normal).

Step 1 — Work out the daughters: each daughter gets X^c from the father and X^N from the mother $\Rightarrow X^NX^c$, i.e. normal vision but a carrier.

Step 2 — Work out the sons: each son gets the Y from the father and X^N from the mother $\Rightarrow X^NY$, i.e. normal vision.

Step 3 — Combine: all children have normal colour vision; the daughters are carriers.

Why other options are wrong:

- (B) the sons get a normal X from the mother, so they are not colour-blind.
- (C) the daughters receive a normal X from the mother, so they are not colour-blind.
- (D) none of the children is colour-blind, so 'half colour-blind' is wrong.

Final Answer: all children normal (daughters carriers) $\Rightarrow$ $\boxed{\text{A}}$

Answer: (A) Go Back to Q37

Q38.

Solution

Concept — Nucleosome: In eukaryotes, DNA is wrapped about 1.65 turns around a core of eight histone proteins (a histone octamer) to form a repeating bead-like unit called the nucleosome. A chain of nucleosomes makes up chromatin.

Step 1 — Read the clue: DNA wound around a histone octamer, forming a bead.

Step 2 — Name it: the nucleosome.

Why other options are wrong:

- (A) a codon is a triplet of bases that codes for an amino acid.
- (C) an operon is a unit of bacterial gene regulation.
- (D) the centromere is the constricted region where sister chromatids join.

Final Answer: nucleosome $\Rightarrow$ B

Answer: (B) Go Back to Q38

Q39.

Solution

Concept — DNA polymerase: DNA-dependent DNA polymerase reads the parental template strand and adds complementary deoxyribonucleotides to build the new strand, catalysing replication with high speed and accuracy.

Step 1 — Match the function: template-directed synthesis of new DNA.

Step 2 — Name the enzyme: DNA polymerase.

Why other options are wrong:

- (A) RNA polymerase makes RNA during transcription, not the new DNA strand.
- (B) DNA ligase joins (seals) the Okazaki fragments; it does not add the bulk of nucleotides.
- (D) restriction endonuclease cuts DNA at specific sites; it does not synthesise DNA.

Final Answer: DNA polymerase $\Rightarrow$ C

Answer: (C) Go Back to Q39

Q40.

Solution

Concept — Homologous organs: Organs that have the same fundamental structure and developmental origin but perform different functions are homologous. The forelimbs of whale, bat and human share the same bone plan, illustrating divergent evolution.

Step 1 — Read the clue: same basic structure and ancestry, different functions.

Step 2 — Name them: homologous organs.

Why other options are wrong:

- (A) analogous organs have different structure but similar function (e.g. wings of insect and bird).
- (B) vestigial organs are reduced, functionless remnants (e.g. vermiform appendix).
- (D) atavistic features are the reappearance of ancestral characters, not this case.

Final Answer: homologous organs $\Rightarrow$ C

Answer: (C) Go Back to Q40

Q41.

Solution

Concept — Pneumonia: Pneumonia is a lung infection in which the alveoli get filled with fluid, causing breathing difficulty. It is most commonly caused by the bacterium *Streptococcus pneumoniae* (also by *Haemophilus influenzae*).

Step 1 — Read the clue: bacterial infection of the lung alveoli.

Step 2 — Name the pathogen: *Streptococcus pneumoniae*.

Why other options are wrong:

- (A) *Plasmodium vivax* causes malaria.
- (C) *Entamoeba histolytica* causes amoebiasis (amoebic dysentery).
- (D) *Wuchereria bancrofti* causes filariasis.

Final Answer: *Streptococcus pneumoniae* $\Rightarrow$ B

Answer: (B) Go Back to Q41

Q42.

Solution

Concept — Vaccination principle: A vaccine contains an antigenic preparation (a weakened, killed or inactivated pathogen, or its antigen). On injection it makes the body produce antibodies and, importantly, memory cells, so that a later natural infection is met with a rapid, strong response.

Step 1 — Recall how a vaccine works: it introduces a harmless form of the antigen.

Step 2 — State the effect: the body forms antibodies and memory cells (active immunity).

Why other options are wrong:

- (A) ready-made antibodies are given in *passive* immunisation, not in vaccination, and they do not last for life.
- (B) a vaccine does not destroy existing antibodies.
- (C) a vaccine is not an antibiotic and does not directly kill the pathogen.

Final Answer: introduces a weakened/inactivated antigen $\Rightarrow$ $\boxed{\text{D}}$

Answer: (D) Go Back to Q42

Q43.

Solution

Concept — Biocontrol fungus: *Trichoderma* is a free-living soil fungus widely used as a biocontrol agent against several soil-borne plant-pathogenic fungi, protecting crop plants without chemical fungicides.

Step 1 — Read the clue: free-living fungus used to control plant-pathogenic fungi.

Step 2 — Name it: *Trichoderma*.

Why other options are wrong:

- (A) *Penicillium* is used to make the antibiotic penicillin.
- (B) *Saccharomyces* (yeast) is used in baking and brewing.
- (D) *Aspergillus* is used in industrial fermentations (e.g. citric acid), not as this biocontrol agent.

Final Answer: *Trichoderma* $\Rightarrow$ $\boxed{\text{C}}$

Answer: (C) Go Back to Q43

Q44.

Solution

Concept — Biofortification: Biofortification is the breeding of crops to raise their content of vitamins, minerals, proteins or healthier fats, so as to improve the nutritional quality and public health (e.g. vitamin-A-rich carrots, iron-rich rice).

Step 1 — Read the clue: breeding crops for higher nutrient (vitamin/mineral/protein) value.

Step 2 — Name it: biofortification.

Why other options are wrong:

- (B) somatic hybridization is the fusion of body-cell protoplasts.
- (C) micropropagation is rapid clonal multiplication by tissue culture.
- (D) mutation breeding uses induced mutations to create new variation, not specifically for nutrient enrichment.

Final Answer: biofortification $\Rightarrow$ A

Answer: (A) Go Back to Q44

Q45.

Solution

Concept — Selectable marker: A selectable marker is a gene in a vector (often for antibiotic resistance) that lets the experimenter identify and pick out the transformed host cells, while killing or distinguishing the non-transformed ones.

Step 1 — Read the clue: a gene helping to select host cells that took up the recombinant DNA.

Step 2 — Name it: a selectable marker.

Why other options are wrong:

- (B) a promoter is the start signal for transcription of a gene.
- (C) the origin of replication (ori) starts replication and controls copy number.
- (D) the recognition (restriction) site is where a restriction enzyme cuts the DNA.

Final Answer: selectable marker $\Rightarrow$ A

Answer: (A) Go Back to Q45

Q46.

Solution

Concept — Downstream processing: After the biosynthetic stage in the bioreactor, the product is separated, purified and suitably formulated (with preservatives, etc.) and put through quality control. These post-production steps are together called downstream processing.

Step 1 — Read the clue: separation, purification and formulation *after* biosynthesis.

Step 2 — Name it: downstream processing.

Why other options are wrong:

- (A) gene amplification (e.g. by PCR) makes many copies of DNA; it is not product purification.
- (B) transformation is the uptake of recombinant DNA by the host cell.
- (C) ligation is the joining of DNA fragments by DNA ligase.

Final Answer: downstream processing $\Rightarrow$ D

Answer: (D) Go Back to Q46

Q47.

Solution

Concept — GEAC: In India the Genetic Engineering Appraisal Committee (GEAC) examines the safety of GM research and decides on the validity and release of GM organisms for public services.

Step 1 — Read the clue: the Indian body judging the safety and release of GM organisms.

Step 2 — Name it: GEAC.

Why other options are wrong:

- (A) ICAR is the apex body for agricultural research, not GM-safety appraisal.
- (C) WHO is the global health agency of the UN.
- (D) IUCN maintains the Red List of threatened species.

Final Answer: GEAC $\Rightarrow$ B

Answer: (B) Go Back to Q47

Q48.

Solution

Concept — Carbon cycle: Atmospheric CO_2 enters the living world when green producers fix it into organic compounds during photosynthesis. It returns to the air through respiration, decomposition and combustion.

Step 1 — Read the clue: producers fixing atmospheric CO_2 into the biotic world.

Step 2 — Name the process: photosynthesis.

Why other options are wrong:

- (A) respiration *releases* CO_2 back to the atmosphere.
- (B) combustion (burning) also releases CO_2 to the air.
- (C) decomposition returns carbon to the soil and air; it does not fix atmospheric CO_2.

Final Answer: photosynthesis $\Rightarrow$ D

Answer: (D) Go Back to Q48

Q49.

Solution

Concept — Commensalism: In commensalism $(+/0)$ one species benefits while the other is neither helped nor harmed. An example is an orchid growing as an epiphyte on a tree branch.

Step 1 — Read the clue: one benefited, the other unaffected.

Step 2 — Match: this is commensalism.

Why other options are wrong:

- (A) mutualism benefits both partners $(+/+)$.
- (C) parasitism benefits the parasite but harms the host $(+/-)$.
- (D) competition harms both species $(-/-)$.

Final Answer: commensalism $\Rightarrow$ B

Answer: (B) Go Back to Q49

Q50.

Solution

Concept — Endemism: Species confined to a particular geographical area, and found nowhere else in the world, are said to be endemic to that region (for example, many species of the Western Ghats or of Madagascar).

Step 1 — Read the clue: restricted, exclusive distribution in one region.

Step 2 — Name it: endemic species.

Why other options are wrong:

- (A) a keystone species is one whose removal greatly disrupts the community, regardless of range.
- (B) exotic (alien) species are introduced from elsewhere, the opposite of restricted natives.
- (D) cosmopolitan species are found widely across the world.

Final Answer: endemic $\Rightarrow$ C

Answer: (C) Go Back to Q50

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	D	2	B	3	A	4	B	5	D
6	B	7	B	8	D	9	A	10	A
11	D	12	D	13	A	14	B	15	B
16	C	17	C	18	A	19	C	20	A
21	B	22	C	23	A	24	D	25	A
26	C	27	B	28	C	29	D	30	C
31	D	32	D	33	B	34	A	35	C
36	A	37	A	38	B	39	C	40	C
41	B	42	D	43	C	44	A	45	A
46	D	47	B	48	D	49	B	50	C