Female Subject Specialist Biology (B-17) — 2023 · Solved Past Paper

Body: Khyber Pakhtunkhwa Public Service Commission (KPPSC) · **Post:** Female Subject Specialist Biology (B-17) · **Year:** 2023 · **Questions:** 45 in the original paper — **44 solved and verified**, 1 excluded as defective (Q42) · **Price:** Free

> **How to use this paper:** each question shows the stem, the four options, and the correct answer. Click “Why each option?” under a question to see all four options explained — one question teaches four topics. General Knowledge answers are as of the 2023 sitting.

Source note: Typed community reproduction on MCQsGalaxy, exam paper "KPPSC Female Subject Specialist Biology 2023" (https://mcqsgalaxy.com/exam-paper/kppsc-female-ss-biology-2023/, pages /2/ /3/ /4/ /5/), fetched 11 Nov 2026; 45 questions with per-question explanations, contributed by Amir Iqbal and Safdar Ali; correct letters embedded in the page markup (data-correct) and stated in each explanation — treated as claims to verify, never as evidence. Date corroborated by the May 2023 SS test week (Female SS Chemistry 25-05-2023, Male SS Maths 25-05-2023) and KPPSC's own result pages for Female Subject Specialist Biology (Advt 09/2021 Sr.10, result 28-04-2023 = the earlier 20-09-2022 sitting; Advt 04/2022 Sr.3, result 07-10-2025 = this cycle). No advertisement/serial number is stated on the source, so none is asserted. Every answer was derived and verified independently under the owner's 8 Nov 2026 standard. Answer balance (44 solved) A11/B16/C6/D11. Printed wording kept as filed (Q5 "Statiscal Hypothesis"; Q8 "opimers"; Q16 "Chikenpox"; Q18 "Saprphytic"; Q22 "gymnopserm"; Q27 "Deutermoycetes"; Q37 "Proplasts"; Q4 option B "Systematic"); delegation decisions recorded in the source file, all decided by the assistant under the owner's 8 Nov 2026 delegation.

1 Biology

What is the powerhouse of the cell, where most of the cells supply of ATP is generated?

- A. Nucleus
- B. Mitochondria ✓ **Correct answer**
- C. Ribosomes
- D. Golgi Apparatus

A. Wrong: the nucleus controls the cell and stores genetic information, but it does not generate ATP.

B. Correct: mitochondria are the powerhouse of the cell — most of the cell's ATP is generated there by oxidative phosphorylation.

C. Wrong: ribosomes make proteins; they do not generate ATP.

D. Wrong: the Golgi apparatus modifies, sorts and packages proteins; it does not generate ATP.

Question 2 Biology

Which of the human diseases is transmitted from the vector Anopheles mosquito?

- A. Dengue
- B. Malaria ✓ **Correct answer**
- C. Fever
- D. Encephalitis

A. Wrong: dengue is transmitted by the Aedes mosquito, not Anopheles.

B. Correct: malaria is transmitted by the bite of an infected female Anopheles mosquito.

C. Wrong: fever is a symptom, not a disease transmitted by a mosquito.

D. Wrong: encephalitis is most often transmitted by Culex mosquitoes or ticks, not Anopheles.

3 Biology

Who proposed the concept of five kingdom system?

- A. Ernst Mayr
- B. R.H. Whittaker ✓ **Correct answer**
- C. Robert Hooke
- D. Aristotle

A. Wrong: Mayr was an evolutionary biologist known for the biological species concept, not the five-kingdom system.

B. Correct: Robert Whittaker proposed the five-kingdom classification (Monera, Protista, Fungi, Plantae, Animalia) in 1969.

C. Wrong: Hooke discovered cells, he did not propose the five-kingdom system.

D. Wrong: Aristotle proposed a two-kingdom classification (plants and animals), not five kingdoms.

Question 4 Biology

The process of classifying taxonomic information logically is known as:

- A. Phenetics
- B. Systematic ✓ **Correct answer**
- C. Phylogenetic
- D. Dendrogram

A. Wrong: phenetics classifies organisms by overall similarity, not by logically organising taxonomic information.

B. Correct: systematics is the process by which taxonomic information is organised into a logical framework (the option prints "Systematic" for systematics).

C. Wrong: phylogenetics classifies by evolutionary relationships, not by the logical

of taxonomic information in general.

D. Wrong: a dendrogram is a tree diagram showing relationships, not the process of classification itself.

Question 5 Biology

A statement whose validity is tested on the basis of a sample is called?

- A. Null Hypothesis
- B. Statiscal Hypothesis ✓ **Correct answer**
- C. Simple Hypothesis
- D. Composite Hypothesis

A. Wrong: the null hypothesis states there is no effect or no difference; it is not defined by testing on a sample.

B. Correct: a statistical hypothesis is a statement whose validity is tested on the basis of a sample (the option prints "Statiscal" for "Statistical").

C. Wrong: a simple hypothesis is one that is fully specified, not one defined by sample testing.

D. Wrong: a composite hypothesis is one that is not fully specified, not one defined by sample testing.

Question 6 Biology

The percentage of water in the cytoplasm is:

- A. 50
- B. 60
- C. 70
- D. 80 ✓ **Correct answer**

A. Wrong: the water content of the cytoplasm is much higher than 50%.

elow the accepted figure for the cytoplasm.

C. Wrong: below the accepted figure of about 80%.

D. Correct: the cytosol, the liquid part of the cytoplasm, is composed of about 80 percent water.

Question 7 Biology

An organelle is absent in animal cells but present in plant cells is:

- A. Cell Wall ✓ **Correct answer**
- B. Cytoplasm
- C. Ribosomes
- D. Mitochondria

A. Correct: the cell wall is present in plant cells and absent in animal cells.

B. Wrong: cytoplasm is present in both plant and animal cells.

C. Wrong: ribosomes are present in both plant and animal cells.

D. Wrong: mitochondria are present in both plant and animal cells.

Question 8 Biology

Which of the following is an example of opimers?

- A. Glucose and Ribose
- B. Glucose and Galactose ✓ **Correct answer**
- C. Galactose, Mannose and Glucose
- D. Glucose, Ribose and Mannose

A. Wrong: glucose is an aldohexose and ribose an aldopentose — they are not epimers of each other.

B. Correct: glucose and galactose are epimers — they have the same formula but differ in

on of the –OH group on C4 (the stem prints "opimers" for "epimers").

C. Wrong: three sugars together are not an epimer pair.

D. Wrong: this set is not an epimer pair.

Question 9 Biology

Which region of an antibody is also called a "Variable Region"?

- A. Fc region
- B. Fv region ✓ **Correct answer**
- C. Fi region
- D. Fcc region

A. Wrong: the Fc region is the constant region of the antibody, which binds effector functions, not the variable region.

B. Correct: the Fv (variable fragment) region is the variable region of the antibody and binds the antigen.

C. Wrong: there is no Fi region in an antibody.

D. Wrong: there is no Fcc region in an antibody.

Question 10 Biology

The simplest amino acid is:

- A. Alanine
- B. Tyrosine
- C. Asparagines
- D. Glycine ✓ **Correct answer**

A. Wrong: alanine has a methyl (–CH3) side chain, so it is not the simplest.

B. Wrong: tyrosine has a large aromatic side chain.

paragine has an amide side chain.

D. Correct: glycine's side chain is a single hydrogen atom, making it the simplest amino acid.

Question 11 Biology

The morphology of chromosomes is best understood during _____ stage of mitosis.

- A. Prophase
- B. Interphase
- C. Telophase
- D. Metaphase ✓ **Correct answer**

A. Wrong: chromosomes condense in prophase, but their morphology is not yet at its clearest.

B. Wrong: in interphase the genetic material is diffuse chromatin, not visible chromosomes.

C. Wrong: in telophase chromosomes decondense and the nuclear envelope reforms.

D. Correct: in metaphase chromosomes are maximally condensed and aligned at the equator, so their morphology is best studied then.

Question 12 Biology

Which among the following is a phospholipid?

- A. Sterol
- B. Cholesterol
- C. Lecithin ✓ **Correct answer**
- D. Steroid

A. Wrong: sterols are a different class of lipids, not phospholipids.

olesterol is a sterol, not a phospholipid.

C. Correct: lecithin (phosphatidylcholine) is a phospholipid — it contains choline and a phosphate group.

D. Wrong: steroids are a different lipid class, not phospholipids.

Question 13 Biology

An input of energy is required for which one of the following processes?

- A. Diffusion
- B. Osmosis
- C. Passive transport
- D. Active transport ✓ **Correct answer**

A. Wrong: diffusion is passive movement down a concentration gradient and needs no energy input.

B. Wrong: osmosis is the passive movement of water across a membrane and needs no energy input.

C. Wrong: passive transport by definition needs no energy input.

D. Correct: active transport moves ions or molecules against their concentration gradient and requires an input of energy (ATP).

Question 14 Biology

DNA and histones together a structure called:

- A. Centromeres
- B. Nucleosome ✓ **Correct answer**
- C. Nucleoplasm
- D. Centriole

Centromeres are the constriction points of chromosomes where spindle fibres attach.

B. Correct: DNA wrapped around histone proteins forms the beads-on-a-string structure called a nucleosome.

C. Wrong: nucleoplasm is the jelly-like sap inside the nucleus.

D. Wrong: a centriole is a microtubule-organising structure, not DNA plus histones.

Question 15 Biology

AIDS, common cold, dengue fever and influenza are examples of:

- A. Deficiency diseases
- B. Infectious diseases ✓ **Correct answer**
- C. Physiological diseases
- D. Non-infectious diseases

A. Wrong: deficiency diseases are caused by a lack of nutrients, not by pathogens.

B. Correct: AIDS, common cold, dengue and influenza are all caused by infectious agents (viruses) and are communicable.

C. Wrong: physiological diseases are disorders of body function, not infections.

D. Wrong: the opposite of the group — all four are infectious.

Question 16 Biology

Which of the following diseases has been eradicated?

- A. Smallpox ✓ **Correct answer**
- B. Flu
- C. Chikenpox
- D. Hepatitis

smallpox was eradicated by the global vaccination drive and declared eradicated in 1980.

B. Wrong: influenza still circulates every year.

C. Wrong: chickenpox (varicella) still occurs (the option prints "Chikenpox").

D. Wrong: hepatitis still occurs worldwide.

Question 17 Biology

The conversion of atmospheric nitrogen into nitrates by bacteria is called:

- A. Decomposition
- B. Nitrogen fixation ✓ **Correct answer**
- C. Denitrification
- D. Putrefaction

A. Wrong: decomposition is the breakdown of dead organic matter, not the conversion of atmospheric nitrogen to nitrates.

B. Correct: nitrogen-fixing bacteria convert atmospheric nitrogen into nitrogen compounds such as ammonia and nitrates.

C. Wrong: denitrification converts nitrates back to nitrogen gas — the reverse process.

D. Wrong: putrefaction is the decay of proteins in dead matter.

Question 18 Biology

The fungi which derive their food directly from dead organic matter are known as:

- A. Symbiotic
- B. Saprphytic ✓ **Correct answer**
- C. Mutualists
- D. Parasitic

mbiotic fungi live in association with another organism, not by feeding on dead matter.

B. Correct: saprophytic fungi derive their food directly from dead organic matter (the option prints "Saprphytic" for "Saprophytic").

C. Wrong: mutualists are partners in a mutually beneficial relationship, not feeders on dead matter.

D. Wrong: parasitic fungi feed on a living host, not on dead matter.

Question 19 Biology

The most contagious fungal disease among the following is:

- A. Ringworm ✓ **Correct answer**
- B. Taeniasis
- C. Pneumonia
- D. Influenza

A. Correct: ringworm (tinea) is a contagious fungal infection of the skin, spread from person to person.

B. Wrong: taeniasis is a tapeworm infection, not a fungal disease.

C. Wrong: pneumonia is mostly bacterial or viral, not fungal.

D. Wrong: influenza is a viral disease, not fungal.

Question 20 Biology

Non-vascular plants reproduce through _____.

- A. Seeds
- B. Cones
- C. Flowers

A. Wrong: non-vascular plants (mosses, liverworts, hornworts) do not produce seeds.

B. Wrong: cones are gymnosperm structures.

C. Wrong: flowers are angiosperm structures.

D. Correct: non-vascular plants reproduce through spores and need a moist habitat.

Question 21 Biology

The transfer of pollen grains to the stigma of a pistil is known as:

- A. Germination
- B. Maturation
- C. Fertilization
- D. Pollination ✓ **Correct answer**

A. Wrong: germination is the sprouting of a seed, not pollen transfer.

B. Wrong: maturation is ripening, not pollen transfer.

C. Wrong: fertilisation is the fusion of gametes, which happens after pollination.

D. Correct: pollination is the transfer of pollen grains from the anther to the stigma of a pistil.

Question 22 Biology

Which of the following characters can be used to differentiate between the Gymnosperms and Angiosperms?

- A. Presence of naked ovules in gymnosperms ✓ **Correct answer**
- B. Presence of pollen tube in gymnopserm
- C. Presence of stomata in angiosperms
- D. None of these

ymnosperms bear naked ovules, while angiosperms enclose their ovules inside an ovary — the defining difference.

B. Wrong: both gymnosperms and angiosperms form pollen tubes.

C. Wrong: both groups have stomata.

D. Wrong: option A does distinguish the two groups.

Question 23 Biology

Agar is commercially obtained from:

- A. Blue-green algae
- B. Red algae ✓ **Correct answer**
- C. Brown algae
- D. Green algae

A. Wrong: blue-green algae (cyanobacteria) do not yield agar.

B. Correct: agar is commercially obtained from red algae such as Gelidium and Gracilaria.

C. Wrong: brown algae yield alginates, not agar.

D. Wrong: green algae do not yield agar.

Question 24 Biology

What are the most primitive vascular plants?

- A. Mosses
- B. Cycads
- C. kelps
- D. Ferns ✓ **Correct answer**

A. Wrong: mosses are non-vascular bryophytes, not vascular plants at all.

cads are gymnosperms, more advanced than ferns.

C. Wrong: kelps are brown algae, non-vascular.

D. Correct: ferns (pteridophytes) are the most primitive vascular plants — they have a well-differentiated vascular plant body but reproduce by spores.

Question 25 Biology

FAD is reduced in which of the reactions of the Kreb's cycle?

- A. Isocitrate to oxaloacetate
- B. Succinyl CoA to Succinate
- C. Succinate to fumarate ✓ **Correct answer**
- D. Pyruvate to malate

A. Wrong: there is no such single step in the Krebs cycle, and FAD is not reduced there.

B. Wrong: this step produces GTP; FAD is not reduced.

C. Correct: during the oxidation of succinate to fumarate, FAD is reduced to FADH2.

D. Wrong: this is not a step of the Krebs cycle.

Question 26 Biology

Phylum protozoa are classified on the basis of:

- A. Locomotory organelle ✓ **Correct answer**
- B. Size
- C. Shape
- D. Mode of reproduction

A. Correct: protozoa are classified primarily on the basis of how they move — by cilia, flagella, pseudopodia or other locomotory organelles.

B. Wrong: size is not the basis of protozoan classification.

ape is not the basis of protozoan classification.

D. Wrong: reproduction is not the primary basis of protozoan classification.

Question 27 Biology

Rhizopus belongs to:

- A. Zygomycetes ✓ **Correct answer**
- B. Ascomycetes
- C. Basidiomycetes
- D. Deutermoycetes

A. Correct: Rhizopus stolonifer belongs to the class Zygomycetes (order Mucorales).

B. Wrong: ascomycetes are sac fungi such as yeast and Penicillium.

C. Wrong: basidiomycetes are club fungi such as mushrooms.

D. Wrong: deuteromycetes are the fungi imperfecti (the option prints "Deutermoycetes").

Question 28 Biology

The branch of biology which deals the study of the development of gametes and fertilization of embryo is known as:

- A. Pre-fertilization
- B. Anatomy
- C. Embryology ✓ **Correct answer**
- D. Gametogenesis

A. Wrong: "pre-fertilization" is not the name of a branch of biology.

B. Wrong: anatomy is the study of the structure of organisms.

C. Correct: embryology deals with gamete formation (gametogenesis), fusion of gametes (fertilisation) and embryo formation.

Gametogenesis is only the formation of gametes — one part of embryology, not the whole branch.

Question 29 Biology

A mutual relationship between two organisms of the same or different species is called:

- A. Mutualism ✓ **Correct answer**
- B. Symbiosis
- C. Parasitism
- D. Food chain

A. Correct: mutualism is a relationship in which both organisms derive benefit from each other.

B. Wrong: symbiosis is the broader term covering mutualism, commensalism and parasitism — it is not the specific name for a mutually beneficial relationship.

C. Wrong: in parasitism one organism benefits and the other is harmed.

D. Wrong: a food chain is a feeding sequence, not a mutual relationship.

Question 30 Biology

All populations within an ecosystem interconnected to one another are known as:

- A. Species
- B. Family
- C. Community ✓ **Correct answer**
- D. Biomes

A. Wrong: a species is a single kind of organism, not all populations together.

B. Wrong: family is a taxonomic rank, not an ecological grouping.

C. Correct: a community includes all the populations of an area, interconnected with one

D. Wrong: biomes are large regional ecosystems, not the populations within one ecosystem.

Question 31 Biology

Non-cyclic photophosphorylation results in the production of following products:

- A. NADH
- B. NADPH
- C. ATP
- D. ATP and NADPH ✓ **Correct answer**

A. Wrong: NADH is not a product of photophosphorylation.

B. True in isolation (NADPH is produced) but incomplete as the answer to what non-cyclic photophosphorylation produces.

C. True in isolation (ATP is produced) but incomplete as the answer.

D. Picked: non-cyclic photophosphorylation produces ATP, NADPH and O2 — D is the complete standard key. Picked by assistant under owner's 8 Nov delegation.

Question 32 Biology

The most common energy carrier in the cell is:

- A. Nitrogenous base
- B. Adenosine diphosphate
- C. Adenosine monophosphate
- D. Adenosine triphosphate ✓ **Correct answer**

A. Wrong: a nitrogenous base is only one component of ATP, not the energy carrier itself.

B. Wrong: ADP is the lower-energy form, not the cell's main energy carrier.

AMP is the lowest-energy form, not the cell's main energy carrier.

D. Correct: ATP (adenosine 5'-triphosphate) is the most common energy carrier molecule in cells.

Question 33 Biology

The final acceptor of electrons in the respiratory chain is:

- A. NADH
- B. Cytochrome
- C. Water
- D. Oxygen ✓ **Correct answer**

A. Wrong: NADH is an electron donor in the respiratory chain, not the final acceptor.

B. Wrong: cytochromes are electron carriers within the chain, not the final acceptor.

C. Wrong: water is the product formed when oxygen accepts electrons, not the acceptor itself.

D. Correct: oxygen is the final electron acceptor in the respiratory chain, and its reduction to water clears the chain of spent electrons.

Question 34 Biology

Which of the following enzymes catalyses the first step of glycolysis?

- A. Hexokinase ✓ **Correct answer**
- B. Pyruvate kinase
- C. Glucokinase
- D. Phosphofructokinase

A. Correct: hexokinase catalyses the first step of glycolysis — the phosphorylation of glucose to glucose-6-phosphate.

B. Correct: pyruvate kinase catalyses the last step of glycolysis.

C. Wrong: glucokinase is the liver isozyme of hexokinase; hexokinase is the general first-step enzyme.

D. Wrong: phosphofructokinase acts at the third (rate-limiting) step, not the first.

Question 35 Biology

The protein coat of viruses that encloses the genetic material is called:

- A. Virion
- B. Capsid ✓ **Correct answer**
- C. Peplomers
- D. Capsomers

A. Wrong: a virion is the complete virus particle, not just its protein coat.

B. Correct: the capsid is the protein coat of a virus that encloses its genetic material.

C. Wrong: peplomers are the spike projections on a viral envelope.

D. Wrong: capsomers are the subunits that make up the capsid, not the coat itself.

Question 36 Biology

Which of the following is considered to be the start codon?

- A. UAG
- B. AUG ✓ **Correct answer**
- C. CGA
- D. GCU

A. Wrong: UAG is a stop codon, not a start codon.

B. Correct: AUG is the most common start codon — the first AUG in an mRNA's coding region is where protein synthesis starts.

GA codes for arginine, it is not a start codon.

D. Wrong: GCU codes for alanine, it is not a start codon.

Question 37 Biology

The plastids that give fruits and flowers their orange and yellow colours are:

- A. Leucoplasts
- B. Chloroplasts
- C. Chromoplasts ✓ **Correct answer**
- D. Proplasts

A. Wrong: leucoplasts are colourless plastids that store starch.

B. Wrong: chloroplasts are green and carry out photosynthesis.

C. Correct: chromoplasts carry the yellow, orange and red pigments of fruits and flowers.

D. Wrong: proplastids are undifferentiated plastid precursors (the option prints "Proplasts").

Question 38 Biology

Animals lacking excretory, respiratory and circulatory structures are:

- A. Sponges ✓ **Correct answer**
- B. Tapeworms
- C. Liver fluke
- D. Threadworms

A. Correct: sponges have no excretory, respiratory or circulatory structures — circulation occurs through their canal system and they have a porous body.

B. Wrong: tapeworms have excretory (flame-cell) and nervous systems.

C. Wrong: liver flukes have excretory and nervous systems.

readworms have a digestive tract and an excretory system.

Question 39 Biology

Which among the following is incorrect about arthropods?

- A. Water Vascular system ✓ **Correct answer**
- B. Hard exoskeleton
- C. Jointed appendages
- D. Segmented body

A. Correct: the water vascular system is the characteristic feature of echinoderms, not arthropods — so it is the statement that is incorrect about arthropods.

B. Wrong: a hard chitinous exoskeleton is true of arthropods.

C. Wrong: jointed appendages are true of arthropods.

D. Wrong: a segmented body is true of arthropods.

Question 40 Biology

In which of the following class does a salamander belong:

- A. Pisces
- B. Aves
- C. Reptiles
- D. Amphibian ✓ **Correct answer**

A. Wrong: Pisces is the class of fishes.

B. Wrong: Aves is the class of birds.

C. Wrong: Reptilia is the class of reptiles.

D. Correct: salamanders are cold-blooded vertebrates that live both in water and on land — they belong to the class Amphibia.

41 Biology

Phylum Porifera is classified based on:

- A. Branching
- B. Symmetry
- C. Spicules ✓ **Correct answer**
- D. Reproduction

A. Wrong: branching is not the basis on which Porifera is classified.

B. Wrong: sponges are mostly asymmetrical, and symmetry is not their classification basis.

C. Correct: the classification of phylum Porifera is based on the presence and composition of spicules.

D. Wrong: reproduction is not the basis on which Porifera is classified.

Question 42 Biology

All of the following system derived from mesoderm except:

- A. Circulatory system
- B. Integumentary system
- C. Nervous system
- D. Digestive system

No answer is given for this question, and none is taught. DEFECTIVE — excluded (no unique correct option: B, C and D are all not derived from mesoderm)

A. Mesodermal: the circulatory system (heart and blood vessels) is derived from the lateral plate mesoderm.

B. Correct in substance: the integumentary system (epidermis, hair, nails) is derived from ectoderm, not mesoderm.

C. Correct in substance: the nervous system is derived from ectoderm (neural tube and

, not mesoderm.

D. Correct in substance: the digestive system (gut tube lining) is derived from endoderm, not mesoderm. Three options (B, C, D) are correct, so the question has no unique answer and is excluded as DEFECTIVE (decided by assistant under owner's 8 Nov delegation).

Question 43 Biology

The central body cavity of coelenterates is called:

- A. Gastrovascular cavity ✓ **Correct answer**
- B. Spongocoel
- C. Coelom
- D. Hypostome

A. Correct: coelenterates have an open central body cavity called the gastrovascular cavity.

B. Wrong: the spongocoel is the central cavity of sponges.

C. Wrong: a coelom is the true body cavity of higher animals, not of coelenterates.

D. Wrong: the hypostome is the mouth region of a hydra, not its body cavity.

Question 44 Biology

Reptilian ancestry of birds is shown by the presence of:

- A. Chambered heart
- B. Scales on the hind limbs ✓ **Correct answer**
- C. Shelled eggs
- D. Scales on hind

A. Wrong: birds have a four-chambered heart while most reptiles have three — a chambered heart is not the reptilian link.

B. Picked: birds retain reptilian scales on their hind limbs — the standard textbook

the reptilian ancestry of birds.

C. Defensible but not picked: both birds and reptiles lay shelled eggs, so it is also true in substance — but it is not the standard key for this question.

D. A truncated restatement of option B (the same fact in an incomplete phrase); B is the complete standard key. Picked by assistant under owner's 8 Nov delegation.

Question 45 Biology

The process responsible for the entry of water into root hair is:

- A. Wall pressure
- B. Osmotic pressure ✓ **Correct answer**
- C. Turgor pressure
- D. Atmospheric pressure

A. Wrong: wall pressure opposes the entry of water; it does not cause it.

B. Correct: water enters the root hair cells by osmosis, driven by the osmotic pressure difference — the osmotic pressure of water in the soil is greater than that in the root hair.

C. Wrong: turgor pressure is the pressure inside the cell once water has entered, not the force that draws it in.

D. Wrong: atmospheric pressure is not the driving force for water entry into root hairs.

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