# NEST Biology Sample Paper – 9

**Duration: 45 Minutes** **Maximum Marks: 60**

## Instructions

- This paper contains **20 Multiple Choice Questions (single correct answer)**, modelled on the Biology section of **NEST 2026**.
- Each correct answer carries **+3 marks**. There is a deduction of $-1$ **mark** for each incorrect answer; **no marks** are deducted for an unattempted question.
- Every question has exactly **four options**, of which only **one** is correct. Choose carefully.
- Personal calculators, log tables, mobile phones, and other electronic gadgets are strictly prohibited in the examination hall.
- A simple on-screen (virtual) calculator is provided in the computer-based test interface and may be used; blank sheets for rough work are supplied at the exam centre.

**Q1.** A prokaryotic microbe is isolated from the anaerobic sludge of a biogas plant, where it produces methane from carbon dioxide and hydrogen. Microscopy shows the cells are comma-shaped. The cell shape and the group of this microbe are, respectively,

(A) bacillus, and a halophilic archaebacterium

(B) vibrio, and a methanogenic archaebacterium

(C) coccus, and a thermoacidophilic archaebacterium

(D) spirillum, and a heterotrophic eubacterium

**Q2.** Plants such as *Cycas*, *Pinus* and *Ginkgo* bear ovules that are not enclosed within an ovary wall, are heterosporous, and lack vessels in their xylem and companion cells in their phloem. The feature that places these plants in the gymnosperms is that they

(A) produce seeds enclosed inside a ripened fruit

(B) reproduce only by spores and never form seeds

(C) bear naked seeds not enclosed within an ovary

(D) possess well-developed vessels and companion cells

**Q3.** A flower is examined and found to have a corolla of five petals arranged as one large standard, two lateral wings and two fused into a keel, with ten stamens of which nine are fused and one is free (diadelphous). To which family does this plant most likely belong?

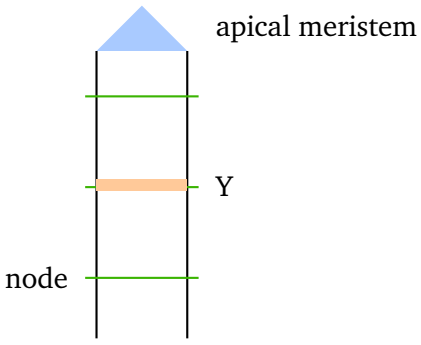
(A) Fabaceae (papilionaceous corolla, diadelphous stamens)

(B) Solanaceae (actinomorphic corolla, epipetalous stamens)

(C) Liliaceae (tepals in two whorls of three)

(D) Brassicaceae (cruciform corolla, tetradynamous stamens)

**Q4.** The sketch shows a longitudinal view of part of a plant. Region **Y** lies at the base of the internodes (just above the nodes) and adds to the length of the shoot through cell division at that position. The meristem responsible for region **Y** is the




(A) apical meristem, which causes increase in girth

(B) lateral meristem (vascular cambium), forming secondary xylem

(C) cork cambium, producing the periderm

(D) intercalary meristem, which adds to the length of the shoot

**Q5.** Comparing a typical plant cell with a typical animal cell, which one of the following structures is present in the plant cell, is made chiefly of cellulose, and is traversed by cytoplasmic channels (plasmodesmata) that connect adjacent cells?

(A) the cell wall

(B) the centriole

(C) the lysosome

(D) the flagellum with a 9+2 axoneme

**Q6.** In the following list, match each biomolecule with the covalent linkage that joins its repeating units: starch, protein, nucleic acid. The correct sequence of linkages is

(A) peptide bond, glycosidic bond, ester bond

(B) phosphodiester bond, peptide bond, glycosidic bond

(C) glycosidic bond, peptide bond, phosphodiester bond

(D) ester bond, phosphodiester bond, peptide bond

**Q7.** During gamete formation a diploid cell ($2n$) undergoes meiosis. Considering the two divisions, which statement correctly describes the change in chromosome number?

(A) Meiosis I is reductional ($2n \rightarrow n$) and meiosis II is equational ($n \rightarrow n$)

(B) Meiosis I is equational and meiosis II is reductional

(C) Both meiosis I and meiosis II are reductional divisions

(D) Both meiosis I and meiosis II keep the chromosome number at $2n$

**Q8.** The Calvin cycle ($C_3$ pathway) fixes carbon dioxide into carbohydrate. The number of ATP and NADPH molecules consumed to fix the carbon needed to make one molecule of glucose (a six-carbon sugar) are, respectively,

(A) 12 ATP and 12 NADPH

(B) 18 ATP and 12 NADPH

(C) 6 ATP and 6 NADPH

(D) 18 ATP and 18 NADPH

**Q9.** A horticulturist wishes to induce the formation of seedless (parthenocarpic) tomato fruits without pollination. The plant growth regulator most appropriate for this purpose is

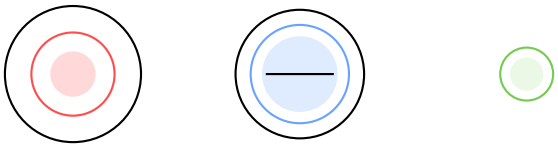
(A) abscisic acid, which promotes leaf abscission

(B) ethylene, which hastens fruit ripening

(C) cytokinin, which delays leaf senescence

(D) auxin, which can induce parthenocarpic fruit set

**Q10.** The three cross-sections below represent the main types of blood vessel. Vessel **P** has a very thick, muscular and elastic wall to withstand high pressure, while vessel **R** is a single layer of endothelium across which exchange of materials occurs. Vessels **P** and **R** are, respectively,




(A) an artery and a capillary

(B) a vein and an artery

(C) a capillary and a vein

(D) a vein and a capillary

**Q11.** A patient is diagnosed with an enlargement of the thyroid gland (goitre) due to deficiency of a particular hormone. Match this condition to the hormone whose deficiency is responsible.

(A) insulin

(B) thyroxine

(C) growth hormone

(D) cortisol

**Q12.** In an apple, the fleshy edible part develops mainly from the thalamus rather than from the ovary wall, while the true fruit (the core) develops from the ovary. Such a fruit, in which a part other than the ovary contributes to the fruit, is called a

(A) parthenocarpic fruit, formed without fertilisation

(B) true fruit, developing entirely from the ovary

(C) false fruit, in which the thalamus also forms the fruit

(D) aggregate fruit, developing from many ovaries of one flower

**Q13.** During human pregnancy, a hormone secreted by the developing embryo (and later the placenta) maintains the corpus luteum in the early weeks; its presence in urine forms the basis of common pregnancy tests. This hormone is

(A) human chorionic gonadotropin (hCG)

(B) oxytocin, which triggers parturition

(C) prolactin, which stimulates milk production

(D) relaxin, which softens the pelvic ligaments

**Q14.** A plant heterozygous for two independently assorting genes, with round yellow seeds (RrYy), is test-crossed with a fully recessive plant having wrinkled green seeds (rryy). From the outcome table below, the expected phenotypic ratio of the offspring is

gametes (rryy): ry

| RrYy | Rryy | rrYy | rryy |
|---|---|---|---|
| round yellow | round green | wrinkled yellow | wrinkled green |

(A) 9 : 3 : 3 : 1

(B) 3 : 1

(C) 1 : 1

(D) 1 : 1 : 1 : 1

**Q15.** Among the salient findings of the Human Genome Project, which one of the following statements is correct regarding the human genome?

(A) The genome contains about 3 million base pairs

(B) Less than 2% of the genome codes for proteins, and there are roughly 20,000–25,000 genes

(C) More than 90% of the genome consists of protein-coding sequences

(D) Chromosome 1 carries the fewest genes of all chromosomes

**Q16.** The Hardy–Weinberg principle states that allele frequencies in a population remain constant from generation to generation when certain conditions are met. Which one of the following factors does **NOT** disturb this genetic equilibrium?

(A) gene flow (migration) between populations

(B) genetic drift in a small population

(C) natural selection favouring certain genotypes

(D) random mating in a very large population

**Q17.** A group of compounds obtained from the latex of the poppy plant (*Papaver somniferum*) act as depressants, slow down body functions and bind to specific receptors in the central nervous system and gut. These drugs are the

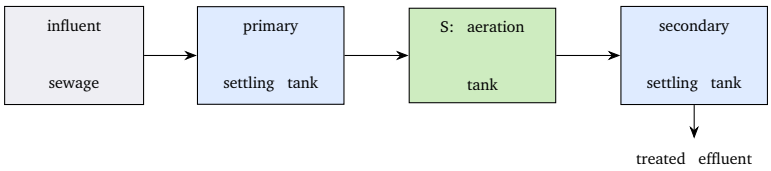
(A) cannabinoids, obtained from *Cannabis sativa*

(B) cocaine, obtained from *Erythroxylum coca*

(C) opioids (e.g. morphine and heroin)

(D) amphetamines, which are synthetic stimulants

**Q18.** The flow diagram shows the stages of municipal sewage treatment. In the stage labelled **S**, sewage is vigorously aerated so that aerobic microbes grow as flocs and oxidise most of the organic matter, sharply lowering the biochemical oxygen demand (BOD). Stage **S** is the




(A) primary (physical) treatment by sedimentation

(B) secondary (biological) treatment by the activated-sludge process

(C) tertiary treatment by chemical disinfection

(D) simple screening to remove large floating solids

**Q19.** A transgenic cotton variety is protected against bollworm insects because it carries a bacterial gene whose protein, when ingested, is activated in the alkaline insect gut and destroys the gut lining. This protein and its source gene are

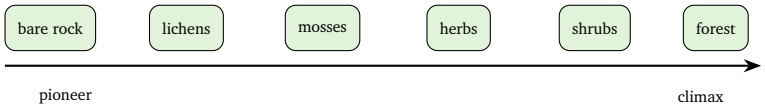
(A) a herbicide, encoded by the *bar* gene

(B) insulin, encoded by a human gene

(C) the Bt (Cry) toxin, encoded by *cry* genes of *Bacillus thuringiensis*

(D) interferon, encoded by a viral gene

**Q20.** The diagram shows the orderly change of communities on a newly exposed bare rock over time, beginning with lichens. This sequence, which starts on a previously lifeless area where no soil exists, is best described as




(A) secondary succession, since soil already exists at the start

(B) a sere that ends without ever reaching a climax community

(C) secondary xerarch succession on a pond

(D) primary xerarch succession, with lichens as the pioneer community

## Detailed Solutions

**Q1.**

**Solution**

**Concept — Kingdom Monera and archaebacteria:** Bacteria are classified by shape into coccus (spherical), bacillus (rod), spirillum (spiral) and vibrio (comma-shaped). Methanogens are archaebacteria that live in anaerobic habitats such as gut and biogas-plant sludge, producing methane from $CO_2$ and $H_2$.

**Step 1 — Read the two clues:** Comma-shaped cells = vibrio. A methane-producing anaerobe = a methanogenic archaebacterium.

**Why other options are wrong:**

- (A) Bacillus is a rod, not comma-shaped; halophiles live in salty habitats, not biogas sludge.
- (C) Coccus is spherical; thermoacidophiles live in hot acidic springs.
- (D) A spirillum is spiral, and the microbe is a chemoautotroph (methanogen), not a heterotroph.

**Final Answer:** Vibrio shape, methanogenic archaebacterium $\Rightarrow$ $\boxed{\text{B}}$

**Answer: (B)** Go Back to Q1

**Q2.**

**Solution**

**Concept — Gymnosperms:** Gymnosperms (*Cycas*, *Pinus*, *Ginkgo*) are heterosporous seed plants whose ovules, and the seeds formed from them, are *naked*, that is, not enclosed within an ovary or fruit. They generally lack vessels in xylem and companion cells in phloem.

**Step 1 — Identify the defining feature:** The word "gymnosperm" means "naked seed"; the absence of an ovary wall around the ovule/seed is the diagnostic feature.

**Why other options are wrong:**

- (A) Seeds enclosed in a ripened fruit are characteristic of angiosperms.
- (B) Reproducing only by spores with no seeds describes pteridophytes/bryophytes.
- (D) Well-developed vessels and companion cells are typical of angiosperms, not gymnosperms.

**Final Answer:** They bear naked seeds not enclosed in an ovary ⇒ C

**Answer: (C)** Go Back to Q2

## Q3.

### Solution

**Concept — Family Fabaceae:** The Fabaceae (papilionaceous subfamily) have a characteristic corolla of five petals: one standard, two wings and two fused as a keel (papilionaceous), with ten stamens that are diadelphous (nine fused, one free). The family includes pulses, the chief source of plant protein.

**Step 1 — Match the floral clues:** Papilionaceous corolla + diadelphous (9)+(1) stamens point uniquely to Fabaceae.

**Why other options are wrong:**

- (B) Solanaceae have an actinomorphic corolla with epipetalous stamens, not a keel.
- (C) Liliaceae have six tepals in two whorls and six stamens, not a papilionaceous flower.
- (D) Brassicaceae have a cruciform corolla and tetradynamous (4 long + 2 short) stamens.

**Final Answer:** The plant belongs to Fabaceae ⇒ A

**Answer: (A)** Go Back to Q3

## Q4.

### Solution

**Concept — Types of meristem:** Apical meristems lie at root and shoot tips (primary growth in length); lateral meristems (vascular cambium, cork cambium) cause secondary growth in girth; intercalary meristems lie at the base of internodes/leaves (e.g. grasses) and add to length away from the tip.

**Step 1 — Locate region Y:** A meristem at the base of internodes that increases shoot length is an *intercalary* meristem.

**Why other options are wrong:**

- (A) The apical meristem increases length but lies at the tip, and it does not increase girth.
- (B) The vascular cambium is lateral and adds girth (secondary xylem), not

length.
- (C) Cork cambium forms the protective periderm during secondary growth.

**Final Answer:** Region Y is an intercalary meristem $\Rightarrow$ D

**Answer: (D)** Go Back to Q4

## Q5.

### Solution

**Concept — Plant vs animal cell:** A plant cell has a rigid cell wall made chiefly of cellulose outside the plasma membrane. Adjacent plant cells are connected by plasmodesmata, cytoplasmic channels passing through the wall that allow symplastic transport. Animal cells lack a cell wall.

**Step 1 — Match the three clues:** Present in plant (not animal) cells, cellulose composition, and traversed by plasmodesmata $\Rightarrow$ the cell wall.

**Why other options are wrong:**

- (B) Centrioles are typically present in animal cells and absent in most higher plant cells.
- (C) Lysosomes are not made of cellulose and are not crossed by plasmodesmata.
- (D) A 9+2 flagellum is not made of cellulose and is rare in higher plant body cells.

**Final Answer:** The structure is the cell wall $\Rightarrow$ A

**Answer: (A)** Go Back to Q5

## Q6.

### Solution

**Concept — Linkages in biomolecules:** Repeating units of macromolecules are joined by specific covalent bonds: monosaccharides in carbohydrates (starch) by glycosidic bonds; amino acids in proteins by peptide bonds; nucleotides in nucleic acids by phosphodiester bonds.

**Step 1 — Match in the asked order:** Starch $\rightarrow$ glycosidic bond; protein $\rightarrow$ peptide bond; nucleic acid $\rightarrow$ phosphodiester bond.

**Why other options are wrong:**

- (A) It wrongly assigns the peptide bond to starch and an ester bond to nucleic acid.
- (B) It places the phosphodiester bond on starch instead of on nucleic acid.
- (D) It assigns an ester bond to starch and a peptide bond to nucleic acid.

**Final Answer:** Glycosidic, peptide, phosphodiester $\Rightarrow$ $\boxed{\text{C}}$

**Answer: (C)** Go Back to Q6

## Q7.

### Solution

**Concept — Meiosis I vs meiosis II:** Meiosis I is the reductional division: homologous chromosomes separate, halving the chromosome number from $2n$ to $n$. Meiosis II is equational (like mitosis): sister chromatids separate while the chromosome number stays at $n$.

**Step 1 — Track the number:** $2n \xrightarrow{\text{meiosis I}} n \xrightarrow{\text{meiosis II}} n$. Hence I is reductional and II is equational.

**Why other options are wrong:**

- (B) It reverses the roles; meiosis I (not II) is the reductional division.
- (C) Only meiosis I is reductional; meiosis II does not halve the number again.
- (D) The number does not stay $2n$; meiosis halves it to $n$ in the gametes.

**Final Answer:** Meiosis I reductional, meiosis II equational $\Rightarrow$ $\boxed{\text{A}}$

**Answer: (A)** Go Back to Q7

## Q8.

### Solution

**Concept — Calvin cycle stoichiometry:** To fix one $CO_2$ the Calvin cycle uses 3 ATP and 2 NADPH. One glucose ($C_6$) requires fixing 6 $CO_2$ molecules.

**Step 1 — Scale up by six:** ATP $= 6 \times 3 = 18$; NADPH $= 6 \times 2 = 12$.

**Why other options are wrong:**

- (A) 12 ATP undercounts; the cycle needs 18 ATP per glucose.
- (C) 6 ATP and 6 NADPH would fix only about two $CO_2$, not six.
- (D) NADPH is 12, not 18; only ATP equals 18.

**Final Answer:** 18 ATP and 12 NADPH per glucose $\Rightarrow$ $\boxed{\text{B}}$

**Answer: (B)** Go Back to Q8

## Q9.

### Solution

**Concept — Plant growth regulators (PGRs):** Auxins promote cell elongation, apical dominance, rooting and can induce *parthenocarpy* (fruit set without fertilisation, giving seedless fruit). Each PGR has characteristic effects: gibberellins cause bolting, ethylene ripens fruit, ABA promotes abscission/dormancy.

**Step 1 — Match effect to PGR:** Inducing seedless (parthenocarpic) fruit such as tomato is achieved with auxin.

**Why other options are wrong:**

- (A) Abscisic acid promotes abscission and dormancy, not fruit set.
- (B) Ethylene hastens ripening of an already-set fruit; it does not induce parthenocarpy.
- (C) Cytokinin delays senescence and promotes cell division, not parthenocarpic set.

**Final Answer:** Auxin induces parthenocarpic fruit $\Rightarrow$ D

**Answer: (D)** Go Back to Q9

## Q10.

### Solution

**Concept — Blood vessels:** Arteries have thick, muscular, elastic walls to carry blood at high pressure. Veins have thinner walls and bear valves to prevent backflow. Capillaries are a single layer of endothelium across which exchange of gases and nutrients occurs; tissue fluid drained by lymph returns to circulation.

**Step 1 — Identify P and R:** Thick muscular wall = artery (P); single endothelial layer for exchange = capillary (R). (Q, the valved thin-walled vessel, is the vein.)

**Why other options are wrong:**

- (B) P is not a vein; the thick muscular wall marks it as an artery.
- (C) P is not a capillary; capillaries are not thick-walled.
- (D) P is the thick-walled vessel (artery), not a vein.

**Final Answer:** P is an artery and R is a capillary $\Rightarrow$ A

**Answer: (A)** Go Back to Q10

## Q11.

### Solution

**Concept — Endocrine disorders:** Deficiency or excess of a hormone causes characteristic disorders: diabetes mellitus (insulin deficiency), goitre (thyroxine deficiency, often due to iodine lack), acromegaly/dwarfism (growth hormone), Addison's disease (cortisol).

**Step 1 — Match the disorder:** Goitre, the enlargement of the thyroid gland, results from deficiency of thyroxine.

**Why other options are wrong:**

- (A) Insulin deficiency causes diabetes mellitus, not goitre.
- (C) Growth-hormone imbalance causes gigantism/acromegaly or dwarfism.
- (D) Cortisol deficiency causes Addison's disease.

**Final Answer:** Goitre is linked to thyroxine deficiency $\Rightarrow$ B

**Answer: (B)** Go Back to Q11

## Q12.

### Solution

**Concept — True vs false fruit:** After fertilisation the ovary normally develops into the fruit (a true fruit). When a part other than the ovary, such as the thalamus, forms the major fleshy edible portion, the fruit is called a *false fruit* (e.g. apple, pear, cashew).

**Step 1 — Apply to the apple:** The edible flesh of the apple is thalamus-derived, so it is a false fruit.

**Why other options are wrong:**

- (A) Parthenocarpic fruits form without fertilisation; that is not the criterion here.
- (B) A true fruit develops entirely from the ovary, unlike the apple.
- (D) An aggregate fruit forms from many free ovaries of one flower (e.g. strawberry receptacle aside), not the apple's thalamus case asked about.

**Final Answer:** The apple is a false fruit $\Rightarrow$ C

**Answer: (C)** Go Back to Q12

## Q13.

### Solution

**Concept — Hormones of pregnancy:** Human chorionic gonadotropin (hCG) is secreted by the embryo's trophoblast and the placenta. It maintains the corpus luteum (and thus progesterone) during early pregnancy, and its appearance in maternal urine is the basis of pregnancy test kits.

**Step 1 — Match the role:** An embryo-secreted hormone maintaining the corpus luteum and detected in urine is hCG.

**Why other options are wrong:**

- (B) Oxytocin triggers the strong uterine contractions of parturition, late in pregnancy.
- (C) Prolactin stimulates milk synthesis after birth (lactation).
- (D) Relaxin softens pelvic ligaments and the cervix near term; it does not maintain the corpus luteum or form the test basis.

**Final Answer:** The hormone is hCG $\Rightarrow$ $\boxed{\text{A}}$

**Answer: (A)** Go Back to Q13

## Q14.

### Solution

**Concept — Dihybrid test cross:** In a test cross the dihybrid (RrYy) is crossed with the fully recessive (rryy). The heterozygote forms four gamete types (RY, Ry, rY, ry) in equal proportions, while the recessive parent gives only ry. The offspring therefore appear in equal numbers of four phenotypes.

**Step 1 — Read the outcome:** Round yellow : round green : wrinkled yellow : wrinkled green $= 1:1:1:1$.

**Why other options are wrong:**

- (A) $9:3:3:1$ is the $F_2$ ratio of a dihybrid *self/intercross* (RrYy $\times$ RrYy), not a test cross.
- (B) $3:1$ is a monohybrid $F_2$ ratio.
- (C) $1:1$ is a monohybrid test-cross ratio, not a dihybrid one.

**Final Answer:** The dihybrid test-cross ratio is $1:1:1:1$ $\Rightarrow$ $\boxed{\text{D}}$

**Answer: (D)** Go Back to Q14

## Q15.

### Solution

**Concept — Human Genome Project (HGP):** The HGP found the human genome contains about 3.1 billion base pairs and roughly 20,000–25,000 genes. Strikingly, less than 2% of the genome codes for proteins; most is non-coding (repetitive and regulatory) DNA.

**Step 1 — Pick the correct salient feature:** "Less than 2% codes for protein; about 20,000–25,000 genes" matches the HGP findings.

**Why other options are wrong:**

- (A) The genome has about 3 *billion* (not 3 million) base pairs.
- (C) Far less than 90% codes for protein; coding DNA is under 2%.
- (D) Chromosome 1 has the *most* genes (it is the largest), not the fewest.

**Final Answer:** Under 2% coding, ∼20,000–25,000 genes ⇒ B

**Answer: (B)** Go Back to Q15

## Q16.

### Solution

**Concept — Hardy–Weinberg equilibrium:** Allele frequencies stay constant only when there is no mutation, no gene flow (migration), no genetic drift, no natural selection, and mating is random in a very large population. The five disturbing factors are gene migration, genetic drift, mutation, genetic recombination and natural selection.

**Step 1 — Spot the non-disturbing factor:** Random mating in a very large population is a *condition for* equilibrium, so it does not disturb it.

**Why other options are wrong:**

- (A) Gene flow changes allele frequencies and disturbs equilibrium.
- (B) Genetic drift randomly alters frequencies in small populations.
- (C) Natural selection changes genotype frequencies and disturbs equilibrium.

**Final Answer:** Random mating in a large population does NOT disturb equilibrium ⇒ D

**Answer: (D)** Go Back to Q16

## Q17.

### Solution

**Concept — Drugs of abuse:** Opioids such as morphine and heroin (smack) are obtained from the latex of the poppy *Papaver somniferum*. They are depressants that bind to opioid receptors in the central nervous system and gastrointestinal tract, slowing body functions.

**Step 1 — Match source to drug class:** A poppy-latex depressant binding CNS/gut receptors is an opioid.

**Why other options are wrong:**

- (A) Cannabinoids come from *Cannabis sativa* (hemp), not the poppy.
- (B) Cocaine, a stimulant, comes from *Erythroxylum coca*.
- (D) Amphetamines are synthetic stimulants, not poppy-derived depressants.

**Final Answer:** The drugs are opioids $\Rightarrow$ C

**Answer: (C)** Go Back to Q17

## Q18.

### Solution

**Concept — Sewage treatment:** Primary treatment physically removes solids by sedimentation. Secondary (biological) treatment aerates the primary effluent so aerobic microbes grow as *flocs* (activated sludge) and consume organic matter, greatly reducing the biochemical oxygen demand (BOD) of the water.

**Step 1 — Identify stage S:** Vigorous aeration with microbial flocs lowering BOD is the activated-sludge (secondary, biological) treatment.

**Why other options are wrong:**

- (A) Primary treatment is physical sedimentation, with no aeration or microbial oxidation.
- (C) Tertiary treatment uses chemical/disinfection steps after biological treatment.
- (D) Screening only removes large floating solids at the very start.

**Final Answer:** Stage S is secondary (activated-sludge) treatment $\Rightarrow$ B

**Answer: (B)** Go Back to Q18

## Q19.

### Solution

**Concept — Bt crops:** The soil bacterium *Bacillus thuringiensis* carries *cry* genes that encode Cry proteins (Bt toxins). The inactive protoxin, eaten by an insect, is solubilised and activated in the alkaline insect gut, where it binds to and perforates the gut epithelium, killing the pest. Bt cotton and Bt corn use this gene.

**Step 1 — Match protein and gene:** Gut-activated insecticidal protein from a bacterium = Bt (Cry) toxin from *cry* genes of *Bacillus thuringiensis*.

**Why other options are wrong:**

- (A) The *bar* gene confers herbicide tolerance, not insect resistance.
- (B) Insulin is a human therapeutic protein, unrelated to insect control.
- (D) Interferon is an antiviral protein, not an insecticidal gut toxin.

**Final Answer:** It is the Bt (Cry) toxin from *cry* genes $\Rightarrow$ C

**Answer: (C)** Go Back to Q19

## Q20.

### Solution

**Concept — Ecological succession:** Primary succession begins on a lifeless area with no soil (bare rock, new lava, cooled volcanic island). When it starts on a dry rock it is *xerarch*; lichens are the pioneer community, followed by mosses, herbs, shrubs and finally a climax forest. Succession on a previously inhabited, soil-bearing area is secondary succession.

**Step 1 — Classify the sequence:** Starting on bare rock (no soil) with lichens as pioneers on a dry surface = primary xerarch succession.

**Why other options are wrong:**

- (A) No soil exists at the start, so it is primary, not secondary, succession.
- (B) The sequence does end in a stable climax (forest); it is not climax-less.
- (C) It is primary, not secondary, and xerarch (dry rock), not hydrarch (in water/pond).

**Final Answer:** It is primary xerarch succession with lichen pioneers $\Rightarrow$ D

Answer: (D) Go Back to Q20

# Answer Key

| Q | Ans | Q | Ans | Q | Ans | Q | Ans | Q | Ans |
|---|---|---|---|---|---|---|---|---|---|
| 1 | B | 2 | C | 3 | A | 4 | D | 5 | A |
| 6 | C | 7 | A | 8 | B | 9 | D | 10 | A |
| 11 | B | 12 | C | 13 | A | 14 | D | 15 | B |
| 16 | D | 17 | C | 18 | B | 19 | C | 20 | D |