NEST Biology Sample Paper – 2

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. In the scientific name *Mangifera indica* Linn., which of the following statements about the rules of binomial nomenclature is correct?

(A) *Mangifera* is the species epithet and *indica* is the generic name.

(B) The generic name (*Mangifera*) begins with a capital letter while the specific epithet (*indica*) begins with a small letter, and the abbreviation "Linn." denotes the author.

(C) In a printed text the binomial should be written in upright (non-italic) type and underlined.

(D) The specific epithet *indica* can stand alone as a complete scientific name without the generic name.

Q2. In which group of plants is the main plant body a free-living, dominant sporophyte that bears well-differentiated roots, stem and leaves, while

the gametophyte is small, short-lived and *independent* (not retained on the parent), reproducing by spores without seeds?

(A) Algae (e.g. *Spirogyra*)

(B) Bryophytes (e.g. *Funaria*)

(C) Gymnosperms (e.g. *Cycas*)

(D) Pteridophytes (e.g. *Dryopteris*)

Q3. A botanist examines a flowering shoot in which the main axis continues to grow and bears flowers laterally in an acropetal succession (the oldest flowers at the base and the youngest near the growing tip). This type of inflorescence is

(A) racemose

(B) cymose

(C) solitary cymose

(D) a verticillaster of the cymose type

Q4. A tissue is described as having closely packed cells resting on a basement membrane, with little intercellular material, where the cells are tall and pillar-like and the tissue lines the inner surface of the stomach and intestine, aiding secretion and absorption. This tissue is

(A) simple squamous epithelium

(B) cuboidal epithelium

(C) columnar epithelium

(D) stratified squamous epithelium

Q5. Which one of the following features distinguishes a prokaryotic cell from a eukaryotic cell?

(A) Presence of a plasma membrane enclosing the cytoplasm.

(B) Absence of a membrane-bound nucleus and of membrane-bound organelles such as mitochondria and the endoplasmic reticulum.

(C) Presence of 70S ribosomes that are completely absent in eukaryotes.

(D) Presence of DNA as the genetic material.

Q6. Sucrose, glucose, glycogen and fructose are four biologically important carbohydrates. Which option correctly groups them by the number of sugar units?

(A) Glucose and sucrose are monosaccharides; glycogen and fructose are polysaccharides.

(B) Sucrose and glycogen are disaccharides; glucose and fructose are polysaccharides.

(C) Glucose and glycogen are monosaccharides; sucrose and fructose are disaccharides.

(D) Glucose and fructose are monosaccharides; sucrose is a disaccharide; glycogen is a polysaccharide.

Q7. During which substage of prophase I of meiosis does crossing over (the exchange of genetic material between non-sister chromatids of homologous chromosomes) take place, mediated by the enzyme recombinase?

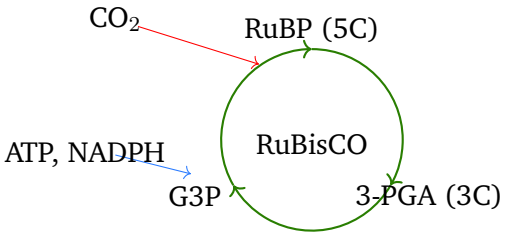
(A) Pachytene

(B) Zygotene

(C) Leptotene

(D) Diakinesis

Q8. The diagram shows a simplified Calvin cycle. The enzyme RuBisCO catalyses the first step, in which atmospheric CO_2 is fixed onto the 5-carbon acceptor RuBP to give the first stable product. What is this first stable product, and how many carbon atoms does it contain?



(A) Ribulose-1,5-bisphosphate, a 5-carbon compound.

(B) 3-phosphoglyceric acid (3-PGA), a 3-carbon compound.

(C) Oxaloacetic acid (OAA), a 4-carbon compound.

(D) Glucose, a 6-carbon compound.

Q9. Which one of the following correctly matches a plant growth regulator with its characteristic physiological role?

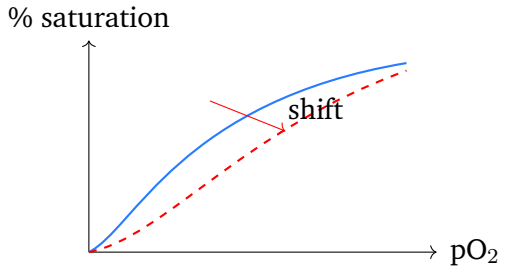
(A) Auxin — promotes closure of stomata during water stress.

(B) Cytokinin — induces ripening of fruits and senescence of leaves.

(C) Gibberellin — promotes bolting (internodal elongation) in rosette plants.

(D) Abscisic acid — breaks the dormancy of seeds and buds.

Q10. The graph shows the oxygen–haemoglobin dissociation curve. A rightward shift of this sigmoid curve (the Bohr effect) corresponds to a lowered affinity of haemoglobin for oxygen, favouring the unloading of O_2 in the tissues. Which set of conditions causes such a rightward shift?



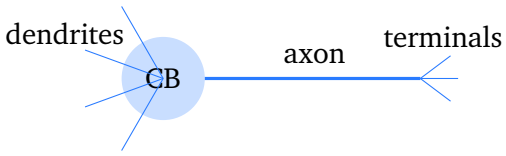
(A) Low CO_2, high pH (alkaline) and low temperature.

(B) High pH and low pCO_2 together with low temperature.

(C) Low H^+ concentration and a fall in temperature.

(D) High pCO_2, low pH (more H^+) and high temperature.

Q11. The figure shows a typical neuron. At a chemical synapse, the arrival of a nerve impulse at the axon terminal triggers the release of neurotransmitter into the synaptic cleft. The neurotransmitter is stored in, and released from, which structure?



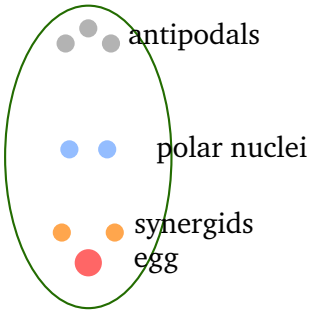
(A) Synaptic vesicles in the axon terminal (pre-synaptic knob).

(B) The nucleus within the cell body.

(C) The myelin sheath around the axon.

(D) The dendritic spines of the next neuron.

Q12. The figure shows a mature embryo sac of a typical angiosperm. A normal embryo sac is 7-celled and 8-nucleate. Which option correctly accounts for this 7-celled, 8-nucleate organisation?



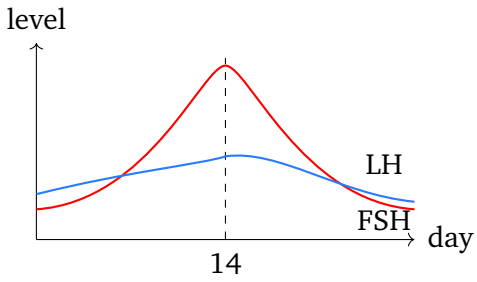
(A) 3 antipodals, 3 synergids, 1 egg and 1 central cell with one nucleus.

(B) 2 synergids, 1 egg, 2 antipodals and a 4-nucleate central cell.

(C) 1 egg apparatus of 3 cells (1 egg + 2 synergids), 3 antipodal cells, and 1 central cell containing 2 polar nuclei.

(D) 1 egg, 3 synergids, 2 antipodals and 1 central cell with 1 polar nucleus.

Q13. The graph shows the levels of two pituitary hormones during the human menstrual cycle. A sharp surge of one hormone around the 14th day induces ovulation (rupture of the Graafian follicle and release of the ovum). This ovulatory surge is of



(A) follicle-stimulating hormone (FSH)

(B) luteinising hormone (LH)

(C) progesterone

(D) oxytocin

Q14. In garden pea, round (R) is dominant over wrinkled (r) and yellow (Y) over green (y). A true-breeding round-yellow plant (RRYY) is crossed with a wrinkled-green plant (rryy); the F_1 is self-pollinated. According to the law of independent assortment, the phenotypic ratio of round-yellow : round-green : wrinkled-yellow : wrinkled-green in the F_2 is

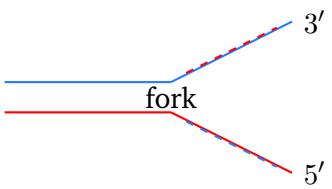
(A) $9:3:3:1$

(B) $3:1:3:1$

(C) $1:1:1:1$

(D) $9:1:3:3$

Q15. The figure shows a replication fork. The Meselson–Stahl experiment established that DNA replication is semiconservative. In a replication fork, the enzyme that catalyses the polymerisation of new DNA strands in the $5' \rightarrow 3'$ direction using each parental strand as a template is



(A) helicase

(B) ligase

(C) primase

(D) DNA-dependent DNA polymerase

Q16. In a large, randomly mating population in Hardy–Weinberg equilibrium, a recessive disorder caused by allele a occurs in 1 out of every 100 individuals (the homozygous recessive frequency $q^2 = 0.01$). What is the frequency of the dominant allele A in this population?

(A) 0.10

(B) 0.99

(C) 0.90

(D) 0.81

Q17. Which one of the following correctly pairs a human disease with its causative pathogen?

(A) Amoebiasis — *Entamoeba histolytica*

(B) Malaria — *Salmonella typhi*

(C) Typhoid — *Wuchereria bancrofti*

(D) Ringworm — *Plasmodium vivax*

Q18. Which one of the following correctly matches a microbe with the industrially useful product it yields?

(A) *Saccharomyces cerevisiae* — the antibiotic penicillin

(B) *Penicillium notatum* — the antibiotic penicillin

(C) *Aspergillus niger* — ethanol from fermentation

(D) *Acetobacter aceti* — citric acid

Q19. Bt cotton is a transgenic crop that resists certain insect pests. The toxin it produces is derived from a gene of the soil bacterium *Bacillus thuringiensis*. Which statement about Bt cotton is correct?

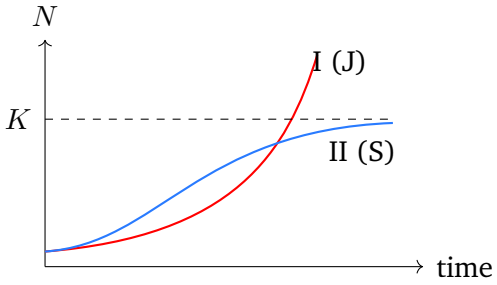
(A) The *cry* gene product is toxic to the bacterium itself but harmless to insects.

(B) The Bt toxin is secreted as an active toxin that immediately kills the bacterium that makes it.

(C) Bt cotton is resistant because it produces a broad-spectrum chemical pesticide identical to DDT.

(D) The *cry* protein exists as an inactive protoxin that is converted to an active toxin by the alkaline pH of the insect's gut, killing the larva.

Q20. The figure shows two population growth curves. Curve I rises without limit (J-shaped), whereas curve II levels off at the carrying capacity K (S-shaped). Which equation describes the logistic (S-shaped) growth shown by curve II?



(A) $\dfrac{dN}{dt} = rN$

(B) $N_t = N_0\, e^{rt}$

(C) $\dfrac{dN}{dt} = rN\left(\dfrac{K-N}{K}\right)$

(D) $\dfrac{dN}{dt} = rN\left(\dfrac{N}{K}\right)$

Detailed Solutions

Q1.

Solution

Concept — Binomial nomenclature: Each species has a two-word Latinised name; the first word is the genus (capitalised) and the second is the specific epithet (lower case). Both are italicised (or underlined when handwritten), and the author's name may follow.

Step 1 — Apply the rules: In *Mangifera indica* Linn., *Mangifera* is the genus, *indica* the species epithet, and "Linn." abbreviates the author Linnaeus. This matches option (B).

Why other options are wrong:

- (A) Reverses the genus and species roles.
- (C) Names are printed in *italics*, not upright type.
- (D) The specific epithet cannot stand alone; it must accompany the generic name.

Final Answer: The genus is capitalised, the epithet is lower case, and "Linn." is the author $\Rightarrow$ $\boxed{\text{B}}$

Answer: (B) Go Back to Q1

Q2.

Solution

Concept — Alternation of generations: In pteridophytes the dominant phase is the diploid sporophyte with true roots, stem and leaves; the haploid gametophyte (prothallus) is small, free-living and independent. They are seedless and disperse by spores.

Step 1 — Match the description: A dominant, vascularised sporophyte plus an independent gametophyte and no seeds points to pteridophytes such as *Dryopteris* (a fern). Hence (D).

Why other options are wrong:

- (A) Algae lack differentiated roots, stems and leaves.
- (B) In bryophytes the gametophyte is dominant and the sporophyte depends on it.
- (C) Gymnosperms bear seeds and have a much-reduced, dependent game-

tophyte.

Final Answer: The plants described are pteridophytes $\Rightarrow$ D

Answer: (D) Go Back to Q2

Q3.

Solution

Concept — Racemose vs cymose inflorescence: In a racemose inflorescence the main axis keeps growing and bears flowers laterally in acropetal succession (oldest at the base, youngest at the top). In a cymose type the main axis ends in a flower, limiting its growth (basipetal order).

Step 1 — Identify: Continuous growth of the main axis with acropetal flowering is the defining feature of the racemose type. Hence (A).

Why other options are wrong:

- (B) In a cymose inflorescence the main axis terminates in a flower and stops growing.
- (C) A solitary cymose flower is a single terminal flower, not a continuously growing axis.
- (D) A verticillaster is a specialised cymose cluster, again with limited axis growth.

Final Answer: Continuous axis with acropetal flowering is racemose $\Rightarrow$ A

Answer: (A) Go Back to Q3

Q4.

Solution

Concept — Epithelial tissues: Epithelia are classified by cell shape. Tall, pillar-like cells form columnar epithelium, which lines the stomach and intestine and is specialised for secretion and absorption.

Step 1 — Match shape and function: "Tall, pillar-like" cells lining the gut for secretion/absorption describe columnar epithelium. Hence (C).

Why other options are wrong:

- (A) Squamous epithelium is flat and thin (e.g. alveoli), suited to diffusion.
- (B) Cuboidal epithelium has cube-shaped cells (e.g. kidney tubules, ducts).

- (D) Stratified squamous epithelium is multilayered and protective (e.g. skin), not a single absorptive lining.

Final Answer: Tall pillar-like absorptive cells form columnar epithelium $\Rightarrow$ C

Answer: (C) Go Back to Q4

Q5.

Solution

Concept — Prokaryote vs eukaryote: The defining difference is the absence in prokaryotes of a membrane-bound (true) nucleus and of membrane-bound organelles such as mitochondria, chloroplasts and the endoplasmic reticulum.

Step 1 — Pick the distinguishing feature: Only option (B) names a feature unique to prokaryotes.

Why other options are wrong:

- (A) A plasma membrane is present in both cell types.
- (C) Prokaryotes have 70S ribosomes, but eukaryotes also contain 70S ribosomes (in mitochondria and chloroplasts), so this is not exclusive.
- (D) DNA is the genetic material in both prokaryotes and eukaryotes.

Final Answer: Lack of a membrane-bound nucleus and organelles defines prokaryotes $\Rightarrow$ B

Answer: (B) Go Back to Q5

Q6.

Solution

Concept — Classifying carbohydrates: Monosaccharides (e.g. glucose, fructose) are single sugar units; disaccharides (e.g. sucrose = glucose + fructose) yield two units on hydrolysis; polysaccharides (e.g. glycogen, starch, cellulose) are long polymers of many units.

Step 1 — Assign each sugar: Glucose and fructose are monosaccharides, sucrose is a disaccharide, and glycogen is a polysaccharide. This is exactly option (D).

Why other options are wrong:

- (A) Wrongly calls sucrose a monosaccharide and fructose a polysaccharide.
- (B) Wrongly calls sucrose/glycogen disaccharides and glucose/fructose

polysaccharides.
- (C) Wrongly calls glycogen a monosaccharide and fructose a disaccharide.

Final Answer: Glucose, fructose (mono); sucrose (di); glycogen (poly) $\Rightarrow$ $\boxed{D}$

Answer: (D) Go Back to Q6

Q7.

Solution

Concept — Substages of prophase I: Leptotene (condensation), zygotene (synapsis, synaptonemal complex), pachytene (crossing over via recombination nodules and recombinase), diplotene (chiasmata visible) and diakinesis (terminalisation).

Step 1 — Locate crossing over: The actual exchange of segments between non-sister chromatids, catalysed by recombinase, occurs at the pachytene stage. Hence (A).

Why other options are wrong:

- (B) Zygotene is when homologues pair (synapsis), before exchange.
- (C) Leptotene only involves initial chromosome condensation.
- (D) Diakinesis marks terminalisation of chiasmata, after crossing over is complete.

Final Answer: Crossing over occurs at pachytene $\Rightarrow$ $\boxed{A}$

Answer: (A) Go Back to Q7

Q8.

Solution

Concept — Carbon fixation in the Calvin cycle: RuBisCO catalyses the carboxylation of the 5-carbon RuBP with CO_2. The unstable 6-carbon intermediate immediately splits into two molecules of the 3-carbon 3-phosphoglyceric acid (3-PGA), the first stable product of the C_3 pathway.

Step 1 — Identify the first stable product: It is 3-PGA, a 3-carbon compound. Hence (B).

Why other options are wrong:

- (A) RuBP is the CO_2 *acceptor*, not the product.

- (C) OAA (4-carbon) is the first product in the C_4 pathway, not C_3.
- (D) Glucose is formed only after many turns of the cycle, not as the first product.

Final Answer: The first stable product is 3-PGA (3C) $\Rightarrow$ B

Answer: (B) Go Back to Q8

Q9.

Solution

Concept — Plant growth regulators: Auxins promote apical dominance and rooting; gibberellins cause stem/internode elongation and bolting; cytokinins promote cell division and delay senescence; ABA is the stress hormone (stomatal closure, dormancy); ethylene promotes ripening and senescence.

Step 1 — Find the correct match: Gibberellins cause bolting (rapid internodal elongation) in rosette plants such as cabbage and beet. Hence (C).

Why other options are wrong:

- (A) Stomatal closure under water stress is caused by ABA, not auxin.
- (B) Fruit ripening and leaf senescence are caused by ethylene, not cytokinin.
- (D) ABA *induces* dormancy; it does not break it (gibberellins break dormancy).

Final Answer: Gibberellin promotes bolting in rosette plants $\Rightarrow$ C

Answer: (C) Go Back to Q9

Q10.

Solution

Concept — Bohr effect: A rightward shift of the oxygen–haemoglobin dissociation curve lowers Hb's affinity for O_2, promoting O_2 release in actively respiring tissues. It is favoured by conditions typical of such tissues.

Step 1 — Identify the shifting conditions: High pCO_2, low pH (high H^+) and high temperature all shift the curve to the right. This is option (D).

Why other options are wrong:

- (A), (B), (C) Each lists low CO_2, high pH and/or low temperature — conditions that shift the curve to the *left* (greater O_2 affinity, favouring loading in

the lungs), the opposite of what is asked.

Final Answer: High pCO_2, low pH and high temperature shift the curve right $\Rightarrow$ D

Answer: (D) Go Back to Q10

Q11.

Solution

Concept — Synaptic transmission: At a chemical synapse the impulse reaching the pre-synaptic axon terminal causes voltage-gated Ca^{2+} channels to open; Ca^{2+} influx triggers fusion of neurotransmitter-filled synaptic vesicles with the membrane, releasing transmitter into the cleft.

Step 1 — Locate the store of neurotransmitter: Neurotransmitters are stored in synaptic vesicles within the pre-synaptic knob (axon terminal). Hence (A).

Why other options are wrong:

- (B) The nucleus controls gene expression, not transmitter storage.
- (C) The myelin sheath insulates the axon for saltatory conduction; it does not store transmitter.
- (D) Dendritic spines (post-synaptic) bear *receptors*; they receive, not release, the transmitter.

Final Answer: Neurotransmitter is stored in synaptic vesicles of the axon terminal $\Rightarrow$ A

Answer: (A) Go Back to Q11

Q12.

Solution

Concept — Structure of the embryo sac: A typical (Polygonum-type) embryo sac is 7-celled and 8-nucleate: 3 antipodal cells at the chalazal end, an egg apparatus of 1 egg cell + 2 synergids at the micropylar end, and 1 large central cell containing 2 polar nuclei.

Step 1 — Count cells and nuclei: 3 antipodals + 2 synergids + 1 egg + 1 central cell = 7 cells; nuclei = 3 + 2 + 1 + 2 = 8. This matches option (C).

Why other options are wrong:

- (A) Lists 3 synergids and a one-nucleate central cell, giving the wrong counts.
- (B) A 4-nucleate central cell and only 2 antipodals do not give 7 cells, 8 nuclei.
- (D) 3 synergids and a single polar nucleus are incorrect.

Final Answer: Egg apparatus (3) + 3 antipodals + 1 central cell (2 polar nuclei) = 7-celled, 8-nucleate $\Rightarrow$ C

Answer: (C) Go Back to Q12

Q13.

Solution

Concept — Hormonal control of the menstrual cycle: FSH and LH from the anterior pituitary regulate the ovarian cycle. Around mid-cycle (day 14) both rise, but a sharp *LH surge* triggers ovulation.

Step 1 — Identify the ovulatory surge: The rapid mid-cycle peak that ruptures the Graafian follicle is the LH surge. Hence (B).

Why other options are wrong:

- (A) FSH rises in the follicular phase to mature the follicle but does not produce the ovulatory spike.
- (C) Progesterone (from the corpus luteum) dominates the *luteal* phase after ovulation.
- (D) Oxytocin acts in childbirth and milk ejection, not in triggering ovulation.

Final Answer: The mid-cycle ovulatory surge is of LH $\Rightarrow$ B

Answer: (B) Go Back to Q13

Q14.

Solution

Concept — Law of independent assortment: When two pairs of contrasting traits assort independently, the dihybrid F_1 (RrYy) selfed gives an F_2 phenotypic ratio of $9:3:3:1$.

Step 1 — Work out the F_2: RRYY $\times$ rryy gives F_1 RrYy. Selfing yields 9 round-yellow : 3 round-green : 3 wrinkled-yellow : 1 wrinkled-green. Hence (A).

Why other options are wrong:

- (B) $3:1:3:1$ is not the dihybrid self ratio.
- (C) $1:1:1:1$ is the ratio of a test cross (RrYy $\times$ rryy), not a self.
- (D) $9:1:3:3$ simply scrambles the correct $9:3:3:1$ order.

Final Answer: The F_2 ratio is $9:3:3:1 \Rightarrow \boxed{A}$

Answer: (A) Go Back to Q14

Q15.

Solution

Concept — Enzymes of DNA replication: Helicase unwinds the duplex, primase lays down RNA primers, DNA polymerase extends new strands in the $5' \to 3'$ direction, and ligase joins Okazaki fragments. Replication is semiconservative (Meselson–Stahl).

Step 1 — Pick the polymerising enzyme: The enzyme that builds the new DNA strands using each template is DNA-dependent DNA polymerase. Hence (D).

Why other options are wrong:

- (A) Helicase only unwinds the parental strands.
- (B) Ligase seals nicks between Okazaki fragments; it does not polymerise the bulk of the strand.
- (C) Primase synthesises short RNA primers, not the new DNA strand.

Final Answer: New strands are made by DNA-dependent DNA polymerase $\Rightarrow \boxed{D}$

Answer: (D) Go Back to Q15

Q16.

Solution

Concept — Hardy–Weinberg principle: For a two-allele locus, allele frequencies satisfy $p + q = 1$ and genotype frequencies $p^2 + 2pq + q^2 = 1$, where q^2 is the homozygous recessive frequency.

Step 1 — Find q: $q^2 = 0.01 \Rightarrow q = \sqrt{0.01} = 0.10$.

Step 2 — Find p: $p = 1 - q = 1 - 0.10 = 0.90$. So the dominant allele A has frequency 0.90. Hence (C).

Why other options are wrong:

- (A) 0.10 is q, the frequency of the *recessive* allele.

- (B) 0.99 wrongly uses $1 - q^2$ instead of $1 - q$.
- (D) 0.81 is p^2 (the homozygous dominant frequency), not p.

Final Answer: $p = 1 - \sqrt{0.01} = 0.90 \Rightarrow$ C

Answer: (C) Go Back to Q16

Q17.

Solution

Concept — Pathogens and the diseases they cause: Amoebiasis is caused by *Entamoeba histolytica*; malaria by *Plasmodium* spp.; typhoid by *Salmonella typhi*; filariasis by *Wuchereria bancrofti*; ringworm by fungi (e.g. *Trichophyton*).

Step 1 — Find the correct pair: Amoebiasis — *Entamoeba histolytica* is the correct disease–pathogen match. Hence (A).

Why other options are wrong:

- (B) Malaria is caused by *Plasmodium*, not *Salmonella typhi*.
- (C) Typhoid is caused by *Salmonella typhi*, not *Wuchereria bancrofti*.
- (D) Ringworm is a fungal disease, not caused by *Plasmodium vivax*.

Final Answer: Amoebiasis — *Entamoeba histolytica* $\Rightarrow$ A

Answer: (A) Go Back to Q17

Q18.

Solution

Concept — Industrial microbial products: Penicillin (antibiotic) comes from *Penicillium notatum*; ethanol from *Saccharomyces cerevisiae*; citric acid from *Aspergillus niger*; acetic acid (vinegar) from *Acetobacter aceti*.

Step 1 — Find the correct match: *Penicillium notatum* yields the antibiotic penicillin. Hence (B).

Why other options are wrong:

- (A) *Saccharomyces cerevisiae* produces ethanol, not penicillin.
- (C) *Aspergillus niger* yields citric acid, not ethanol.
- (D) *Acetobacter aceti* yields acetic acid, not citric acid.

Final Answer: *Penicillium notatum* — penicillin $\Rightarrow$ B

Answer: (B) Go Back to Q18

Q19.

Solution

Concept — Bt cotton and the *cry* genes: *Bacillus thuringiensis* forms protein crystals containing an insecticidal protoxin. The *cry* gene is engineered into cotton so the plant makes the protoxin.

Step 1 — Mechanism of action: The inactive protoxin is ingested by the insect larva; the alkaline pH of the larval midgut solubilises and activates it, perforating the gut cells and killing the larva. Hence (D).

Why other options are wrong:

- (A) The toxin is harmful to insects, not to the bacterium.
- (B) The protoxin is inactive and does not kill the bacterium that stores it.
- (C) Bt is a specific protein toxin, not a broad-spectrum chemical like DDT.

Final Answer: The protoxin is activated by the alkaline insect gut, killing the larva $\Rightarrow \boxed{\text{D}}$

Answer: (D) Go Back to Q19

Q20.

Solution

Concept — Exponential vs logistic growth: With unlimited resources, growth is exponential (J-shaped), $\frac{dN}{dt} = rN$. With limited resources, growth is logistic (S-shaped), levelling off at the carrying capacity K.

Step 1 — Identify the logistic equation: The S-shaped curve II obeys $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right)$; as $N \to K$ the bracket $\to 0$ and growth stops. Hence (C).

Why other options are wrong:

- (A) $\frac{dN}{dt} = rN$ is the exponential (J-shaped) rate equation, curve I.
- (B) $N_t = N_0 e^{rt}$ is the integrated form of exponential growth, curve I.
- (D) $rN(N/K)$ would *accelerate* as N grows, which is not logistic.

Final Answer: Logistic growth is $\frac{dN}{dt} = rN\left(\frac{K-N}{K}\right) \Rightarrow \boxed{\text{C}}$

Answer: (C) Go Back to Q20

Answer Key

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