

NEST Biology Sample Paper – 5

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 student arranges the following taxonomic categories of a flowering plant. Which sequence correctly lists them in order of *decreasing* number of common (shared) characters among the organisms they contain?

- (A) Family → Order → Genus → Species
- (B) Order → Family → Genus → Species
- (C) Species → Genus → Family → Order
- (D) Genus → Species → Family → Order

Q2. Members of the phylum *Porifera* are characterised by a unique water-transport (canal) system. Which set of features correctly describes this group?

- (A) Water enters through ostia and leaves through the osculum; choanocytes line the canals; the body is supported by spicules

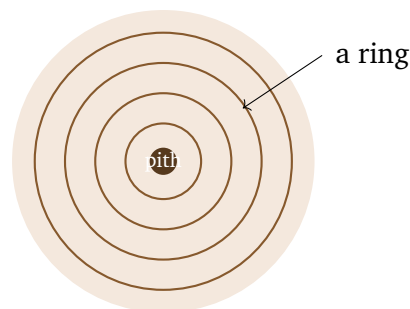


- (B) Water enters through the osculum and leaves through ostia; nematocysts line the canals; support is a calcareous shell
- (C) A muscular foot pumps water through gill slits; the body has a true coelom
- (D) Flame cells circulate water through a closed vascular system lined by cilia

Q3. A fruit that develops from a single flower having a multicarpellary, apocarpous (free) gynoecium, so that each free carpel forms a separate fruit-let borne on a common thalamus, is best described as

- (A) a simple fleshy berry
- (B) a composite (multiple) fruit
- (C) a parthenocarpic drupe
- (D) an aggregate fruit (an etaerio)

Q4. The diagram shows a cross-section through the woody stem of a temperate dicot tree, displaying alternating light and dark concentric bands.



annual rings (transverse section)

The activity responsible for adding these bands, and the meristem that produces them, are

- (A) primary growth produced by the apical meristem
- (B) elongation produced by the intercalary meristem
- (C) secondary growth produced by the vascular cambium (a lateral meristem)



(D) leaf formation produced by the marginal meristem

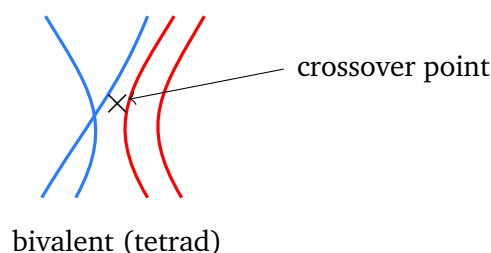
Q5. A metaphase chromosome in which the centromere lies very close to one end, so that one arm is extremely short and the other very long, is classified as

- (A) metacentric
- (B) submetacentric
- (C) acrocentric
- (D) telocentric

Q6. Which statement about fatty acids and the lipids built from them is correct?

- (A) Saturated fatty acids have no $C = C$ double bonds and tend to be solid at room temperature, whereas unsaturated fatty acids contain double bonds and tend to be liquid (oils)
- (B) Saturated fatty acids contain several $C = C$ double bonds and are always liquid
- (C) All fatty acids are water-soluble because of their long hydrocarbon tails
- (D) A triglyceride is formed by joining three glycerol molecules to a single fatty acid

Q7. The figure shows a pair of homologous chromosomes during a stage of meiosis I, with the maternal and paternal chromatids crossing over at a point.



The point of physical crossing marked in the figure is called a chiasma. The biological significance of this event in meiosis is that it

- (A) exactly doubles the chromosome number in each daughter cell
- (B) produces new combinations of alleles (recombination), increasing genetic variation
- (C) prevents any reduction in chromosome number, keeping cells diploid
- (D) replicates the DNA so that each chromatid becomes a full chromosome

Q8. In C_3 plants under hot, dry conditions with closed stomata, the enzyme RuBisCO increasingly acts as an oxygenase. Which statement about the resulting process (photorespiration) is correct?

- (A) It synthesises two molecules of a three-carbon sugar and stores extra ATP
- (B) It fixes additional CO_2 in the mesophyll, raising net photosynthetic yield
- (C) It occurs only in C_4 plants and never in C_3 plants
- (D) RuBisCO binds O_2 instead of CO_2 , producing one 3-carbon and one 2-carbon compound, with no sugar or ATP gain and a release of CO_2

Q9. A biennial variety of wheat will flower only if young seedlings are first exposed to a prolonged cold period, after which flowering is promoted by suitable day lengths. The cold-treatment requirement described here is

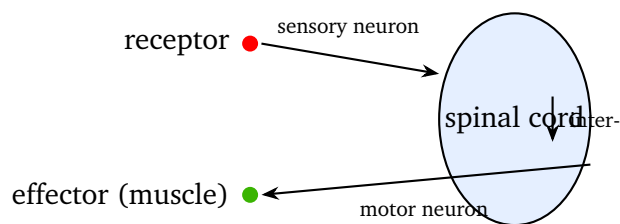
- (A) vernalization
- (B) photoperiodism
- (C) seed dormancy
- (D) apical dominance

Q10. During quiet inspiration in humans, which combination of events correctly increases the volume of the thoracic cavity?



- (A) The diaphragm relaxes and domes upward while the external intercostals relax
- (B) The diaphragm and external intercostals both relax, pulling the ribs down
- (C) The diaphragm contracts and flattens while the external intercostals contract, lifting the ribs and sternum
- (D) Only the internal intercostals contract, pushing the ribs inward

Q11. The diagram shows the pathway of a knee-jerk (stretch) reflex.



Which sequence correctly traces the impulse along a typical reflex arc?

- (A) Effector → motor neuron → spinal cord → sensory neuron → receptor
 - (B) Receptor → sensory neuron → interneuron (spinal cord) → motor neuron → effector
 - (C) Receptor → motor neuron → brain → sensory neuron → effector
 - (D) Sensory neuron → receptor → effector → motor neuron → spinal cord
- Q12.** Many flowering plants prevent self-pollination and promote cross-pollination. Which of the following is *not* an outbreeding (cross-pollination promoting) device?
- (A) Maturation of anthers and stigma at different times (dichogamy)
 - (B) Self-incompatibility that prevents a pollen grain from fertilising the same flower
 - (C) Anther and stigma placed at different positions (herkogamy)

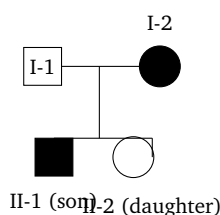


(D) Production of cleistogamous flowers that never open and always self-pollinate

Q13. In one assisted reproductive technique, an ovum collected from a donor is fused with sperm in the laboratory, and the resulting early embryo (up to the 8-blastomere stage) is then transferred into the fallopian tube of the recipient. This procedure is

- (A) ZIFT (zygote intrafallopian transfer)
- (B) GIFT (gamete intrafallopian transfer)
- (C) ICSI (intracytoplasmic sperm injection)
- (D) tubectomy

Q14. The pedigree shows the inheritance of an X-linked recessive trait (such as haemophilia). Filled symbols are affected; squares are males and circles are females.



A phenotypically normal man marries a woman who is a carrier for haemophilia. What is the expected proportion of their *sons* who will be haemophilic?

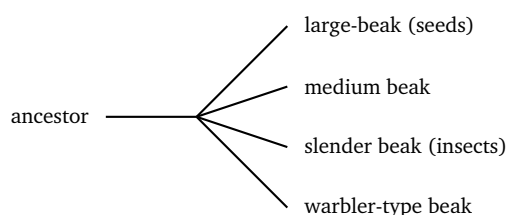
- (A) 0 (none of the sons can be affected)
- (B) all sons (100%) will be affected
- (C) one-half (50%) of the sons are expected to be affected
- (D) one-quarter (25%) of all children, sons and daughters alike, are affected

Q15. In the *lac* operon of *Escherichia coli*, when lactose is absent from the medium the operon is switched off. The molecular reason is that



- (A) the inducer (allolactose) binds RNA polymerase and blocks it
- (B) the active repressor protein binds the operator, preventing RNA polymerase from transcribing the structural genes
- (C) the structural genes z , y and a are physically deleted from the genome
- (D) lactose permanently destroys the promoter region

Q16. The branching diagram shows several finch species on the Galapagos Islands, all descended from a single ancestral seed-eating finch, that have evolved differently shaped beaks suited to different foods.



The evolutionary process by which one ancestral species diversifies into several forms adapted to different habitats, as shown, is called

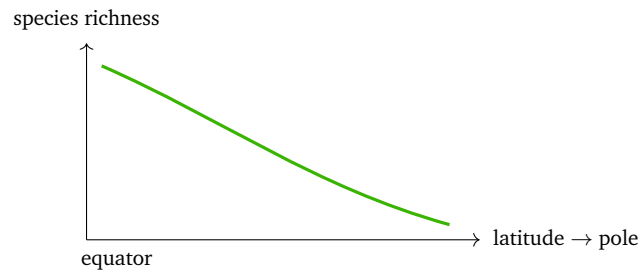
- (A) convergent evolution
 - (B) genetic drift in a single population
 - (C) industrial melanism
 - (D) adaptive radiation
- Q17.** Regarding the malarial parasite *Plasmodium*, which statement about its life cycle in the human host is correct?
- (A) Sporozoites enter the human blood through the bite of an infected female *Anopheles* mosquito, multiply in liver cells, then infect red blood cells; the periodic rupture of infected RBCs causes recurrent fever
 - (B) Adult worms are injected directly by the mosquito and lodge in the lungs
 - (C) The disease is caused by a bacterium that multiplies in the intestine



(D) Transmission occurs only by drinking contaminated water containing cysts

- Q18.** A farmer wishes to control insect pests and fungal root diseases using biological agents instead of chemicals. Which pairing of biocontrol agent with its target is correct?
- (A) *Trichoderma* is sprayed to kill mosquito larvae in ponds
 - (B) Ladybird beetles are used to fix atmospheric nitrogen in soil
 - (C) *Bacillus thuringiensis* produces toxins lethal to insect larvae, while *Trichoderma* (a free-living fungus) controls several fungal plant pathogens
 - (D) Baculoviruses are bacteria added to bread dough as a leavening agent
- Q19.** The human insulin marketed as Humulin is produced by inserting DNA encoding the two insulin chains into *Escherichia coli*. Which statement about this process is correct?
- (A) The bacterium naturally secretes mature human insulin without any genetic modification
 - (B) The A and B chains are produced (in *E. coli*) and then combined, with disulphide bonds formed, to yield functional insulin
 - (C) Insulin is extracted unchanged from slaughtered cattle and called Humulin
 - (D) A single continuous protein identical to mature insulin is made directly, needing no further processing or chain joining
- Q20.** The sketch shows how species richness changes with latitude from the equator toward the poles.





This pattern, together with the idea of conserving species, is best summarised by which statement?

- (A) Species richness increases steadily from the equator to the poles
- (B) Tropical regions are species-poor, so conservation should focus on polar zones
- (C) *In situ* conservation means breeding animals only in zoos and botanical gardens
- (D) Species richness is generally highest near the equator and declines toward the poles; protecting species in their natural habitat (e.g. biodiversity hotspots, national parks) is *in situ* conservation



Detailed Solutions

Q1.

Solution

Concept — Taxonomic hierarchy: As we move from species up to higher categories (genus, family, order ...), the number of organisms grouped increases but the number of *shared* characters *decreases*.

Step 1 — Order by shared characters: The smaller (lower) the category, the more characters its members share. So the most-shared to least-shared order is Species > Genus > Family > Order.

Why other options are wrong:

- (A) Family → Order → Genus → Species jumbles the hierarchy.
- (B) Order → Family ... is the order of *increasing* shared characters, not decreasing.
- (D) Genus before Species is out of rank order.

Final Answer: Species → Genus → Family → Order ⇒ C

Answer: (C) [Go Back to Q1](#)

Q2.

Solution

Concept — Phylum *Porifera*: Sponges have a water-canal system. Water enters through numerous minute pores (ostia), passes through canals lined by collar cells (choanocytes), and exits through a large opening (osculum). The body is supported by spicules or spongin fibres.

Step 1 — Match the features: Ostia (in) → osculum (out); choanocytes drive the current; spicules give support. Option (A) states exactly this.

Why other options are wrong:

- (B) Reverses the water flow and assigns nematocysts, which belong to *Cnidaria*.
- (C) Describes a mollusc/coelomate, not a sponge.
- (D) Flame cells and a closed vascular system are not poriferan features.

Final Answer: Ostia → choanocytes → osculum, with spicule support ⇒ A

Answer: (A) [Go Back to Q2](#)



Q3.

Solution

Concept — Aggregate fruit: When a single flower has an apocarpous gynoecium (many free carpels), each carpel ripens into a separate fruitlet, and the cluster borne on one thalamus is an aggregate fruit, also called an etaerio (e.g. strawberry, custard apple).

Step 1 — Identify: Multicarpellary + apocarpous + one flower → many fruitlets on a common thalamus = aggregate fruit (etaerio).

Why other options are wrong:

- (A) A simple berry forms from a single (often syncarpous) ovary.
- (B) A multiple (composite) fruit develops from a whole inflorescence, not one flower.
- (C) Parthenocarpic means seedless; a drupe is a single-carpel stony fruit.

Final Answer: It is an aggregate fruit (etaerio) ⇒

Answer: (D) [Go Back to Q3](#)

Q4.

Solution

Concept — Secondary growth and annual rings: In dicot stems, the lateral meristem called the vascular cambium adds secondary xylem (wood) inwards each year. Seasonal differences in wood (early wood vs late wood) appear as concentric annual rings; counting them estimates the tree's age.

Step 1 — Read the figure: Concentric bands around a central pith are annual rings, the hallmark of secondary growth by the vascular cambium.

Why other options are wrong:

- (A) The apical meristem causes *primary* growth (increase in length), not rings.
- (B) Intercalary meristems elongate internodes; they do not form rings.
- (D) Marginal meristems form leaf laminae, unrelated to wood rings.

Final Answer: Secondary growth by the vascular cambium ⇒

Answer: (C) [Go Back to Q4](#)



Q5.

Solution

Concept — Centromere position: Chromosome shape at metaphase depends on centromere location: metacentric (middle, equal arms), submetacentric (slightly off-centre), acrocentric (very near one end, one arm very short), telocentric (terminal centromere).

Step 1 — Match the description: “Very close to one end, one arm extremely short” is the definition of an acrocentric chromosome.

Why other options are wrong:

- (A) Metacentric has the centromere in the middle (equal arms).
- (B) Submetacentric is only slightly off-centre.
- (D) Telocentric has the centromere exactly at the terminal end (no short arm at all); the question still describes a short arm, so acrocentric fits.

Final Answer: The chromosome is acrocentric \Rightarrow

Answer: (C) [Go Back to Q5](#)

Q6.

Solution

Concept — Fatty acids: A fatty acid is a long hydrocarbon chain ending in a carboxyl group. If it has no $C = C$ double bond it is saturated; one or more double bonds make it unsaturated. Saturated fats pack tightly and are usually solid; unsaturated oils stay liquid.

Step 1 — Evaluate: Option (A) correctly contrasts saturated (no double bond, solid) with unsaturated (double bonds, liquid).

Why other options are wrong:

- (B) Saturated fatty acids have *no* double bonds; the statement is reversed.
- (C) The long hydrocarbon tail makes fatty acids hydrophobic, not water-soluble.
- (D) A triglyceride is one glycerol esterified with *three* fatty acids, not three glycerols with one acid.

Final Answer: Saturated = no double bonds/solid; unsaturated = double bonds/liquid \Rightarrow

Answer: (A) [Go Back to Q6](#)



Q7.

Solution

Concept — Crossing over and chiasmata: During pachytene of meiosis I, homologous chromosomes pair (synapsis) to form bivalents; non-sister chromatids exchange segments at chiasmata. This recombines maternal and paternal alleles.

Step 1 — Significance: The new allele combinations created at chiasmata are a major source of genetic variation, the raw material for evolution.

Why other options are wrong:

- (A) Crossing over does not double the chromosome number; meiosis actually halves it.
- (C) Meiosis reduces the number from diploid to haploid; crossing over does not keep cells diploid.
- (D) DNA replication happens in S-phase before meiosis, not at the chiasma.

Final Answer: Chiasmata produce recombination, increasing variation \Rightarrow **B**

Answer: (B) [Go Back to Q7](#)

Q8.

Solution

Concept — Photorespiration (C_2 cycle): When O_2 is high and CO_2 low (stomata closed), RuBisCO fixes O_2 instead of CO_2 . RuBP is split into one 3-carbon (3-PGA) and one 2-carbon (phosphoglycolate) molecule. No sugar and no ATP are produced, and CO_2 is released, so the process is wasteful.

Step 1 — Match: Option (D) states exactly this oxygenase outcome.

Why other options are wrong:

- (A) No extra ATP or sugar is gained in photorespiration.
- (B) It lowers, not raises, net photosynthetic yield.
- (C) C_4 plants largely *avoid* photorespiration; it is prominent in C_3 plants.

Final Answer: O_2 fixed \rightarrow 3-C + 2-C compounds, no sugar/ATP, CO_2 lost \Rightarrow **D**

Answer: (D) [Go Back to Q8](#)



Q9.

Solution

Concept — Vernalization: Some plants flower only after a spell of low temperature applied to seeds or seedlings; this cold requirement is called vernalization (seen in winter varieties of wheat and many biennials).

Step 1 — Identify: The cold-treatment prerequisite for flowering described here is vernalization.

Why other options are wrong:

- (B) Photoperiodism is the response to the relative length of day and night, not cold.
- (C) Seed dormancy is a resting state preventing germination, not a flowering trigger.
- (D) Apical dominance is suppression of lateral buds by the shoot tip.

Final Answer: The cold requirement is vernalization ⇒

Answer: (A) [Go Back to Q9](#)

Q10.

Solution

Concept — Mechanism of inspiration: Inspiration is an active process. The diaphragm contracts and flattens (moving down), and the external intercostal muscles contract, lifting the ribs and sternum. This enlarges the thoracic cavity, lowers intra-pulmonary pressure below atmospheric, and air flows in.

Step 1 — Match: Option (C) gives both correct muscle actions that increase thoracic volume.

Why other options are wrong:

- (A) A relaxing, doming diaphragm describes *expiration*, which reduces volume.
- (B) Relaxation of both muscles lowers the ribs (*expiration*).
- (D) Internal intercostals act in forced expiration, decreasing volume.

Final Answer: Diaphragm and external intercostals contract, enlarging the thorax ⇒

Answer: (C) [Go Back to Q10](#)



Q11.

Solution

Concept — Reflex arc: A reflex is a quick, involuntary response routed through the spinal cord. The pathway is: receptor → sensory (afferent) neuron → interneuron in the spinal cord → motor (efferent) neuron → effector (muscle or gland).

Step 1 — Trace the figure: Stimulus at the receptor travels in via the sensory neuron, relays through the spinal cord, and returns via the motor neuron to the muscle, matching option (B).

Why other options are wrong:

- (A) Reverses the whole direction of conduction.
- (C) A simple spinal reflex does not route through the brain, and the neuron order is wrong.
- (D) Places the sensory neuron before the receptor, which is impossible.

Final Answer: Receptor → sensory → interneuron → motor → effector ⇒ **B**

Answer: (B) [Go Back to Q11](#)

Q12.

Solution

Concept — Outbreeding devices: To avoid self-pollination plants use dichogamy (different timing of anther and stigma maturation), herkogamy (spatial separation), and self-incompatibility (biochemical block to self-pollen). Cleistogamy is the *opposite*: closed flowers that ensure self-pollination.

Step 1 — Find the odd one out: Cleistogamous flowers always self-pollinate, so they are *not* an outbreeding device.

Why other options are wrong:

- (A) Dichogamy is a genuine outbreeding device.
- (B) Self-incompatibility promotes cross-pollination.
- (C) Herkogamy (spatial separation) is an outbreeding device.

Final Answer: Cleistogamy is not an outbreeding device ⇒ **D**

Answer: (D) [Go Back to Q12](#)



Q13.

Solution

Concept — ART terms: ZIFT transfers a *zygote or early embryo* (up to 8 blastomeres) into the fallopian tube; GIFT transfers *gametes*; ICSI directly injects a sperm into an ovum; IVF fertilises outside and then transfers the embryo.

Step 1 — Match the description: “Embryo up to 8 blastomeres transferred into the fallopian tube” is exactly ZIFT.

Why other options are wrong:

- (B) GIFT transfers gametes (sperm and egg), not an early embryo.
- (C) ICSI is a fertilisation step (sperm injected into ovum), not an embryo transfer.
- (D) Tubectomy is a female sterilisation method, not an ART.

Final Answer: The procedure is ZIFT \Rightarrow

Answer: (A) [Go Back to Q13](#)

Q14.

Solution

Concept — X-linked recessive inheritance: Haemophilia is X-linked recessive. A carrier mother is $X^H X^h$; a normal father is $X^H Y$. Sons receive the Y from father and one X from mother.

Step 1 — Cross the sons: Mother’s eggs are X^H or X^h (1:1). Sons are $X^H Y$ (normal) or $X^h Y$ (haemophilic), in a 1:1 ratio.

Step 2 — Proportion of affected sons: Half of the sons are expected to be haemophilic (50%). Daughters get a normal X^H from the father, so none are affected (some are carriers).

Why other options are wrong:

- (A) Half the sons *do* get the X^h , so it is not zero.
- (B) Only half, not all, sons are affected.
- (D) Affected individuals here are sons only, not 25% of all children equally.

Final Answer: 50% of sons are expected to be haemophilic \Rightarrow

Answer: (C) [Go Back to Q14](#)



Q15.

Solution

Concept — *lac* operon (negative control): In the absence of lactose, the *lac* repressor (product of the *i* gene) is active and binds the operator. This blocks RNA polymerase from transcribing the structural genes *z*, *y*, *a*, so the operon is off. When lactose (its isomer allolactose) is present, it acts as an inducer, binds the repressor, inactivates it, and transcription begins.

Step 1 — Match: Option (B) correctly states that the active repressor on the operator switches the operon off.

Why other options are wrong:

- (A) The inducer binds the repressor, not RNA polymerase.
- (C) The structural genes are not deleted; they are simply not transcribed.
- (D) Lactose does not destroy the promoter; it induces the operon.

Final Answer: Active repressor binds the operator, blocking transcription ⇒ B

Answer: (B) [Go Back to Q15](#)

Q16.

Solution

Concept — Adaptive radiation: When one ancestral species diversifies into many forms, each adapted to a different ecological niche within a region, the process is adaptive radiation. Darwin's finches of the Galapagos, with beaks shaped for different diets, are the classic example.

Step 1 — Read the phylogeny: A single ancestor branching into several beak forms for different foods is adaptive radiation.

Why other options are wrong:

- (A) Convergent evolution is *unrelated* lineages evolving similar features, the opposite case.
- (B) Genetic drift is random allele-frequency change, not the diversification shown.
- (C) Industrial melanism is a single-trait selection example (peppered moth), not radiation.

Final Answer: The process is adaptive radiation ⇒ D

Answer: (D) [Go Back to Q16](#)



Q17.

Solution

Concept — Life cycle of *Plasmodium*: Malaria is caused by *Plasmodium*, transmitted by the bite of an infected female *Anopheles* mosquito. Sporozoites enter the blood, multiply in liver cells, then infect red blood cells. Synchronous rupture of infected RBCs releases the toxin haemozoin, causing recurrent chills and high fever.

Step 1 — Match: Option (A) describes this sequence accurately.

Why other options are wrong:

- (B) *Plasmodium* is a protozoan, not an injected adult worm.
- (C) Malaria is not a bacterial intestinal disease.
- (D) It is mosquito-borne, not waterborne by cysts.

Final Answer: Sporozoites → liver → RBCs; RBC rupture causes fever ⇒ **A**

Answer: (A) [Go Back to Q17](#)

Q18.

Solution

Concept — Biocontrol agents: *Bacillus thuringiensis* (Bt) produces crystal proteins toxic to specific insect larvae; *Trichoderma* is a free-living fungus that controls many soil-borne plant fungal pathogens; ladybird beetles eat aphids; Baculoviruses are species-specific insect viruses used as narrow-spectrum insecticides.

Step 1 — Find the correct pairing: Option (C) correctly pairs Bt with insect larvae and *Trichoderma* with fungal pathogens.

Why other options are wrong:

- (A) *Trichoderma* controls fungi, not mosquito larvae.
- (B) Ladybirds prey on aphids; they do not fix nitrogen.
- (D) Baculoviruses are viruses used against insects, not bread leavening (that is yeast).

Final Answer: Bt kills insect larvae; *Trichoderma* controls fungal pathogens ⇒ **C**

Answer: (C) [Go Back to Q18](#)



Q19.

Solution

Concept — Recombinant human insulin (Humulin): Mature insulin has two short polypeptides, chain A and chain B, linked by disulphide bridges. In the genetically engineered process, DNA for the A and B chains is introduced into *E. coli*; the two chains are produced separately and then combined, with disulphide bonds formed, to give functional human insulin.

Step 1 — Match: Option (B) describes this two-chain production and assembly correctly.

Why other options are wrong:

- (A) Unmodified *E. coli* cannot make human insulin.
- (C) Humulin is recombinant human insulin, not unchanged cattle insulin.
- (D) The chains are made separately and then joined; it is not a single ready-made chain.

Final Answer: A and B chains made in *E. coli*, then joined by disulphide bonds ⇒

[Go Back to Q19](#)

Q20.

Solution

Concept — Latitudinal diversity gradient and conservation: Species richness is generally greatest in the tropics (near the equator) and decreases toward the poles. To preserve this diversity, *in situ* conservation protects species in their natural habitat (biodiversity hotspots, national parks, sanctuaries), while *ex situ* methods (zoos, botanical gardens, seed banks) protect them away from their habitat.

Step 1 — Read the curve: Richness is high at the equator and falls toward the pole, exactly as in option (D), which also defines *in situ* conservation correctly.

Why other options are wrong:

- (A) Richness decreases (not increases) toward the poles.
- (B) Tropics are species-rich; the conclusion is reversed.
- (C) Zoos and botanical gardens are *ex situ*, not *in situ*, methods.

Final Answer: Richness peaks at the equator; *in situ* = in-habitat protection ⇒

[Go Back to Q20](#)



Answer Key

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

