NEET-UG Biology Sample Paper-22

Duration: 1 Hour **Maximum Marks: 360**

Instructions

- This paper contains a total of **90** Multiple Choice Questions.
- Each correct answer carries **+4 marks**.
- Each incorrect answer carries **-1 mark**.
- No negative marking for unattempted questions.

Q1. A plant is written as magnifera indica in a student notebook. Which correction follows the rules of binomial nomenclature most accurately?

(A) Magnifera Indica

(B) magnifera Indica

(C) Mangifera indica

(D) Mangifera Indica

Q2. Which feature best supports the placement of methanogens under Archaebacteria rather than Eubacteria?

(A) Presence of chlorophyll a

(B) Unique cell wall and membrane composition adapted to anaerobic habitats

(C) Presence of true nucleus

(D) Multicellular filamentous body

Q3. A unicellular eukaryote has two flagella, a stiff cellulose plate covering and causes red tides. It most probably belongs to which group?

(A) Euglenoids

(B) Diatoms

(C) Dinoflagellates

(D) Slime moulds

Q4. In an alga, the dominant plant body is haploid and the diploid zygote undergoes meiosis to restore haploid condition. The life cycle is best described as:

(A) Diplontic

(B) Haplontic

(C) Haplo-diplontic

(D) Triphasic

Q5. Which statement correctly compares bryophytes and pteridophytes?

(A) Both lack multicellular sex organs

(B) Bryophytes have vascular tissue but pteridophytes lack it

(C) Bryophytes have dominant gametophyte while pteridophytes have dominant sporophyte

(D) Both produce seeds after fertilization

Q6. Which feature is characteristic of gymnosperms but not angiosperms?

(A) Seeds enclosed within fruits

(B) Presence of flowers with double fertilization

(C) Naked ovules borne on megasporophylls

(D) Companion cells in phloem

Q7. An animal is triploblastic, bilaterally symmetrical, segmented and has a true coelom with nephridia for excretion. It is most likely a member of:

(A) Platyhelminthes

(B) Aschelminthes

(C) Annelida

(D) Cnidaria

Q8. Which feature is present at least during some stage of life in all chordates?

(A) Chitinous exoskeleton

(B) Notochord

(C) Water vascular system

(D) Malpighian tubules

Q9. A flower has five petals united into a tube and stamens attached to the petals. The condition of petals is called:

(A) Polypetalous

(B) Gamopetalous

(C) Polysepalous

(D) Apocarpous

Q10. In a dicot stem undergoing secondary growth, the tissue mainly responsible for increasing girth is:

(A) Intercalary meristem

(B) Vascular cambium

(C) Apical meristem

(D) Procambium only

Q11. Which epithelial tissue is most suitable for rapid diffusion of gases in alveoli?

(A) Simple squamous epithelium

(B) Ciliated columnar epithelium

(C) Stratified cuboidal epithelium

(D) Glandular epithelium

Q12. In cockroach, oxygen is transported to tissues mainly through:

(A) Haemoglobin in blood

(B) Tracheal tubes opening through spiracles

(C) Closed blood vessels

(D) Book lungs

Q13. The contractile unit present between two successive Z-lines in striated muscle is:

(A) Myofibril

(B) Sarcomere

(C) Actin filament only

(D) Sarcoplasm

Q14. Which statement about a typical bacterial cell is correct?

(A) It contains a membrane-bound nucleus

(B) It has 80S ribosomes in cytoplasm

(C) Its genetic material lies in a nucleoid region

(D) It lacks plasma membrane

Q15. Which organelle is directly involved in packaging and modification of proteins for secretion?

(A) Golgi apparatus

(B) Ribosome

(C) Peroxisome

(D) Nucleolus

Q16. A disaccharide gives no positive test with Benedict's reagent because both its anomeric carbons are involved in glycosidic linkage. The sugar is:

(A) Maltose

(B) Lactose

(C) Sucrose

(D) Cellobiose

Q17. A competitive inhibitor affects enzyme action by:

(A) Destroying enzyme permanently

(B) Binding to active site and competing with substrate

(C) Increasing activation energy by denaturing enzyme

(D) Binding only to product molecules

Q18. During which phase of interphase does DNA replication take place?

(A) G1 phase

(B) S phase

(C) G2 phase

(D) G0 phase

Q19. If a cell has 20 chromosomes at metaphase of mitosis, how many chromosomes will each daughter cell receive after cytokinesis?

(A) 10

(B) 20

(C) 40

(D) 5

Q20. Crossing over occurs between which chromatids during pachytene?

(A) Sister chromatids of same chromosome

(B) Non-sister chromatids of homologous chromosomes

(C) Chromatids of non-homologous chromosomes only

(D) Chromatids after centromere splitting

Q21. The primary constriction of a chromosome where spindle fibres attach is called:

(A) Telomere

(B) Centromere

(C) Satellite

(D) Nucleolus organizer

Q22. Which statement is incorrect for facilitated diffusion?

(A) It requires specific membrane proteins

(B) It shows saturation

(C) It moves solutes down concentration gradient

(D) It requires ATP hydrolysis

Q23. Association of histone H1 with nucleosome is mainly related to:

(A) DNA condensation into higher order chromatin

(B) DNA replication origin formation

(C) mRNA splicing

(D) Ribosome subunit assembly

Q24. Adding solute to pure water affects water potential by:

(A) Making it more positive

(B) Making it more negative

(C) Keeping it unchanged

(D) Increasing pressure potential only

Q25. Nitrogenase enzyme in root nodules requires which condition for efficient activity?

(A) High oxygen concentration

(B) Strictly aerobic cytoplasm

(C) Low oxygen environment maintained by leghemoglobin

(D) Absence of ATP

Q26. In C4 plants, the first stable product of carbon dioxide fixation in mesophyll cells is:

(A) 3-phosphoglyceric acid

(B) Oxaloacetic acid

(C) Ribulose bisphosphate

(D) Glucose

Q27. Photosystem II is mainly located in:

(A) Stroma only

(B) Grana thylakoids

(C) Outer chloroplast membrane

(D) Mitochondrial matrix

Q28. The terminal electron acceptor in aerobic mitochondrial electron transport chain is:

(A) NAD+

(B) Oxygen

(C) Cytochrome c

(D) FAD

Q29. The conversion of glucose to glucose-6-phosphate in glycolysis is catalysed by:

(A) Hexokinase

(B) Aldolase

(C) Enolase

(D) Pyruvate kinase

Q30. Which plant hormone is most closely associated with seed dormancy and stomatal closure during water stress?

(A) Gibberellin

(B) Abscisic acid

(C) Cytokinin

(D) Auxin

Q31. A short-day plant flowers when:

(A) Day length exceeds critical duration

(B) Night length is longer than critical duration

(C) Light is completely absent throughout life

(D) Only red light is supplied continuously

Q32. Human dentition is correctly described as:

(A) Thecodont, diphyodont and heterodont

(B) Pleurodont, monophyodont and homodont

(C) Acrodont, diphyodont and homodont

(D) Thecodont, monophyodont and homodont

Q33. In systemic arterial blood of a healthy person, approximate partial pressures are:

(A) pO_2 40 mm Hg and pCO_2 45 mm Hg

(B) pO_2 95 mm Hg and pCO_2 40 mm Hg

(C) pO_2 104 mm Hg and pCO_2 45 mm Hg

(D) pO_2 40 mm Hg and pCO_2 40 mm Hg

Q34. Emphysema primarily reduces respiratory efficiency because:

(A) Bronchioles become completely ossified

(B) Alveolar walls are damaged and surface area decreases

(C) Pleural fluid increases oxygen solubility

(D) Diaphragm becomes voluntary

Q35. Erythroblastosis fetalis is most likely when:

(A) Rh-positive mother carries Rh-negative fetus

(B) Rh-negative mother carries Rh-positive fetus

(C) Both mother and fetus are Rh-negative

(D) Both mother and fetus are Rh-positive

Q36. The second heart sound is mainly produced by closure of:

(A) Atrioventricular valves

(B) Semilunar valves

(C) Foramen ovale

(D) Sinoatrial node

Q37. Which part of nephron is impermeable to water but allows electrolyte movement?

(A) Descending limb of loop of Henle

(B) Ascending limb of loop of Henle

(C) Bowman's capsule

(D) Proximal convoluted tubule

Q38. Antidiuretic hormone mainly increases water reabsorption from:

(A) Glomerulus only

(B) Descending limb only

(C) Distal tubule and collecting duct

(D) Proximal tubule only

Q39. A chemical released at many neuromuscular junctions to transmit impulse is:

(A) Acetylcholine

(B) Collagen

(C) Insulin

(D) Pepsin

Q40. Myasthenia gravis causes fatigue mainly because antibodies affect:

(A) Actin filament synthesis

(B) Acetylcholine receptors at neuromuscular junction

(C) Bone calcium deposition

(D) Myelin formation in brain

Q41. How many pairs of floating ribs are present in humans?

(A) One pair

(B) Two pairs

(C) Three pairs

(D) Seven pairs

Q42. Which endocrine gland is called the master gland because it regulates several other endocrine glands?

(A) Thyroid

(B) Pituitary

(C) Adrenal medulla

(D) Pineal

Q43. Which structure functions as a temporary endocrine gland after ovulation?

(A) Corpus luteum

(B) Corpus callosum

(C) Graafian follicle before ovulation

(D) Zona pellucida

Q44. Corneal transplantation is rarely rejected mainly because the cornea:

(A) Has no direct blood supply

(B) Contains no living cells at all

(C) Produces antibodies itself

(D) Has abundant lymph vessels

Q45. The proximal end of the filament of a typical stamen is attached to:

(A) Anther

(B) Connective

(C) Thalamus or petal

(D) Stigma

Q46. After pollen tube discharge in angiosperms, the two male gametes usually:

(A) Both fuse with egg cell

(B) One fuses with egg and the other with central cell nuclei

(C) Both degenerate inside synergid

(D) One fuses with antipodal cell and other with synergid

Q47. In maize grain, the seed coat is inseparably fused with:

(A) Endosperm

(B) Fruit wall

(C) Embryo axis

(D) Scutellum

Q48. The immediate hormonal event that directly triggers ovulation is:

(A) Sharp fall in estrogen alone

(B) Surge of luteinizing hormone

(C) High level of prolactin

(D) Continuous secretion of oxytocin

Q49. In humans, the secondary oocyte completes meiosis II:

(A) Before ovulation

(B) Only after sperm entry

(C) During fetal life

(D) After implantation

Q50. The common terminal duct for urinary and reproductive systems in human males is:

(A) Ureter

(B) Urethra

(C) Vas deferens

(D) Epididymis

Q51. Which statement about intrauterine devices is correct?

(A) They increase phagocytosis of sperms in uterus

(B) They are always self-inserted

(C) They permanently stop gamete formation

(D) They are used only after menopause

Q52. Which pair represents hormone-releasing intrauterine devices?

(A) Lippes loop and CuT

(B) CuT and Multiload 375

(C) Progestasert and LNG-20

(D) Diaphragm and vault

Q53. In IVF, an embryo with more than 8 blastomeres is usually transferred into the:

(A) Fallopian tube

(B) Uterus

(C) Ovary

(D) Cervix only

Q54. Which of the following is a natural or traditional contraceptive method?

(A) Copper-T

(B) Lactational amenorrhea

(C) Vasectomy

(D) Oral pills

Q55. Which character was not among the seven contrasting traits studied by Mendel in pea?

(A) Plant height

(B) Seed colour

(C) Pod shape

(D) Leaf trichome type

Q56. In a cross Tt × Tt, what is the probability of obtaining a homozygous recessive offspring?

(A) 1/4

(B) 1/2

(C) 3/4

(D) 1

Q57. Turner's syndrome in human females is represented by:

(A) 44 + XXY

(B) 44 + XO

(C) 44 + XXX

(D) 44 + XYY

Q58. If both parents are carriers for sickle-cell anaemia, what fraction of children are expected to be affected?

(A) 1/4

(B) 1/2

(C) 3/4

(D) All

Q59. The first genetic map using recombination frequency was prepared by:

(A) Gregor Mendel

(B) Alfred Sturtevant

(C) Hugo de Vries

(D) F. Griffith

Q60. A nucleosome core particle contains DNA wrapped around:

(A) One histone H1 molecule only

(B) Histone octamer

(C) RNA polymerase complex

(D) DNA ligase and helicase

Q61. In lac operon, the structural gene y codes for:

(A) Beta-galactosidase

(B) Permease

(C) Transacetylase

(D) Repressor

Q62. Which codon usually serves as the initiation codon in translation?

(A) UAA

(B) UAG

(C) AUG

(D) UGA

Q63. Translation refers to the process in which:

(A) DNA is copied into DNA

(B) DNA forms RNA

(C) mRNA sequence directs protein synthesis

(D) RNA forms DNA

Q64. Which statement about the human genome is incorrect?

(A) Only a small percentage codes for proteins

(B) Repetitive sequences form a large portion

(C) Chromosome 1 has many genes

(D) More than 98 percent codes for proteins

Q65. If frequency of allele A is 0.6 and allele a is 0.4, the expected heterozygote frequency under Hardy-Weinberg equilibrium is:

(A) 0.16

(B) 0.24

(C) 0.48

(D) 0.36

Q66. Evolution of many species from a common ancestor into different adaptive zones is called:

(A) Genetic drift

(B) Adaptive radiation

(C) Stabilizing selection

(D) Founder effect only

Q67. The presence of homologous forelimbs in whale, bat and human is best explained as evidence for:

(A) Convergent evolution

(B) Divergent evolution

(C) Artificial selection

(D) Genetic equilibrium

Q68. According to Hugo de Vries, mutations are generally:

(A) Small and directional

(B) Large, sudden and random

(C) Always beneficial

(D) Always recessive and lethal

Q69. Industrial melanism in moths illustrates:

(A) Artificial hybridization

(B) Natural selection acting on pre-existing variation

(C) Inheritance of acquired characters

(D) Absence of mutation

Q70. Inflammation is a part of which line of defence?

(A) First physical barrier only

(B) Second innate defence

(C) Humoral adaptive immunity only

(D) Passive immunity

Q71. Which disease is caused by a protozoan parasite transmitted by female Anopheles mosquito?

(A) Dengue

(B) Malaria

(C) Typhoid

(D) Ascariasis

Q72. Large holes in Swiss cheese are produced due to carbon dioxide released by:

(A) Propionibacterium shermanii

(B) Saccharomyces cerevisiae

(C) Rhizobium

(D) Lactobacillus only

Q73. Cyclosporin A, an immunosuppressive bioactive molecule, is produced by:

(A) Trichoderma polysporum

(B) Monascus purpureus

(C) Streptococcus

(D) Aspergillus niger

Q74. During secondary sewage treatment, flocs mainly consist of:

(A) Viruses and chemical precipitates

(B) Aerobic bacteria associated with fungal filaments

(C) Only algae

(D) Only suspended sand particles

Q75. Use of Trichoderma in agriculture is mainly associated with:

(A) Biological control of plant pathogens

(B) Production of antibiotics in humans

(C) Increasing blood clotting

(D) Inducing malaria immunity

Q76. Restriction endonucleases are called molecular scissors because they:

(A) Join DNA fragments

(B) Cut DNA at specific recognition sequences

(C) Replicate plasmids independently

(D) Synthesize RNA primers

Q77. During agarose gel electrophoresis, DNA fragments move towards the anode because DNA is:

(A) Positively charged

(B) Negatively charged

(C) Neutral at pH 7

(D) Hydrophobic

Q78. A palindromic DNA sequence is one that:

(A) Codes only for histones

(B) Reads same in 5' to 3' direction on both complementary strands

(C) Contains only adenine and thymine

(D) Cannot be cut by restriction enzymes

Q79. Which component is not essential for polymerase chain reaction?

(A) Template DNA

(B) Primers

(C) Thermostable DNA polymerase

(D) DNA ligase

Q80. Which feature of a plasmid vector allows selection of transformed host cells?

(A) Antibiotic resistance marker

(B) Centromere

(C) Telomere

(D) Nuclear membrane

Q81. The first transgenic cow Rosie produced milk enriched with:

(A) Human alpha-lactalbumin

(B) Insulin

(C) Human haemoglobin

(D) Interferon gamma

Q82. RNA interference protects plants against some nematodes by:

(A) Amplifying nematode DNA

(B) Silencing specific mRNA using complementary dsRNA

(C) Destroying all ribosomes permanently

(D) Increasing auxin synthesis

Q83. The first clinical gene therapy was attempted for deficiency of:

(A) Adenosine deaminase

(B) Insulin receptor

(C) Haemoglobin alpha chain

(D) Thyroxine

Q84. In a pond ecosystem, zooplankton usually function as:

(A) Producers

(B) Primary consumers

(C) Secondary consumers

(D) Decomposers only

Q85. The biomass present at a trophic level at a given time is called:

(A) Standing crop

(B) Standing state

(C) Gross primary productivity

(D) Ecological efficiency

Q86. Decomposition is slowest when detritus is rich in:

(A) Sugars and nitrogen

(B) Lignin and chitin

(C) Water-soluble carbohydrates

(D) Simple proteins

Q87. The most effective approach for conserving biodiversity in its natural habitat is:

(A) In situ conservation

(B) Cryopreservation only

(C) Botanical garden only

(D) Zoo only

Q88. The term Evil Quartet refers to:

(A) Four major causes of biodiversity loss

(B) Four major nutrient cycles

(C) Four levels of ecological pyramid

(D) Four greenhouse layers

Q89. Which of the following is not considered a major greenhouse gas?

(A) Carbon dioxide

(B) Methane

(C) Nitrous oxide

(D) Sulphur dioxide

Q90. World Ozone Day is observed on:

(A) 5 June

(B) 16 September

(C) 22 April

(D) 1 December

Detailed Solutions

Q1.

Solution

Concept: Binomial nomenclature - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Binomial nomenclature. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Mangifera indica. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Mangifera indica

Answer: (C)

Q2.

Solution

Concept: Biological classification - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Biological classification. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Unique cell wall and membrane composition adapted to anaerobic habitats. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Unique cell wall and membrane composition adapted to anaerobic habitats

Answer: (B)

Q3.

Solution

Concept: Kingdom Protista - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Kingdom Protista. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Dinoflagellates. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Dinoflagellates

Answer: (C)

Q4.

Solution

Concept: Algae life cycles - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Algae life cycles. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Haplontic. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Haplontic

Answer: (B)

Q5.

Solution

Concept: Bryophytes and pteridophytes - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Bryophytes and pteridophytes. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Bryophytes have dominant gametophyte while pteridophytes have dominant sporophyte. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Bryophytes have dominant gametophyte while pteridophytes have dominant sporophyte

Answer: (C)

Q6.

Solution

Concept: Gymnosperms and angiosperms - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Gymnosperms and angiosperms. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Naked ovules borne on megasporophylls. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Naked ovules borne on megasporophylls

Answer: (C)

Q7.

Solution

Concept: Animal classification - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Animal classification. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Annelida. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Annelida

Answer: (C)

Q8.

Solution

Concept: Chordate features - Diversity in Living World.

Solution: Step 1: **Identify the concept.** The question belongs to Chordate features. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Notochord. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Notochord

Answer: (B)

Q9.

Solution

Concept: Morphology of flowering plants - Structural Organisation (Plants & Animals).

Solution: Step 1: **Identify the concept.** The question belongs to Morphology of flowering plants. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Gamopetalous. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Gamopetalous

Answer: (B)

Q10.

Solution

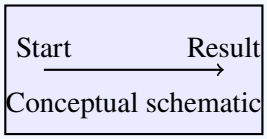
Concept: Plant anatomy - Structural Organisation (Plants & Animals).

Solution: Step 1: **Identify the concept.** The question belongs to Plant anatomy. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Vascular cambium. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Vascular cambium

Answer: (B)

Q11.

Solution

Concept: Tissues in animals - Structural Organisation (Plants & Animals).

Solution: Step 1: **Identify the concept.** The question belongs to Tissues in animals. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Simple squamous epithelium. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Simple squamous epithelium

Answer: (A)

Q12.

Solution

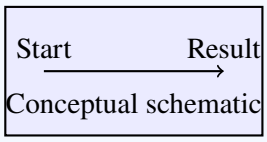
Concept: Cockroach anatomy - Structural Organisation (Plants & Animals).

Solution: Step 1: **Identify the concept.** The question belongs to Cockroach anatomy. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Tracheal tubes opening through spiracles. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Tracheal tubes opening through spiracles

Answer: (B)

Q13.

Solution

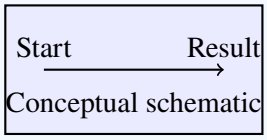
Concept: Muscle tissue - Structural Organisation (Plants & Animals).

Solution: Step 1: **Identify the concept.** The question belongs to Muscle tissue. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Sarcomere. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Sarcomere

Answer: (B)

Q14.

Solution

Concept: Prokaryotic cell - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Prokaryotic cell. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Its genetic material lies in a nucleoid region. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Its genetic material lies in a nucleoid region

Answer: (C)

Q15.

Solution

Concept: Cell organelles - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Cell organelles. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Golgi apparatus. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Golgi apparatus

Answer: (A)

Q16.

Solution

Concept: Biomolecules - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Biomolecules. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Sucrose. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Sucrose

Answer: (C)

Q17.

Solution

Concept: Enzymes - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Enzymes. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Binding to active site and competing with substrate. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Binding to active site and competing with substrate

Answer: (B)

Q18.

Solution

Concept: Cell cycle - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Cell cycle. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) S phase. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

S phase

Answer: (B)

Q19.

Solution

Concept: Mitosis - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Mitosis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) 20. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

$$\boxed{20}$$

Answer: (B)

Q20.

Solution

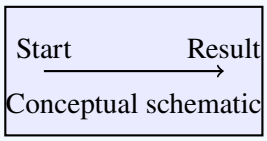
Concept: Meiosis - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Meiosis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Non-sister chromatids of homologous chromosomes. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

$$\boxed{\text{Non-sister chromatids of homologous chromosomes}}$$

Answer: (B)

Q21.

Solution

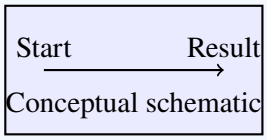
Concept: Chromosome structure - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Chromosome structure. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Centromere. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Centromere

Answer: (B)

Q22.

Solution

Concept: Cell membrane transport - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Cell membrane transport. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (D) It requires ATP hydrolysis. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (D) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

It requires ATP hydrolysis

Answer: (D)

Q23.

Solution

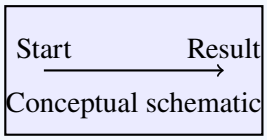
Concept: Nucleus and chromatin - Cell Structure and Function.

Solution: Step 1: **Identify the concept.** The question belongs to Nucleus and chromatin. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) DNA condensation into higher order chromatin. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

DNA condensation into higher order chromatin

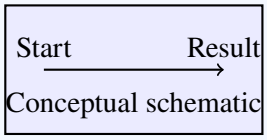
Answer: (A)

Q24.

Solution

Concept: Transport in plants - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Transport in plants. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.
Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Making it more negative. This option directly matches the defining feature required in the question.
Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.
Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Making it more negative

Answer: (B)

Q25.

Solution

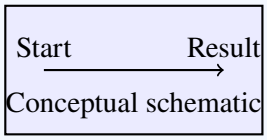
Concept: Mineral nutrition - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Mineral nutrition. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Low oxygen environment maintained by leghemoglobin. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Low oxygen environment maintained by leghemoglobin

Answer: (C)

Q26.

Solution

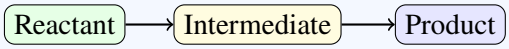
Concept: Photosynthesis - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Photosynthesis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Oxaloacetic acid. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Pathway sequence used in the concept

Final Answer:

Oxaloacetic acid

Answer: (B)

Q27.

Solution

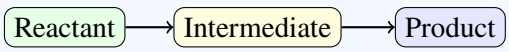
Concept: Photosystems - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Photosystems. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Grana thylakoids. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Pathway sequence used in the concept

Final Answer:

Grana thylakoids

Answer: (B)

Q28.

Solution

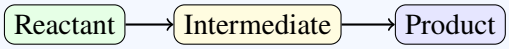
Concept: Respiration - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Respiration. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Oxygen. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Pathway sequence used in the concept

Final Answer:

Oxygen

Answer: (B)

Q29.

Solution

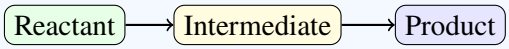
Concept: Glycolysis - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Glycolysis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Hexokinase. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Pathway sequence used in the concept

Final Answer:

Hexokinase

Answer: (A)

Q30.

Solution

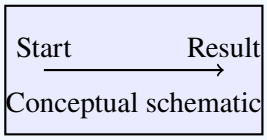
Concept: Plant growth regulators - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Plant growth regulators. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Abscisic acid. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Abscisic acid

Answer: (B)

Q31.

Solution

Concept: Photoperiodism - Plant Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Photoperiodism. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Night length is longer than critical duration. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Night length is longer than critical duration

Answer: (B)

Q32.

Solution

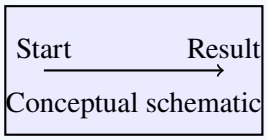
Concept: Digestion and absorption - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Digestion and absorption. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Thecodont, diphyodont and heterodont. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Thecodont, diphyodont and heterodont

Answer: (A)

Q33.

Solution

Concept: Breathing and exchange of gases - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Breathing and exchange of gases. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) pO_2 95 mm Hg and pCO_2 40 mm Hg. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

$$\boxed{pO_2 \text{ 95 mm Hg and } pCO_2 \text{ 40 mm Hg}}$$

Answer: (B)

Q34.

Solution

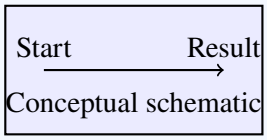
Concept: Respiratory disorders - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Respiratory disorders. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Alveolar walls are damaged and surface area decreases. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Alveolar walls are damaged and surface area decreases

Answer: (B)

Q35.

Solution

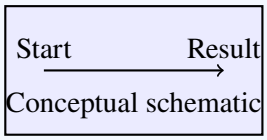
Concept: Body fluids and circulation - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Body fluids and circulation. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Rh-negative mother carries Rh-positive fetus. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Rh-negative mother carries Rh-positive fetus

Answer: (B)

Q36.

Solution

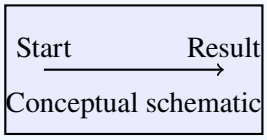
Concept: Cardiac cycle - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Cardiac cycle. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Semilunar valves. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Semilunar valves

Answer: (B)

Q37.

Solution

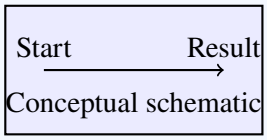
Concept: Excretory products - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Excretory products. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Ascending limb of loop of Henle. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Ascending limb of loop of Henle

Answer: (B)

Q38.

Solution

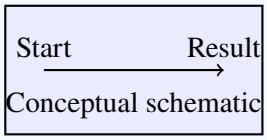
Concept: Urine concentration - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Urine concentration. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Distal tubule and collecting duct. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Distal tubule and collecting duct

Answer: (C)

Q39.

Solution

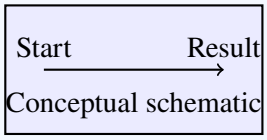
Concept: Neural control - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Neural control. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Acetylcholine. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Acetylcholine

Answer: (A)

Q40.

Solution

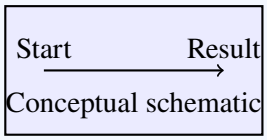
Concept: Locomotion and movement - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Locomotion and movement. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Acetylcholine receptors at neuromuscular junction. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Acetylcholine receptors at neuromuscular junction

Answer: (B)

Q41.

Solution

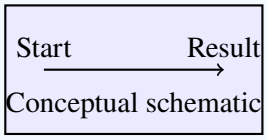
Concept: Skeletal system - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Skeletal system. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Two pairs. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Two pairs

Answer: (B)

Q42.

Solution

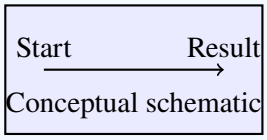
Concept: Endocrine system - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Endocrine system. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Pituitary. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Pituitary

Answer: (B)

Q43.

Solution

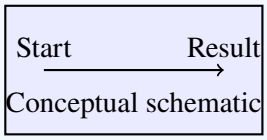
Concept: Endocrine reproductive physiology - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Endocrine reproductive physiology. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Corpus luteum. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Corpus luteum

Answer: (A)

Q44.

Solution

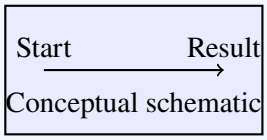
Concept: Immune privilege - Human Physiology.

Solution: Step 1: **Identify the concept.** The question belongs to Immune privilege. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Has no direct blood supply. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Has no direct blood supply

Answer: (A)

Q45.

Solution

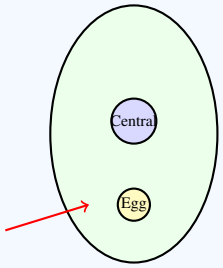
Concept: Flower structure - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Flower structure. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Thalamus or petal. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Reproductive structure schematic

Final Answer:

Thalamus or petal

Answer: (C)

Q46.

Solution

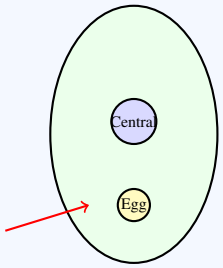
Concept: Double fertilization - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Double fertilization. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) One fuses with egg and the other with central cell nuclei. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Reproductive structure schematic

Final Answer:

One fuses with egg and the other with central cell nuclei

Answer: (B)

Q47.

Solution

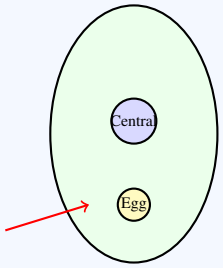
Concept: Seed and fruit - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Seed and fruit. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Fruit wall. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Reproductive structure schematic

Final Answer:

Fruit wall

Answer: (B)

Q48.

Solution

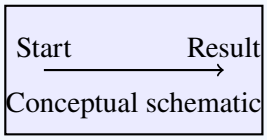
Concept: Menstrual cycle - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Menstrual cycle. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Surge of luteinizing hormone. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Surge of luteinizing hormone

Answer: (B)

Q49.

Solution

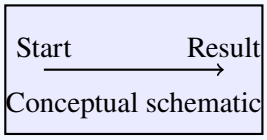
Concept: Oogenesis - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Oogenesis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Only after sperm entry. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Only after sperm entry

Answer: (B)

Q50.

Solution

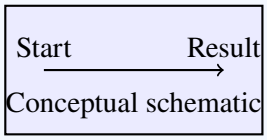
Concept: Male reproductive system - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Male reproductive system. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Urethra. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Urethra

Answer: (B)

Q51.

Solution

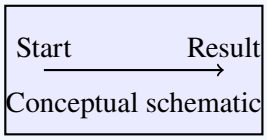
Concept: Contraception - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Contraception. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) They increase phagocytosis of sperms in uterus. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

They increase phagocytosis of sperms in uterus

Answer: (A)

Q52.

Solution

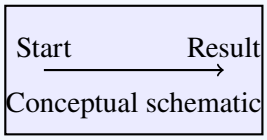
Concept: Hormonal IUDs - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Hormonal IUDs. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) Progestasert and LNG-20. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Progestasert and LNG-20

Answer: (C)

Q53.

Solution

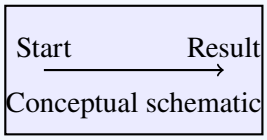
Concept: Assisted reproductive technologies - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Assisted reproductive technologies. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Uterus. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Uterus

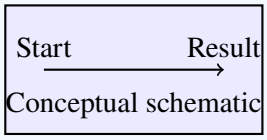
Answer: (B)

Q54.

Solution

Concept: Natural contraception - Reproduction (Plants & Humans).

Solution: Step 1: **Identify the concept.** The question belongs to Natural contraception. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.
Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Lactational amenorrhea. This option directly matches the defining feature required in the question.
Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.
Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Lactational amenorrhea

Answer: (B)

Q55.

Solution

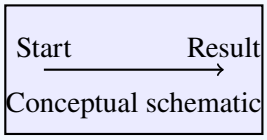
Concept: Mendelian genetics - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Mendelian genetics. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (D) Leaf trichome type. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (D) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Leaf trichome type

Answer: (D)

Q56.

Solution

Concept: Monohybrid inheritance - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Monohybrid inheritance. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) 1/4. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

	A	a
A	AA	Aa
a	Aa	aa

Representative Punnett square

Final Answer:

1/4

Answer: (A)

Q57.

Solution

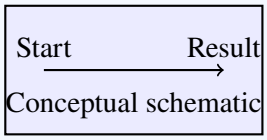
Concept: Human genetic disorders - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Human genetic disorders. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) 44 + XO. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

44 + XO

Answer: (B)

Q58.

Solution

Concept: Sickle cell anaemia - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Sickle cell anaemia. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) 1/4. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

	A	a
A	AA	Aa
a	Aa	aa

Representative Punnett square

Final Answer:

$$\boxed{1/4}$$

Answer: (A)

Q59.

Solution

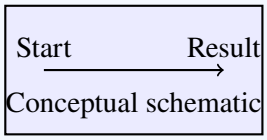
Concept: Linkage and recombination - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Linkage and recombination. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Alfred Sturtevant. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Alfred Sturtevant

Answer: (B)

Q60.

Solution

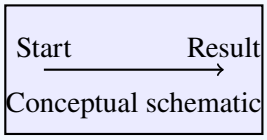
Concept: DNA packaging - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to DNA packaging. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Histone octamer. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Histone octamer

Answer: (B)

Q61.

Solution

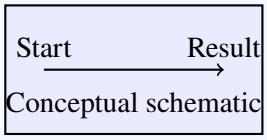
Concept: Lac operon - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Lac operon. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Permease. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.



Final Answer:

Permease

Answer: (B)

Q62.

Solution

Concept: Genetic code - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Genetic code. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) AUG. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

AUG

Answer: (C)

Q63.

Solution

Concept: Translation - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Translation. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) mRNA sequence directs protein synthesis. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

mRNA sequence directs protein synthesis

Answer: (C)

Q64.

Solution

Concept: Human Genome Project - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Human Genome Project. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (D) More than 98 percent codes for proteins. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (D) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

More than 98 percent codes for proteins

Answer: (D)

Q65.

Solution

Concept: Hardy-Weinberg principle - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Hardy-Weinberg principle. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (C) 0.48. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (C) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

$$\boxed{0.48}$$

Answer: (C)

Q66.

Solution

Concept: Evolution - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Evolution. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Adaptive radiation. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

$$\boxed{\text{Adaptive radiation}}$$

Answer: (B)

Q67.

Solution

Concept: Evidences of evolution - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Evidences of evolution. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Divergent evolution. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Divergent evolution

Answer: (B)

Q68.

Solution

Concept: Mutation theory - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Mutation theory. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Large, sudden and random. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Large, sudden and random

Answer: (B)

Q69.

Solution

Concept: Natural selection - Genetics and Evolution.

Solution: Step 1: **Identify the concept.** The question belongs to Natural selection. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Natural selection acting on pre-existing variation. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Natural selection acting on pre-existing variation

Answer: (B)

Q70.

Solution

Concept: Immunity - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Immunity. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Second innate defence. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Second innate defence

Answer: (B)

Q71.

Solution

Concept: Human diseases - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Human diseases. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Malaria. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Malaria

Answer: (B)

Q72.

Solution

Concept: Microbes in food - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Microbes in food. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Propionibacterium shermanii. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Propionibacterium shermanii

Answer: (A)

Q73.

Solution

Concept: Microbes in industry - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Microbes in industry. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Trichoderma polysporum. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Trichoderma polysporum

Answer: (A)

Q74.

Solution

Concept: Sewage treatment - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Sewage treatment. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Aerobic bacteria associated with fungal filaments. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Aerobic bacteria associated with fungal filaments

Answer: (B)

Q75.

Solution

Concept: Biological control - Biology and Human Welfare.

Solution: Step 1: **Identify the concept.** The question belongs to Biological control. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Biological control of plant pathogens. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Biological control of plant pathogens

Answer: (A)

Q76.

Solution

Concept: Restriction enzymes - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Restriction enzymes. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Cut DNA at specific recognition sequences. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Cut DNA at specific recognition sequences

Answer: (B)

Q77.

Solution

Concept: Gel electrophoresis - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Gel electrophoresis. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Negatively charged. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Negatively charged

Answer: (B)

Q78.

Solution

Concept: Palindromic sequence - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Palindromic sequence. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Reads same in 5’ to 3’ direction on both complementary strands. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Reads same in 5’ to 3’ direction on both complementary strands

Answer: (B)

Q79.

Solution

Concept: PCR - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to PCR. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (D) DNA ligase. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (D) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

DNA ligase

Answer: (D)

Q80.

Solution

Concept: Cloning vectors - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Cloning vectors. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Antibiotic resistance marker. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Antibiotic resistance marker

Answer: (A)

Q81.

Solution

Concept: Transgenic animals - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Transgenic animals. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Human alpha-lactalbumin. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Human alpha-lactalbumin

Answer: (A)

Q82.

Solution

Concept: RNA interference - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to RNA interference. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Silencing specific mRNA using complementary dsRNA. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Silencing specific mRNA using complementary dsRNA

Answer: (B)

Q83.

Solution

Concept: Gene therapy - Biotechnology and Its Applications.

Solution: Step 1: **Identify the concept.** The question belongs to Gene therapy. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Adenosine deaminase. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Adenosine deaminase

Answer: (A)

Q84.

Solution

Concept: Ecosystem trophic levels - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Ecosystem trophic levels. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Primary consumers. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Primary consumers

Answer: (B)

Q85.

Solution

Concept: Productivity - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Productivity. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Standing crop. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Standing crop

Answer: (A)

Q86.

Solution

Concept: Decomposition - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Decomposition. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) Lignin and chitin. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Lignin and chitin

Answer: (B)

Q87.

Solution

Concept: Biodiversity conservation - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Biodiversity conservation. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) In situ conservation. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

In situ conservation

Answer: (A)

Q88.

Solution

Concept: Biodiversity loss - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Biodiversity loss. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (A) Four major causes of biodiversity loss. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (A) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Four major causes of biodiversity loss

Answer: (A)

Q89.

Solution

Concept: Environmental issues - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Environmental issues. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (D) Sulphur dioxide. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (B) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (D) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

Sulphur dioxide

Answer: (D)

Q90.

Solution

Concept: Ozone depletion - Ecology and Environment.

Solution: Step 1: **Identify the concept.** The question belongs to Ozone depletion. The stem asks for the option that best satisfies the biological rule, process, structure, or example described.

Step 2: **Apply the rule.** According to the concept, the correct matching statement is option (B) 16 September. This option directly matches the defining feature required in the question.

Step 3: **Option elimination.** Option (A) is not preferred because it does not match the exact condition asked in the stem. Option (C) is not preferred because it does not match the exact condition asked in the stem. Option (D) is not preferred because it does not match the exact condition asked in the stem. Thus, the remaining option is uniquely correct.

Step 4: **Conclusion.** Since option (B) satisfies the NCERT-based concept precisely and the other options fail on definition, location, function, sequence, or example, it is the correct answer.

Final Answer:

16 September

Answer: (B)

Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	C	2	B	3	C	4	B	5	C
6	C	7	C	8	B	9	B	10	B
11	A	12	B	13	B	14	C	15	A
16	C	17	B	18	B	19	B	20	B
21	B	22	D	23	A	24	B	25	C
26	B	27	B	28	B	29	A	30	B
31	B	32	A	33	B	34	B	35	B
36	B	37	B	38	C	39	A	40	B
41	B	42	B	43	A	44	A	45	C
46	B	47	B	48	B	49	B	50	B
51	A	52	C	53	B	54	B	55	D
56	A	57	B	58	A	59	B	60	B
61	B	62	C	63	C	64	D	65	C
66	B	67	B	68	B	69	B	70	B
71	B	72	A	73	A	74	B	75	A
76	B	77	B	78	B	79	D	80	A
81	A	82	B	83	A	84	B	85	A
86	B	87	A	88	A	89	D	90	B