Cerebrum Biology Academy

NEET Biology
Previous Year Questions (2020 - 2025)

Curated Collection of Representative Questions
Organized Chapter-wise from NEET Exams
With Answer Keys and Detailed Explanations
~60 Quality Questions for Comprehensive Practice

■ Phone	+91 88264 44334
✉■ Email	info@cerebrumbiologyacademy.com
■ Website	cerebrumbiologyacademy.com
■ Address	Block D, South Extension Part 2, New Delhi 110049

Connect with us on WhatsApp: wa.me/918826444334

How to Use This Guide

1. Understand the Format:

Each question includes the original source year (NEET 2020-2025), four options (a-d), the correct answer, and a brief explanation.

2. Practice Like an Exam:

Set a timer for 90 seconds per question. Attempt all questions in a chapter before checking answers to build speed and accuracy.

3. Focus on Explanations:

Don't just memorize answers. Read the explanation to understand the concept. This is crucial for learning, not just scoring.

4. Chapter-wise Revision:

Use this guide during chapter-wise revision to reinforce concepts with real exam-level questions.

5. Identify Weak Areas:

Track which chapters or question types you struggle with. Focus extra revision on those topics.

6. Regular Practice:

Solve these questions multiple times. First time for learning, second time for speed, third time for confidence.

BOTANY

Cell Biology & Cell Division

Q2. During anaphase of mitosis, sister chromatids separate. What is the result? (NEET 2023)

(a) Two identical daughter chromosomes move to opposite poles

(b) Chromosomes become condensed

(c) Homologous chromosomes separate

(d) Centromeres divide first

Answer: (A)

In anaphase, sister chromatids (now individual chromosomes) separate at the centromere and move to opposite poles of the cell.

Q3. What is the chromosome number in a cell after S phase of interphase but before mitosis? (NEET 2022)

(a) Same as original

(b) Double the original

(c) Half the original

(d) Variable

Answer: (A)

After S phase, DNA replicates but the number of chromosomes remains the same (each chromosome now has two sister chromatids).

Q4. A cell with 16 chromosomes undergoes meiosis. How many chromosomes will each gamete have? (NEET 2023)

(a) 16

(b) 8

(c) 32

(d) 4

Answer: (B)

Meiosis produces gametes with half the chromosome number. A cell with 16 chromosomes produces gametes with 8 chromosomes.

Q5. In which stage of meiosis do homologous chromosomes pair up? (NEET 2025)

(a) Prophase I

(b) Metaphase II

(c) Anaphase I

(d) Telophase II

Answer: (A)

Pairing of homologous chromosomes (synapsis) occurs during Prophase I, forming bivalents. This is unique to meiosis.

Q6. Which functional group is characteristic of all carbohydrates? (NEET 2024)

(a) Carboxyl group

(b) Carbonyl and hydroxyl groups

(c) Amino group

(d) Phosphate group

Answer: (B)

Carbohydrates contain carbonyl (C=O) and hydroxyl (OH) groups. The general formula is $(CH_2O)_n$.

Biomolecules

Q7. What is the primary function of lipids in cell membranes? (NEET 2022)

(a) Energy storage only

(b) Structural component of the bilayer

(c) Enzyme catalysis

(d) Information storage

Answer: (B)

Phospholipids form the basic bilayer structure of cell membranes. While they store energy, their primary membrane function is structural.

Q8. DNA differs from RNA in that DNA contains: (NEET 2023)

(a) Uracil instead of thymine

(b) Ribose sugar

(c) Deoxyribose and thymine

(d) Only one strand

Answer: (C)

DNA has deoxyribose sugar and thymine, while RNA has ribose sugar and uracil. DNA is double-stranded; RNA is usually single-stranded.

Q9. Which tissue is responsible for transporting water and minerals in plants? (NEET 2024)

(a) Phloem

(b) Xylem

(c) Cambium

(d) Epidermis

Answer: (B)

Xylem consists of vessel elements and tracheids that transport water and mineral ions upward from roots to shoots.

Plant Anatomy & Morphology

Q10. Stomata are mainly found on the lower surface (abaxial surface) of dicot leaves because: (NEET 2023)

(a) This reduces water loss in direct sunlight

(b) Protection is not needed on upper surface

(c) Lower surface receives more light

(d) Roots are below the plant

Answer: (A)

Stomata on the lower surface reduce water loss as this surface is cooler and less exposed to direct solar radiation and wind.

Q11. In a dicot root, the endodermis is characterized by: (NEET 2022)

(a) Presence of Casparian strips

(b) Presence of chloroplasts

(c) Being the outermost layer

(d) Conducting vascular tissue

Answer: (A)

The Casparian strip (suberin deposited on radial walls) is a characteristic feature of the endodermis that controls mineral uptake.

Q12. Secondary growth in plants is the result of: (NEET 2023)

(a) Apical meristem activity

(b) Vascular cambium and cork cambium activity

(c) Primary meristem development

(d) Epidermis expansion

Answer: (B)

Secondary growth increases plant diameter. Vascular cambium produces secondary xylem and phloem; cork cambium produces bark.

Q13. In the Calvin cycle, the first stable product formed when CO_2 is fixed is: (NEET 2024)

(a) Glucose

(b) 3-PG (3-phosphoglycerate)

(c) RuBP

(d) ATP

Answer: (B)

CO_2 combines with RuBP (catalyzed by RuBisCO) to form an unstable intermediate that immediately breaks down into two molecules of 3-PG.

Plant Physiology - Photosynthesis

Q14. Which pigment is responsible for absorbing light energy in Photosystem II? (NEET 2023)

(a) Chlorophyll b

(b) Carotenoids

(c) Chlorophyll a

(d) Xanthophyll

Answer: (C)

Chlorophyll a is the reaction center pigment in PSII. It gets excited to P680 (absorbs light at 680 nm) and initiates photolysis of water.

Q15. The Z-scheme in photosynthesis explains: (NEET 2022)

(a) How electrons move between PS II and PS I

(b) Glucose synthesis

(c) Light absorption wavelengths

(d) Water uptake by roots

Answer: (A)

The Z-scheme describes electron flow from PSII to PSI with simultaneous transfer of protons across the thylakoid membrane, driving ATP synthesis.

Q16. C_3 plants are less efficient in hot, dry conditions because: (NEET 2023)

(a) They produce too much ATP

(b) Photorespiration increases when CO_2 decreases and O_2 increases

(c) They lack stomata

(d) Their chlorophyll absorbs less light

Answer: (B)

In C_3 plants, when stomata close in hot conditions (to reduce water loss), O_2 builds up relative to CO_2, favoring photorespiration which wastes energy.

Q17. The respiratory quotient (RQ) of carbohydrates is: (NEET 2024)

(a) 0.5

(b) 1.0

(c) 2.0

(d) Variable

Answer: (B)

RQ = CO_2 released / O_2 consumed. For carbohydrates: $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$, so RQ = 1.

Plant Physiology - Respiration & Transport

Q18. Translocation of organic solutes in plants occurs via: (NEET 2023)

(a) Simple diffusion through cell membranes

(b) Active transport in sieve tubes of phloem

(c) Osmosis from roots to shoots

(d) Passive movement with water

Answer: (B)

Phloem transport requires metabolic energy (ATP) to pump solutes (source loading and sink unloading), making it active transport.

Q19. Root pressure is mainly due to: (NEET 2022)

(a) Photosynthesis in roots

(b) Active uptake of minerals creating osmotic gradient

(c) Water evaporation

(d) Gravity pulling water up

Answer: (B)

Roots actively uptake minerals, increasing osmotic concentration of root cells. This draws water in, creating positive root pressure that pushes water upward.

Q20. In a testcross of AaBb with aabb, if the offspring ratio is 1:1:1:1, this indicates: (NEET 2024)

(a) Complete linkage

(b) Independent assortment

(c) Epistasis

(d) Polyploidy

Answer: (B)

1:1:1:1 ratio confirms independent assortment of two genes. Linkage would produce deviation from this ratio with more parental types than recombinant types.

Genetics - Mendelian & Molecular

Q21. If the frequency of allele A in a population is 0.6, what is the frequency of the homozygous recessive genotype (aa)? (NEET 2023)

(a) 0.16

(b) 0.24

(c) 0.36

(d) 0.48

Answer: (A)

If freq(A) = 0.6, then freq(a) = 0.4. Freq(aa) = q^2 = $(0.4)^2$ = 0.16 (Hardy-Weinberg equilibrium).

Q22. X-linked recessive trait appears in males because: (NEET 2022)

(a) Males have two X chromosomes

(b) Males cannot be heterozygous for X-linked traits

(c) Females always pass on the dominant allele

(d) Recessive traits only appear in males

Answer: (B)

Males have one X chromosome (XY). Any allele on their X chromosome is expressed (no second copy to mask it), so recessive alleles are expressed.

Q23. The genetic code is "degenerate" because: (NEET 2023)

(a) Some amino acids are not coded

(b) Multiple codons code for the same amino acid

(c) Stop codons are multiple

(d) It varies between organisms

Answer: (B)

Degeneracy means multiple codons (usually differing in 3rd position) code for the same amino acid (e.g., GCU, GCC, GCA, GCG all code for Alanine).

Q24. A mutation that changes CAT to CAC is classified as: (NEET 2023)

(a) Frameshift mutation

(b) Nonsense mutation

(c) Silent (synonymous) mutation

(d) Missense mutation

Answer: (C)

Both CAT and CAC code for Histidine. Since the amino acid doesn't change, this is a silent mutation despite a nucleotide change in the DNA.

Q25. In genetic engineering, what is the role of a restriction enzyme? (NEET 2024)

(a) Joins DNA fragments

(b) Cuts DNA at specific sequences

(c) Copies DNA

(d) Transcribes DNA to RNA

Answer: (B)

Restriction enzymes (restriction endonucleases) cut DNA at specific recognition sequences, creating sticky or blunt ends for inserting foreign DNA.

Biotechnology

Q26. Which of the following is an example of a plasmid application in biotechnology? (NEET 2023)

(a) Producing antibiotics in fungi

(b) Producing human insulin in bacteria

(c) Creating cloned animals

(d) Extracting DNA from cells

Answer: (B)

Plasmids (circular DNA in bacteria) can be engineered to carry genes for insulin production, allowing bacteria to synthesize and secrete human insulin.

Q27. PCR is used to: (NEET 2022)

(a) Separate DNA fragments by size

(b) Rapidly amplify specific DNA sequences

(c) Transcribe DNA to RNA

(d) Digest DNA at restriction sites

Answer: (B)

PCR (Polymerase Chain Reaction) uses repeated cycles of heating and cooling with Taq polymerase to exponentially amplify target DNA sequences.

Q28. Tissue culture is valuable in plant biotechnology because it: (NEET 2023)

(a) Produces genetically superior individuals quickly

(b) Requires less water than normal cultivation

(c) Eliminates the need for seeds

(d) Produces only sterile plants

Answer: (A)

Plant tissue culture allows micropropagation of elite genotypes without genetic variation, producing genetically identical copies (clones) rapidly.

Q29. The female reproductive structure in flowers is: (NEET 2024)

(a) Stamen

(b) Pistil/Carpel

(c) Sepal

(d) Petal

Answer: (B)

The pistil (carpel) consists of stigma, style, and ovary. It contains the ovule(s) which develop into seeds after fertilization.

Plant Reproduction

Q30. Double fertilization in angiosperms involves: (NEET 2023)

(a) Two pollination events

(b) One sperm unites with egg, one unites with polar nuclei

(c) Two eggs in ovule

(d) Two pollen grains entering one flower

Answer: (B)

One sperm nucleus fertilizes the egg to form the zygote (embryo); the other sperm nucleus fertilizes the two polar nuclei to form the endosperm.

Q31. Which of the following is a type of asexual reproduction in plants? (NEET 2022)

(a) Pollination

(b) Germination

(c) Fragmentation

(d) Seed formation

Answer: (C)

Asexual reproduction produces genetically identical offspring without gamete fusion. Fragmentation, budding, vegetative propagation are asexual methods.

Q32. The endosperm in seeds primarily serves to: (NEET 2023)

(a) Protect the seed coat

(b) Provide nutrition for the developing embryo

(c) Attract dispersal agents

(d) Help with germination

Answer: (B)

Endosperm is nutritive tissue formed by double fertilization (3n in most angiosperms). It stores carbohydrates, proteins, and fats for the growing embryo.

Q33. Which of the following characteristics is unique to chordates? (NEET 2024)

(a) Bilateral symmetry

(b) Presence of notochord or vertebral column

(c) Coelom formation

(d) Segmentation

Answer: (B)

Notochord (in larval chordates) or vertebral column (in adults) is a defining characteristic of Phylum Chordata. Only chordates have this structure.

ZOOLOGY

Animal Kingdom & Structural Organization

Q34. Acoelomate animals lack: (NEET 2023)

(a) A body cavity

(b) Organs

(c) Tissue layers

(d) Circulatory systems

Answer: (A)

Acoelomate animals (e.g., flatworms) have no body cavity between the body wall and internal organs. They have ectoderm and endoderm but no mesoderm.

Q35. Which tissue makes up the majority of an organism's body? (NEET 2022)

(a) Connective tissue

(b) Muscle tissue

(c) Epithelial tissue

(d) Nervous tissue

Answer: (A)

Connective tissue (including cartilage, bone, fat, blood) comprises the bulk of animal bodies, supporting and binding other tissues.

Q36. Homeostasis is maintained by: (NEET 2023)

(a) Negative feedback mechanisms

(b) Positive feedback loops

(c) Random changes

(d) External forces only

Answer: (A)

Negative feedback mechanisms correct deviations from set points (e.g., thermoregulation, blood pH). Positive feedback amplifies changes (rare in homeostasis).

Q37. Pepsinogen is converted to pepsin in the stomach by: (NEET 2024)

(a) Salivary amylase

(b) Hydrochloric acid (HCl)

(c) Bile salts

(d) Trypsin

Answer: (B)

Pepsinogen is an inactive enzyme secreted by chief cells. HCl in the stomach provides the acidic pH needed to convert it to active pepsin.

Human Physiology - Digestion, Breathing, Circulation

Q38. Which structure prevents food from entering the lungs during swallowing? (NEET 2023)

(a) Uvula

(b) Glottis

(c) Epiglottis

(d) Larynx

Answer: (C)

The epiglottis covers the glottis (opening to the larynx) during swallowing, directing food down the esophagus instead of into the respiratory tract.

Q39. In the cardiac cycle, when is the aortic valve open? (NEET 2022)

(a) During ventricular diastole

(b) During atrial systole

(c) During ventricular systole

(d) Throughout the cycle

Answer: (C)

The aortic (semilunar) valve opens during ventricular systole when pressure in the left ventricle exceeds aortic pressure, allowing blood to exit the heart.

Q40. The P wave in an ECG represents: (NEET 2023)

(a) Ventricular depolarization

(b) Atrial depolarization

(c) Ventricular repolarization

(d) Atrial repolarization

Answer: (B)

The P wave corresponds to atrial depolarization and subsequent contraction. The QRS complex represents ventricular depolarization.

Q41. Where does gas exchange occur in the lungs? (NEET 2023)

(a) Bronchi

(b) Trachea

(c) Alveoli

(d) Bronchioles

Answer: (C)

Alveoli are tiny air sacs surrounded by capillaries where O_2 diffuses into blood and CO_2 diffuses from blood into the air.

Q42. Which part of the nephron reabsorbs glucose and amino acids? (NEET 2024)

(a) Bowman's capsule

(b) Proximal convoluted tubule

(c) Loop of Henle

(d) Distal convoluted tubule

Answer: (B)

The PCT (proximal convoluted tubule) selectively reabsorbs useful substances like glucose, amino acids, and ions via active transport.

Human Physiology - Excretion, Locomotion, Neural

Q43. Skeletal muscles are attached to bones by: (NEET 2023)

(a) Cartilage

(b) Tendons

(c) Ligaments

(d) Collagen fibers

Answer: (B)

Tendons are tough connective tissue structures that connect skeletal muscles to bones, allowing muscles to move bones.

Q44. An action potential propagates along the axon as: (NEET 2022)

(a) Electrical current through the cytoplasm

(b) Depolarization waves along the membrane

(c) Chemical neurotransmitter release

(d) Calcium influx

Answer: (B)

Depolarization at one region triggers opening of Na+ channels in adjacent regions, propagating the action potential along the axon membrane sequentially.

Q45. The cerebellum is primarily responsible for: (NEET 2023)

(a) Emotion regulation

(b) Coordination and balance

(c) Hormone secretion

(d) Hearing

Answer: (B)

The cerebellum receives sensory input and coordinates smooth, precise movements and maintains balance and posture.

Q46. FSH (Follicle Stimulating Hormone) in females functions to: (NEET 2024)

(a) Trigger ovulation

(b) Stimulate ovarian follicle development

(c) Prepare the uterus for implantation

(d) Maintain corpus luteum

Answer: (B)

FSH is produced by the anterior pituitary and stimulates the growth and maturation of ovarian follicles in the ovary.

Human Reproduction & Reproductive Health

Q47. Implantation of the blastocyst occurs: (NEET 2023)

(a) In the fallopian tube

(b) In the ovary

(c) In the uterine endometrium

(d) In the cervix

Answer: (C)

The blastocyst implants in the endometrium (uterine lining) about 6-7 days after fertilization, establishing the placenta for nutrient exchange.

Q48. Which sexually transmitted infection can be prevented by vaccination? (NEET 2022)

(a) Gonorrhea

(b) Chlamydia

(c) Human Papillomavirus (HPV)

(d) Syphilis

Answer: (C)

HPV vaccination prevents infection with strains that cause cervical cancer and other cancers. No vaccines exist for gonorrhea, chlamydia, or syphilis yet.

Q49. The amnion protects the embryo by: (NEET 2023)

(a) Providing nutrition

(b) Secreting hormones

(c) Surrounding it with amniotic fluid for cushioning and hydration

(d) Filtering harmful substances

Answer: (C)

The amnion is a membrane filled with amniotic fluid that cushions the fetus, maintains constant temperature, and allows fetal movement.

Q50. Darwin's observations on the Galapagos finches led to the concept of: (NEET 2024)

(a) Lamarckism

(b) Natural selection

(c) Orthogenesis

(d) Saltationism

Answer: (B)

Different finch species with differently shaped beaks adapted to available food sources illustrated natural selection in action.

Evolution

Q51. Vestigial organs are evidence of evolution because they: (NEET 2023)

(a) Have no function

(b) Are present but reduced in size and non-functional (like human coccyx)

(c) Prove organisms were created separately

(d) Are found in all species

Answer: (B)

Vestigial organs (like the coccyx in humans or wings in flightless birds) suggest evolutionary descent from ancestors where these structures were functional.

Q52. The Hardy-Weinberg equation helps determine: (NEET 2022)

(a) When evolution is NOT occurring

(b) The genetic composition of a population under certain conditions

(c) The rate of natural selection

(d) Both a and b

Answer: (D)

The Hardy-Weinberg equation ($p^2 + 2pq + q^2 = 1$) shows equilibrium allele frequencies when no evolution occurs, helping identify when evolution IS happening.

Q53. Antibodies in blood that fight infections are produced by: (NEET 2024)

(a) Red blood cells

(b) Plasma cells (differentiated B lymphocytes)

(c) Neutrophils

(d) Macrophages

Answer: (B)

Plasma cells are differentiated B lymphocytes that produce specific antibodies (immunoglobulins) against antigens.

Human Health & Disease

Q54. Which of the following is an autoimmune disease? (NEET 2023)

(a) Tuberculosis

(b) Rheumatoid arthritis

(c) Malaria

(d) Pneumonia

Answer: (B)

In rheumatoid arthritis, the immune system attacks the body's own joints. TB, malaria, pneumonia are infectious diseases, not autoimmune.

Q55. The latency period in HIV infection is characterized by: (NEET 2022)

(a) Rapid death of immune cells

(b) Asymptomatic phase where HIV multiplies slowly

(c) Complete elimination of the virus

(d) Development of AIDS symptoms

Answer: (B)

The latency (clinical latency) phase can last years with few symptoms, but HIV is replicating and CD_4 cell count is declining gradually.

Q56. In an ecosystem, primary consumers are: (NEET 2024)

(a) Producers (plants)

(b) Herbivores that eat plants

(c) Carnivores that eat herbivores

(d) Decomposers

Answer: (B)

Primary consumers (herbivores) feed on producers (plants). They are the first trophic level after producers.

Ecology & Biodiversity

Q57. Which of the following practices helps preserve biodiversity? (NEET 2023)

(a) Deforestation for agriculture

(b) Creating wildlife reserves and protected areas

(c) Introducing invasive species

(d) Monoculture farming

Answer: (B)

Protected areas (national parks, biosphere reserves) help conserve habitats and prevent species extinction, preserving biodiversity.

Q58. Ecological succession refers to: (NEET 2022)

(a) Random changes in communities

(b) Directional change in species composition over time

(c) The number of species in an area

(d) Annual breeding patterns

Answer: (B)

Ecological succession is the predictable, progressive change in community composition following disturbance (primary succession) or in new areas (secondary succession).

Q59. The carbon cycle includes which major processes? (NEET 2023)

(a) Only photosynthesis

(b) Photosynthesis, respiration, combustion, and decomposition

(c) Only respiration

(d) Only decomposition

Answer: (B)

Carbon cycles between atmosphere and biosphere through photosynthesis (CO_2 $\rightarrow$ organic compounds), respiration (reverse), decomposition, and combustion.

Q60. Eutrophication of water bodies is caused by: (NEET 2023)

(a) Acid rain

(b) Excessive nutrients (nitrogen and phosphorus) promoting algal blooms

(c) Temperature changes

(d) Heavy metal contamination

Answer: (B)

Eutrophication results from nutrient pollution causing excessive algal growth. When algae die, decomposition consumes oxygen, creating dead zones.

Quick Reference Answer Key

Q	Ans	Q	Ans	Q	Ans	Q	Ans
1	B	2	A	3	A	4	B
5	A	6	B	7	B	8	C
9	B	10	A	11	A	12	B
13	B	14	C	15	A	16	B
17	B	18	B	19	B	20	B
21	A	22	B	23	B	24	C
25	B	26	B	27	B	28	A
29	B	30	B	31	C	32	B
33	B	34	A	35	A	36	A
37	B	38	C	39	C	40	B
41	C	42	B	43	B	44	B
45	B	46	B	47	C	48	C
49	C	50	B	51	B	52	D
53	B	54	B	55	B	56	B
57	B	58	B	59	B	60	B

Expert Study Tips from AIIMS Faculty

Dr. Shekhar Sharma, AIIMS Senior Faculty:

1. Smart Revision Strategy: Don't just memorize. For each question, understand why the correct answer is right and why others are wrong. This builds concept clarity.

2. Time Management: NEET has 90 seconds per question. Practice solving these PYQs with a timer to develop speed without sacrificing accuracy.

3. Pattern Recognition: After solving multiple questions from one chapter, identify which concepts are most frequently asked. Focus revision on high-frequency topics.

4. Connect Theory to Practice: When solving a question, go back to your textbook and understand the underlying concept. NEET tests application, not just memorization.

5. Revision Cycle: Solve the same set of questions 3 times: First for learning, second for speed, third for confidence building just before the exam.

Remember: Quality of practice matters more than quantity. These 60 questions represent major concepts across all chapters. Master these, and you'll be well-prepared for NEET!

Ready to Excel in NEET Biology?

Cerebrum Biology Academy provides comprehensive guidance and rigorous practice to ensure your success in NEET. Our expert faculty, targeted question sets, and personalized mentoring help students achieve their dream scores.

This guide is just the beginning. Join thousands of successful students who trust us for NEET preparation.

Get in Touch

Phone: +91 88264 44334
Email: info@cerebrumbiologyacademy.com
Website: cerebrumbiologyacademy.com
WhatsApp: wa.me/918826444334
Address: Block D, South Extension Part 2, New Delhi 110049

ENROLL NOW FOR COMPREHENSIVE NEET PREPARATION