

NEET 2017 (Gujarati paper) — Biology Question Paper with Solutions

85 Biology questions as set in the paper · answers checked by RankUp

NEET 2017 (Gujarati paper) · Q47

1. The correct sequence of involvement of cell organelles in secretion of proteins from the cell is:

- (A) Nucleus → Ribosomes → Endoplasmic reticulum → Golgi apparatus → Secretory vesicles → Plasma membrane
- (B) Nucleus → Ribosomes → Endoplasmic reticulum → Lysosomes → Plasma membrane
- (C) Nucleus → Endoplasmic reticulum → Ribosomes → Golgi apparatus → Lysosomes → Plasma membrane
- (D) Nucleus → Endoplasmic reticulum → Ribosomes → Golgi apparatus → Secretory vesicles → Plasma membrane

NEET 2017 (Gujarati paper) · Q48

2. Flippers of Penguins and Dolphins are the example of:

- (A) Homologous structure
- (B) Analogous structure
- (C) Divergent evolution
- (D) Radiation

NEET 2017 (Gujarati paper) · Q49

3. Signals for the onset of parturition originate from:

- (A) Foetus and placenta
- (B) Mother's uterus
- (C) Mother's pituitary
- (D) Mother's hypothalamus

NEET 2017 (Gujarati paper) · Q50

4. Which of the following is not true of organisms in the kingdom Monera?

- (A) They originated at least 3.5 billion years ago.
- (B) They have prokaryotic cellular organization.
- (C) They may be autotrophic or heterotrophic in nature.
- (D) They reproduce by mitosis.

NEET 2017 (Gujarati paper) · Q51

5. Which of the following is not true for callus culture?

- (A) Somaclonal variation is generated
- (B) Parenchyma tissue increases by continuous mitotic divisions
- (C) Meiotic divisions are frequent
- (D) It can be used for micropropagation

NEET 2017 (Gujarati paper) · Q52

6. Which of the following statements regarding enzyme inhibition is correct?

- (A) Competitive inhibition is seen when a substrate competes with an enzyme for binding to an inhibition protein.
- (B) Competitive inhibition is seen when the substrate and the inhibitor compete.
- (C) Non competitive inhibition of an enzyme can be overcome by adding large amount of substrate.
- (D) Non competitive inhibitors often bind to the enzyme irreversibly

NEET 2017 (Gujarati paper) · Q53

7. Which of the following ossicles is adhered to tympanic membrane of middle ear?

- (A) Incus
- (B) Stapes
- (C) Utricle
- (D) Malleus

NEET 2017 (Gujarati paper) · Q54

8. Trace the correct path of sperm from seminiferous tubules:

- (A) Rete testis → epididymis → vasa efferentia → vas deferens
- (B) Vasa efferentia → rete testis → vas deferens → epididymis
- (C) Epididymis → vasa efferentia → rete testis → vas deferens
- (D) Rete testis → vasa efferentia → epididymis → vas deferens

NEET 2017 (Gujarati paper) · Q55

9. A large amount of about 180 L of fluid is filtered by the human kidneys per day. Which one of the following renal corpuscle features does not justify this?

- (A) The glomerular capillaries have a large surface area.
- (B) The glomerular capillaries are fenestrated and hence leakier than other capillaries.
- (C) The glomerular capillaries have a higher blood pressure than the other capillaries of the body.
- (D) The efferent arteriole is wider than the afferent arteriole causing easier outflow of blood from the glomerulus.

NEET 2017 (Gujarati paper) · Q56

10. Special feature about *Strobilanthus kunthiana* (neelakuranji) is its flowering once in:

- (A) 12 years
- (B) 50 - 100 years
- (C) 6 years
- (D) 25 years

NEET 2017 (Gujarati paper) · Q57

11. A fat molecule is formed from:

- (A) One glycerol molecule and one fatty acid molecule.
- (B) Three glycerol molecules and three fatty acid molecules.
- (C) One glycerol molecule and three fatty acid molecules.
- (D) Three glycerol molecules and one fatty acid molecule.

NEET 2017 (Gujarati paper) · Q58

12. The recessive genes located on X-chromosome in humans are always:

- (A) expressed in females
- (B) expressed in males
- (C) lethal
- (D) sub-lethal

NEET 2017 (Gujarati paper) · Q59

13. Which of the following plants has association with Frankia?

- (A) Alfalfa
- (B) Alnus
- (C) Sweet pea
- (D) Lentils

NEET 2017 (Gujarati paper) · Q60

14. Select the incorrect option with respect to features present in three animals. Characters | Cockroach | Earthworm | Frog

- (A) Blood vascular system: open | closed | closed
- (B) Body surface: dry | moist | moist
- (C) Eyes: compound | absent | simple
- (D) Development: direct | indirect | indirect

NEET 2017 (Gujarati paper) · Q61

15. A genetically engineered bacterium first used for cleaning the oil spills, was a species of:

- (A) *Escherichia*
- (B) *Pseudomonas*
- (C) *Bacillus*
- (D) *Rhizobium*

NEET 2017 (Gujarati paper) · Q62

16. In roots, absorption of water and minerals mostly occurs in the:

- (A) Region of elongation
- (B) Region of maturation
- (C) Meristematic region
- (D) Root cap

NEET 2017 (Gujarati paper) · Q63

17. The type of ribosomes is same in:

- (A) Cytoplasm of eukaryotic cells, their mitochondria and chloroplasts.
- (B) Cytoplasm of eukaryotic cells, their chloroplasts and microbodies.
- (C) Prokaryotes, mitochondria and chloroplasts.
- (D) Eukaryotic cytoplasm, mitochondria and endoplasmic reticulum.

NEET 2017 (Gujarati paper) · Q64

18. Select the correct option:

- (A) Phenylketonuria is X linked disease and results in accumulation of phenylpyruvic acid.
- (B) Down's syndrome is due to triploidy and results in mental retardation.
- (C) Turner's syndrome is due to trisomy and results in sterile female.
- (D) Klinefelter's syndrome is due to extra X chromosome and results in sterile male.

NEET 2017 (Gujarati paper) · Q65

19. Which of the following values will depict correct respiratory quotient when tripalmitin (a fatty acid) is used as a respiratory substrate?

- (A) 1
- (B) 0.7
- (C) 0.9
- (D) 1.1

NEET 2017 (Gujarati paper) · Q66

20. Which of the following cannot be measured by spirometry?

- (A) Tidal volume
- (B) Inspiratory reserve volume
- (C) Residual volume
- (D) Vital capacity

NEET 2017 (Gujarati paper) · Q67

21. Select the sac fungus:

- (A) Agaricus
- (B) Neurospora
- (C) Mucor
- (D) Albugo

NEET 2017 (Gujarati paper) · Q68

22. Consider the following statements and choose the correct option:

- (a) Six codons do not code for any amino-acid.**
- (b) Codon is read in m-RNA in a contiguous fashion.**
- (c) Three codons function as stop codons.**
- (d) The initiator codon AUG codes for methionine.**

- (A) (a), (b) and (d) are wrong
- (B) (a), (b) and (c) are wrong
- (C) (b), (c) and (d) are wrong
- (D) (a) is wrong

NEET 2017 (Gujarati paper) · Q69

23. Air pollution can result in Emphysema, which is:

- (A) Chronic damage to air sacs or alveoli leading to abnormal reduction in respiratory surface area
- (B) Persistent inflammation and damage to the cells lining the bronchi and bronchioles
- (C) An allergic reaction causing muscle spasms in the bronchial walls
- (D) Damage to any Lung tissue causing increase in elasticity of the air sacs

NEET 2017 (Gujarati paper) · Q70

24. Which of the following ecologists has tried to put price-tags on nature's life support services?

- (A) David Tilman
- (B) Robert Constanza
- (C) Paul Ehrlich
- (D) Robert May

NEET 2017 (Gujarati paper) · Q71

25. In Lactational amenorrhoea, ovulation does not occur during the period of intense lactation because of:

- (A) Surge of Estrogen
- (B) Stimulation of GnRH
- (C) High level of Prolactin
- (D) High level of FSH & LH

NEET 2017 (Gujarati paper) · Q72

26. Which of the following type of muscle fibres will be the first one to undergo fatigue?

- (A) Slow oxidative fibres
- (B) Fast oxidative - glycolytic fibres
- (C) Fast glycolytic fibres
- (D) Aerobic fibres

NEET 2017 (Gujarati paper) · Q73

27. Given below are defined the various taxonomic aids used in taxonomy which facilitate identification and classification of organisms. Which one of the following is wrong?

- (A) Herbarium is created to house live specimens of plant material.
- (B) Museums are established to keep preserved specimens of animals and plants.
- (C) Botanical gardens and Zoological parks are established to conserve and preserve live plants and animals respectively.
- (D) Keys, floras, manuals, monographs and catalogues are useful aids for identification of plants and animals.

NEET 2017 (Gujarati paper) · Q74

28. At what phase of meiosis homologous chromosomes are separated?

- (A) Prophase I
- (B) Prophase II
- (C) Anaphase I
- (D) Anaphase II

NEET 2017 (Gujarati paper) · Q75

29. Identify and select the wrong statement out of the following:

- (A) Roots of pines enter into a symbiotic relationship with higher fungi.
- (B) The coralloid roots in Cycas have nitrogen fixing cyanobacteria.
- (C) The giant redwood tree Sequoia, one of the tallest trees is an angiosperm.
- (D) In conifers the needle like leaves are well adapted to extremes of temperature, moisture conservation and onslaught of wind.

NEET 2017 (Gujarati paper) · Q76

30. Tetradynamous stamens are characteristic of:

- (A) Solanaceae
- (B) Fabaceae
- (C) Liliaceae
- (D) Brassicaceae

NEET 2017 (Gujarati paper) · Q77

31. Reserved material in prokaryotic cells is stored as:

- (A) Inclusion Bodies
- (B) Mesosome
- (C) Polysome
- (D) Basal body

NEET 2017 (Gujarati paper) · Q78

32. 'MOET' technique is used for super-ovulation in:

- (A) Fish
- (B) Cattles
- (C) Chickens
- (D) Elephants

NEET 2017 (Gujarati paper) · Q79

33. Which of the following statements is correct with respect to cell cycle?

- (A) A cell in G1 phase has double the amount of DNA than a cell in G2 phase
- (B) Each chromosome has two chromatids in G1 phase
- (C) Nerve cells in adult human are in G0 state
- (D) DNA content of cell remains constant during entire cell cycle

NEET 2017 (Gujarati paper) · Q80

34. Match Column-I with Column-II and select the correct option using codes given below.

Column-I: (a) Cytokinin (b) Ethylene (c) Gibberellin (d) Absciscic acid

Column-II: (i) stimulates closure of stomata (ii) increases stem length (iii) promotes lateral shoot growth (iv) found in large amount in tissues undergoing senescence

- (A) (a)-(iii), (b)-(ii), (c)-(iv), (d)-(i)
- (B) (a)-(iv), (b)-(i), (c)-(iii), (d)-(ii)
- (C) (a)-(ii), (b)-(iv), (c)-(i), (d)-(iii)
- (D) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

NEET 2017 (Gujarati paper) · Q81

35. Which of the following is not a ciliary movement?

- (A) Removal of dust particles in trachea.
- (B) Passage of ova through female reproductive tract.
- (C) Movement of macrophages and leucocytes.
- (D) Food gathering in Paramecium.

NEET 2017 (Gujarati paper) · Q82

36. Which of the following structures does not open into the genital chamber of female cockroaches?

- (A) A single median oviduct
- (B) Spermatheca
- (C) A pair of anal cerci
- (D) A pair of collateral glands

NEET 2017 (Gujarati paper) · Q84

37. Which of the following is a proteinaceous and water soluble photosynthetic pigment?

- (A) Xanthophyll
- (B) Phycocyanin
- (C) Anthocyanin
- (D) Chlorophyll

NEET 2017 (Gujarati paper) · Q85

38. Which of the following statements is correct?

- (A) Acquired immunity is pathogen specific.
- (B) The exaggerated response of the immune system to certain antigens present in the environment is called Auto-immunity.
- (C) Bone marrow acts as a filter of the blood by trapping blood borne micro-organisms.
- (D) AIDS is caused by a group of viruses called rhinovirus.

NEET 2017 (Gujarati paper) · Q86

39. All the components of the conducting system can generate an action potential for the contraction of heart muscle, but the sino-atrial node acts as the pacemaker because:

- (A) All the other components in heart cannot conduct the action potential.
- (B) Only the sino-atrial node is auto-excitabile and auto-rhythmic.
- (C) The sino-atrial node has a higher inherent rate of depolarisation.
- (D) The sino-atrial node has a lower inherent rate of depolarisation.

NEET 2017 (Gujarati paper) · Q87

40. If the ratio of (T + C)/(A + G) in one strand of DNA is 1.43, same ratio in the complementary strand is:

- (A) 0.35
- (B) 0.70
- (C) 1.43
- (D) 2.10

NEET 2017 (Gujarati paper) · Q88

41. In a hypothetical population of 100 individual having 'r' = 0.5/female/year, what will be the population size in 6 years (with e = 2.72) showing exponential rate of growth?

- (A) 1218
- (B) 739
- (C) 2012
- (D) 448

NEET 2017 (Gujarati paper) · Q89

42. Thymosin is responsible for:

- (A) Inhibiting the production of antibodies
- (B) Decreasing the blood calcium level in old individuals
- (C) Increased production of T-lymphocytes
- (D) Decreased production of T-lymphocytes

NEET 2017 (Gujarati paper) · Q90

43. Choose the correct sequence representing the ploidy of Nucellus; Megaspore mother cell; Megaspore; Egg cell; Zygote; A polar nucleus of embryo sac; Secondary nucleus and Primary endosperm nucleus.

- (A) $2n$; $2n$; n ; $2n$; n ; $2n$; $3n$ and $2n$
- (B) $2n$; $2n$; n ; n ; $2n$; n ; $2n$; and $3n$
- (C) $2n$; n ; n ; $2n$; $3n$; $2n$; n and $3n$
- (D) n ; $2n$; $2n$; n ; $2n$; n ; $2n$ and $2n$

NEET 2017 (Gujarati paper) · Q91

44. An example of flagellate protozoan is:

- (A) Paramoecium
- (B) Trypanosoma
- (C) Entamoeba
- (D) Plasmodium

NEET 2017 (Gujarati paper) · Q92

45. Which statement is wrong about photorespiration?

- (A) Photorespiration occurs in C_3 plants and not C_4 plants
- (B) There is no synthesis of ATP or NADPH
- (C) RuBisCO has higher affinity for CO_2 than O_2
- (D) RuBP binds with O_2 to form two molecules of phosphoglycolate

NEET 2017 (Gujarati paper) · Q93

46. Which technique helps to identify a bacterial or viral pathogen in a human body even when its concentration is very low and clinical symptoms are not yet visible?

- (A) ELISA
- (B) Total leucocyte count
- (C) PCR
- (D) Differential leucocyte count

NEET 2017 (Gujarati paper) · Q94

47. The Pacinian corpuscle responds to rapid changes in:

- (A) gravity
- (B) pressure
- (C) temperature
- (D) light intensity

NEET 2017 (Gujarati paper) · Q95

48. The hollow foliar structure in a wheat embryo that encloses the shoot apex and a few leaf primordia is called:

- (A) Coleorrhiza
- (B) Epicotyl
- (C) Hypocotyl
- (D) Coleoptile

NEET 2017 (Gujarati paper) · Q96

49. The increase in concentration of the toxicant at successive trophic levels is referred to as:

- (A) Eutrophication
- (B) Bioremediation
- (C) Biotransformation
- (D) Biomagnification

NEET 2017 (Gujarati paper) · Q97

50. The chief function of vessels in the plant body is to:

- (A) Transport food materials manufactured in the leaves to other parts of the plant.
- (B) Store food material in the form of starch or fat.
- (C) Conduct water and mineral salts.
- (D) Eliminate excess of water.

NEET 2017 (Gujarati paper) · Q98

51. A complex of ribosomes attached to a single strand of mRNA is known as:

- (A) Polymer
- (B) Polyribosome
- (C) Polypeptide
- (D) Okazaki fragment

NEET 2017 (Gujarati paper) · Q99

52. The sequential events from initial stage till climax stage in a succession are called:

- (A) Ecesis
- (B) Sere
- (C) Nudation
- (D) Migration

NEET 2017 (Gujarati paper) · Q100

53. The protein coat around a virus is called:

- (A) Core
- (B) Capsid
- (C) Trichome
- (D) Capsule

NEET 2017 (Gujarati paper) · Q101

54. Name the element which is the main constituent of the ring structure of chlorophyll and helps to maintain the ribosome structure.

- (A) Calcium
- (B) Magnesium
- (C) Nitrogen
- (D) Phosphorus

NEET 2017 (Gujarati paper) · Q102

55. Which of the following represents correct match of feature with the given set of animals?

Feature - Animals

- (A) Respiratory system – Cockroach, Tapeworm, Starfish
- (B) Bilateral symmetry – Hydra, Tapeworm, Sea urchin
- (C) Jointed appendages – Prawn, Centipede, Grasshopper
- (D) Metameric segmentation – Earthworm, Leech, Liver fluke

NEET 2017 (Gujarati paper) · Q103

56. Cholecystokinin acts on:

- (A) Gastric glands and liver
- (B) Pancreas and duodenum
- (C) Pancreas and intestine
- (D) Pancreas and gall bladder

NEET 2017 (Gujarati paper) · Q104

57. To protect and improve the quality of environment, the Government of India passed the Environment (Protection) Act in the year:

- (A) 1953
- (B) 1923
- (C) 1986
- (D) 1968

NEET 2017 (Gujarati paper) · Q105

58. Which of the following pathways is involved for packaging of secretory proteins?

- (A) Trans face of Golgi body → Cis face of Golgi body → RER → SER → Secretory vesicles
- (B) RER → Cis face of Golgi body → Trans face of Golgi body → Secretory vesicles
- (C) Cis face of Golgi body → Trans face of Golgi body → RER → Secretory vesicles
- (D) RER → Trans face of Golgi body → Cis face of Golgi body → Secretory vesicles

NEET 2017 (Gujarati paper) · Q107

59. Opposite type of phyllotaxy is not present in:

- (A) Guava
- (B) Calotropis
- (C) Mint
- (D) Mango

NEET 2017 (Gujarati paper) · Q108

60. In gene therapy to treat adenosine deaminase deficiency disorder, which of the patients blood cells are used?

- (A) Erythrocytes
- (B) Lymphocytes
- (C) Both Erythrocytes and Lymphocytes
- (D) Thrombocytes

NEET 2017 (Gujarati paper) · Q109

61. Which one of the following is not an IUD?

- (A) Cu T
- (B) Multiload 375
- (C) Progestasert
- (D) Vaults

NEET 2017 (Gujarati paper) · Q110

62. Growth hormone Auxin was isolated by F.W. Went from tips of seedling coleoptile of:

- (A) Maize
- (B) Wheat
- (C) Oat
- (D) Rice

NEET 2017 (Gujarati paper) · Q111

63. In the heart, as the action potential reaches the AV node from the SA node, there is a delay of the action potential. This delay is important because:

- (A) It allows atria to rest.
- (B) It allows a stronger right atrial contraction.
- (C) It allows ventricles to receive all the blood from the atria.
- (D) It allows right atria to receive the blood from vena cava.

NEET 2017 (Gujarati paper) · Q112

64. Pollen grains can be stored for years in liquid nitrogen, maintained at temperature:

- (A) – 20°C
- (B) – 70°C
- (C) – 196°C
- (D) – 120°C

NEET 2017 (Gujarati paper) · Q113

65. Which of the following statements is true for phloem in plants?

- (A) Sieve tube elements are multicellular with wide lumen and rich cytoplasm.
- (B) Companion cells help in maintaining the pressure gradient in sieve tubes.
- (C) Phloem parenchyma is abundantly present in monocots.
- (D) Phloem fibres are made up of collenchymatous cells.

NEET 2017 (Gujarati paper) · Q114

66. Match Column - I with Column - II and select the correct option.

Column - I: (a) Plasmodium (b) Wuchereria (c) Entamoeba (d) Microsporium

Column - II: (i) Ringworm (ii) Amoebiasis (iii) Elephantiasis (iv) Malaria

- (A) (a)-(iv), (b)-(i), (c)-(ii), (d)-(iii)
- (B) (a)-(iv), (b)-(iii), (c)-(i), (d)-(ii)
- (C) (a)-(i), (b)-(iii), (c)-(ii), (d)-(iv)
- (D) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

NEET 2017 (Gujarati paper) · Q115

67. Tree planting helps reduce global warming as trees:

- (A) Give out O₂
- (B) Create shade thereby cooling the ground
- (C) Can sequester CO₂
- (D) Can respire in light

NEET 2017 (Gujarati paper) · Q116

68. Van Mahotsava is a festival of:

- (A) Planting trees in open areas
- (B) Taking oath to protect trees
- (C) Worshipping trees
- (D) Conservation of sacred groves

NEET 2017 (Gujarati paper) · Q117

69. Which scientist proposed 'Rivet popper hypothesis' related to biodiversity and Ecosystems?

- (A) Alexander von Humboldt
- (B) Paul Ehrlich
- (C) David Tilman
- (D) Tansley

NEET 2017 (Gujarati paper) · Q118

70. Select the wrong statement:

- (A) Law of Dominance and Law of Independent Assortment were proposed by Mendel
- (B) Linkage and recombination were discovered by Sutton
- (C) Three scientists independently rediscovered the Mendel's laws in 1900
- (D) Chromosomal Theory of Inheritance was proposed by Sutton

NEET 2017 (Gujarati paper) · Q119

71. Continued self-pollination results in:

- (A) Heterosis
- (B) Inbreeding depression
- (C) Polyembryony
- (D) Genetic drift

NEET 2017 (Gujarati paper) · Q121

72. Continental drift led to disappearance of a number of South American mammals because:

- (A) there was an outbreak of a number of infectious diseases
- (B) sudden change in the climatic conditions
- (C) they were outcompeted by more highly evolved animals reaching here from North America
- (D) alteration of vegetation was not conducive to their survival

NEET 2017 (Gujarati paper) · Q122

73. Which one of the following is not true for the experiments of Mendel on pea?

- (A) He chose characters of two contrasting states
- (B) He used true-breeding lines
- (C) His observations were based on natural, open pollination
- (D) His experiments had large sampling size

NEET 2017 (Gujarati paper) · Q123

74. Restriction endonucleases are:

- (A) Used for in vitro DNA synthesis
- (B) Synthesized by bacteria as part of their defense mechanism
- (C) Present in mammalian cell for degradation of DNA when the cell dies
- (D) Used in genetic engineering for ligating two DNA molecules

NEET 2017 (Gujarati paper) · Q124

75. Which of the following statements is not true?

- (A) Descending limb of loop of Henle is impermeable to solutes.
- (B) Distal convoluted tubule functions in K^+ , Na^+ homeostasis
- (C) Descending limb of loop of Henle is impermeable to water.
- (D) Loop of Henle is largely responsible for concentrated urine

NEET 2017 (Gujarati paper) · Q125

76. Which of the following pairs is not correctly matched?

Vegetative Propagules - Example

- (A) Offset - Water hyacinth
- (B) Eyes - Potato
- (C) Rhizome - Ginger
- (D) Stolons - Agave

NEET 2017 (Gujarati paper) · Q126

77. What is not true for an angiospermic embryo sac?

- (A) It is present within an ovule.
- (B) It represents female gametophyte.
- (C) Its formation is preceded by meiosis.
- (D) One male gamete is discharged into it during fertilization.

NEET 2017 (Gujarati paper) · Q127

78. Which of the following enzymes is not protein?

- (A) Polymerase
- (B) Ligase
- (C) Lysozyme
- (D) Ribozyme

NEET 2017 (Gujarati paper) · Q128

79. The technique of DNA fingerprinting is superior to conventional fingerprinting because it can:

- (A) Generate unique fingerprints for each finger.
- (B) Compare the whole DNA sequence of two individuals.
- (C) Differentiate between polymorphic DNA sequences among individuals.
- (D) Be generated more rapidly, and is inexpensive.

NEET 2017 (Gujarati paper) · Q129

80. Choose the false statement regarding Petromyzon.

- (A) The body is devoid of scales
- (B) Mouth is circular and lacks jaws
- (C) It migrates to the ocean for spawning
- (D) The circulatory system is closed

NEET 2017 (Gujarati paper) · Q130

81. Which of the following symmetry is exhibited by Echinoderm Larvae?

- (A) Radial
- (B) Asymmetrical
- (C) Biradial
- (D) Bilateral

82. What is the meaning of Bt in Bt cotton?

- (A) Baculovirus treated cotton seeds against pink boll-worm.
- (B) Bigger thread of disease resistant cotton with better tensile strength.
- (C) Cotton produced by Biotechnology using restriction Enzyme and Ligases to resist microbial infection.
- (D) Cotton seeds carrying an endotoxin gene from *Bacillus thuringiensis* against pink boll-worm

83. A couple claimed in court that a child belonged to them. Their claim can be true if the DNA fingerprint pattern of the child shows:

- (A) 100% similarity to both the parents' DNA fingerprint as both contribute equally to zygote formation.
- (B) 100% similarity to mother's DNA print because of maternal inheritance.
- (C) 100% similarity to father's DNA print due to large number of mitochondria in sperm.
- (D) 50% bands similar to father and 50% similar to mother DNA fingerprint pattern.

84. Which of the following statements is not true?

- (A) A single organism can feed at several trophic levels
- (B) Detritivores feed at all trophic levels except the producer level
- (C) Primary consumers are herbivores
- (D) Energy pyramids of an ecosystem tend to diminish at higher trophic levels

85. The difference between Marasmus and Kwashiorkor is that:

- (A) Marasmus is caused by deficiency of Vitamin B while Kwashiorkor is caused by the deficiency of Vitamin D.
- (B) Marasmus is caused by a calorie deficiency while Kwashiorkor is caused by protein deficiency.
- (C) Marasmus is a simultaneous deficiency of proteins and calories while Kwashiorkor is due to just protein deficiency unaccompanied by calorie deficiency.
- (D) Marasmus is a deficiency of just proteins while Kwashiorkor is due to a deficiency of both proteins and calories.

Answer key and explanations

1. Answer: (A) Nucleus → Ribosomes → Endoplasmic reticulum → Golgi apparatus → Secretory vesicles → Plasma membrane

mRNA made in the nucleus is translated on ribosomes attached to the ER; the protein enters the ER lumen, is passed to the Golgi for modification and packaging, and leaves in secretory vesicles that fuse with the plasma membrane. Lysosomes are not on the secretory route, and ribosomes come before (not after) the ER in the sequence.

2. Answer: (B) Analogous structure

Penguin flippers are modified bird wings while dolphin flippers are modified mammalian forelimbs; they look alike and do the same job (swimming) because of similar habitat, which is convergent evolution producing analogous structures. They are not homologous in the sense intended, since their resemblance is due to function rather than shared ancestry of the flipper form.

3. Answer: (A) Foetus and placenta

Parturition is triggered by a neuroendocrine mechanism whose signals come from the fully developed foetus and the placenta; these induce mild uterine contractions (the foetal ejection reflex). The maternal pituitary only releases oxytocin in response, so it is not where the signal originates.

4. Answer: (D) They reproduce by mitosis.

Monerans are prokaryotes without a nucleus or spindle apparatus, so they divide by binary fission, not mitosis. They are indeed the oldest life forms (about 3.5 billion years) and include both autotrophs (cyanobacteria, chemosynthetic bacteria) and heterotrophs.

5. Answer: (C) Meiotic divisions are frequent

Callus is an undifferentiated mass of parenchyma that grows only by repeated mitosis; meiosis does not occur in callus culture. Somaclonal variation does arise in callus and callus can be used to regenerate many plantlets, so those statements are true.

6. Answer: (B) Competitive inhibition is seen when the substrate and the inhibitor compete.

In competitive inhibition a substrate-like inhibitor and the substrate compete for the same active site. It is competitive (not non-competitive) inhibition that can be overcome by raising substrate concentration, and non-competitive inhibitors typically bind reversibly at an allosteric site.

7. Answer: (D) Malleus

The malleus is attached to the tympanic membrane, the incus links it to the stapes, and the stapes sits on the oval window of the cochlea. The utricle is part of the vestibular apparatus of the inner ear, not an ossicle.

8. Answer: (D) Rete testis → vasa efferentia → epididymis → vas deferens

Seminiferous tubules open into the rete testis, which drains through the vasa efferentia into the epididymis; from there sperms pass into the vas deferens. Putting the epididymis before the vasa efferentia reverses the actual order.

9. Answer: (D) The efferent arteriole is wider than the afferent arteriole causing easier outflow of blood from the glomerulus.

High filtration needs high glomerular pressure, which comes from the efferent arteriole being narrower than the afferent arteriole; the statement that it is wider is false and would lower pressure. Large surface area, fenestrations and high capillary pressure all genuinely favour the large filtration volume.

10. Answer: (A) 12 years

Neelakuranji (*Strobilanthes kunthiana*) of the Western Ghats hills of Kerala, Karnataka and Tamil Nadu flowers once in 12 years, turning the hill slopes blue. Bamboo species are the plants that flower once in 50-100 years.

11. Answer: (C) One glycerol molecule and three fatty acid molecules.

A fat (triglyceride) is formed by esterification of the three hydroxyl groups of one glycerol with three fatty acids. One glycerol with one fatty acid gives only a monoglyceride.

12. Answer: (B) expressed in males

Males are hemizygous (XY), so a single recessive allele on their only X chromosome is always expressed, as in haemophilia and colour blindness. Females express it only when homozygous, and most such genes are neither lethal nor sub-lethal.

13. Answer: (B) Alnus

Frankia is a nitrogen-fixing actinomycete that forms root nodules on non-leguminous plants such as Alnus. Alfalfa, sweet pea and lentils are legumes whose nodules contain Rhizobium.

14. Answer: (D) Development: direct | indirect | indirect

Cockroach development is indirect (paurometabolous, through nymphs) and earthworm development is direct, so the development row is wrong for both. The circulation row (open, closed, closed), body surface and eye rows correctly describe the three animals.

15. Answer: (B) Pseudomonas

The first patented genetically engineered 'superbug' that degrades oil hydrocarbons was a strain of *Pseudomonas putida* developed by Ananda Mohan Chakrabarty. *Escherichia*, *Bacillus* and *Rhizobium* were not used for this purpose.

16. Answer: (B) Region of maturation

The region of maturation bears root hairs, which enormously increase the absorbing surface, so most water and mineral uptake happens there. The region of elongation is mainly concerned with growth in length, and the meristematic region and root cap do not absorb significantly.

17. Answer: (C) Prokaryotes, mitochondria and chloroplasts.

Prokaryotes, mitochondria and chloroplasts all have 70S ribosomes, which supports the endosymbiotic origin of these organelles. The eukaryotic cytoplasm and rough ER carry 80S ribosomes, so any grouping that mixes cytoplasm with mitochondria or chloroplasts is wrong.

18. Answer: (D) Klinefelter's syndrome is due to extra X chromosome and results in sterile male.

Klinefelter's syndrome (47, XXY) results from an extra X chromosome and gives a sterile male.

Phenylketonuria is autosomal recessive, Down's syndrome is trisomy of chromosome 21 (not triploidy), and Turner's syndrome is a monosomy (45, XO).

19. Answer: (B) 0.7

For tripalmitin, $2C_{51}H_{98}O_6 + 145 O_2 \rightarrow 102 CO_2 + 98 H_2O$, so $RQ = 102/145 \approx 0.7$. Fats are poor in oxygen and need more O_2 than the CO_2 they release; an RQ of 1 applies to carbohydrates.

20. Answer: (C) Residual volume

Residual volume is the air that always remains in the lungs after forced expiration, so it never passes through the spirometer and cannot be measured by it. Tidal volume, inspiratory reserve volume and vital capacity are all exhaled or inhaled volumes that a spirometer records.

21. Answer: (B) Neurospora

Sac fungi are Ascomycetes, which produce ascospores in sac-like asci; Neurospora is an ascomycete. Agaricus is a basidiomycete (club fungus), while Mucor and Albigo belong to the Phycmycetes.

22. Answer: (D) (a) is wrong

Only three codons (UAA, UAG, UGA) do not code for any amino acid, so the claim of six is the only false statement. The code is read contiguously without punctuation, the three stop codons terminate translation, and AUG both initiates and codes for methionine.

23. Answer: (A) Chronic damage to air sacs or alveoli leading to abnormal reduction in respiratory surface area

Emphysema is a chronic disorder in which alveolar walls are damaged, so the respiratory surface area decreases; smoking and air pollution are major causes. Persistent inflammation of the bronchi describes bronchitis, allergic bronchial spasms describe asthma, and emphysema reduces rather than increases lung elasticity.

24. Answer: (B) Robert Constanza

Robert Constanza and his colleagues estimated the value of global ecosystem services at about US \$33 trillion a year. David Tilman worked on productivity-diversity experiments, Paul Ehrlich proposed the rivet popper hypothesis, and Robert May estimated global species diversity.

25. Answer: (C) High level of Prolactin

During intense breastfeeding, high prolactin suppresses GnRH and hence FSH and LH release, so follicles do not mature and ovulation does not occur. A surge of estrogen or high FSH and LH would instead promote ovulation.

26. Answer: (C) Fast glycolytic fibres

Fast glycolytic (white) fibres have little myoglobin and few mitochondria and rely on anaerobic glycolysis, so lactic acid builds up quickly and they fatigue first. Slow oxidative (red, aerobic) fibres are rich in myoglobin and mitochondria and resist fatigue.

27. Answer: (A) Herbarium is created to house live specimens of plant material.

A herbarium stores dried, pressed and preserved plant specimens mounted on sheets, not live plants; living plants are kept in botanical gardens. The statements on museums, botanical gardens and zoos, and keys and floras are correct.

28. Answer: (C) Anaphase I

In anaphase I the homologous chromosomes of each bivalent separate and move to opposite poles while sister chromatids stay together. In anaphase II it is the sister chromatids that separate.

29. Answer: (C) The giant redwood tree Sequoia, one of the tallest trees is an angiosperm.

Sequoia, the giant redwood and one of the tallest trees, is a gymnosperm (a conifer), not an angiosperm. Pine roots do form mycorrhizae, Cycas coralloid roots harbour nitrogen-fixing cyanobacteria, and needle-like leaves reduce water loss.

30. Answer: (D) Brassicaceae

Tetradynamous condition, six stamens with four long and two short, is characteristic of Brassicaceae (mustard family). Fabaceae has diadelphous stamens, Solanaceae has five epipetalous stamens and Liliaceae has six stamens in two whorls.

31. Answer: (A) Inclusion Bodies

Prokaryotes store reserve materials such as phosphate granules, cyanophycean granules and glycogen granules in the cytoplasm as inclusion bodies, which are not bounded by membranes. The mesosome is an infolding of the plasma membrane, a polysome is a chain of ribosomes on mRNA, and the basal body anchors the flagellum.

32. Answer: (B) Cattles

Multiple Ovulation Embryo Transfer is used in cattle: a cow is given FSH-like hormones to release 6-8 eggs instead of one, the embryos are collected and transferred to surrogate mothers. It is a technique of animal husbandry for high-yielding cattle, not for fish or poultry.

33. Answer: (C) Nerve cells in adult human are in G0 state

Adult nerve cells have exited the cycle and stay in the quiescent G0 stage, remaining metabolically active without dividing. DNA doubles in S phase, so a G2 cell has twice the DNA of a G1 cell, and chromosomes have two chromatids only after S phase.

34. Answer: (D) (a)-(iii), (b)-(iv), (c)-(ii), (d)-(i)

Cytokinins overcome apical dominance and promote lateral shoot growth; ethylene is produced in large amounts by senescing tissues and ripening fruits; gibberellins cause stem elongation; abscisic acid stimulates stomatal closure. The trap code giving ethylene the stem-elongation role confuses it with gibberellin.

35. Answer: (C) Movement of macrophages and leucocytes.

Macrophages and leucocytes move by pseudopodia, which is amoeboid movement. Cilia lining the trachea and the fallopian tube, and those of Paramecium driving food into the gullet, all show ciliary movement.

36. Answer: (C) A pair of anal cerci

Anal cerci are jointed filamentous appendages on the 10th abdominal segment of both sexes and are external sense organs, so they do not open into the genital chamber. The median oviduct (vagina), spermatheca and collateral glands all open into the female genital chamber.

37. Answer: (B) Phycocyanin

Phycocyanin is a phycobiliprotein, a water-soluble pigment-protein complex of cyanobacteria and red algae that captures light for photosynthesis. Xanthophylls and chlorophylls are fat-soluble, and anthocyanin is a water-soluble vacuolar pigment that is not proteinaceous and not photosynthetic.

38. Answer: (A) Acquired immunity is pathogen specific.

Acquired immunity is specific to the pathogen encountered and shows memory. An exaggerated response to environmental antigens is allergy, the spleen (not bone marrow) filters blood-borne microbes, and AIDS is caused by HIV, a retrovirus.

39. Answer: (C) The sino-atrial node has a higher inherent rate of depolarisation.

The SA node generates the maximum number of action potentials per minute (about 70-75), so it sets the rhythm for the whole heart. Other nodal tissue such as the AV node is also autoexcitable but fires more slowly, so it is not true that only the SA node is autorhythmic.

40. Answer: (B) 0.70

Because A pairs with T and G with C, (T + C) of the complementary strand equals (A + G) of the given strand, so the ratio inverts: $1/1.43 \approx 0.70$. Keeping the ratio at 1.43 would apply only to $(A + T)/(G + C)$, which stays the same in both strands.

41. Answer: (C) 2012

Exponential growth gives $N_t = N_0 e^{(rt)} = 100 \times e^{(0.5 \times 6)} = 100 \times e^3 = 100 \times (2.72)^3 \approx 100 \times 20.12 \approx 2012$. Using $rt = 2$ instead ($100 \times 2.72^2 \approx 739$) is the common slip.

42. Answer: (C) Increased production of T-lymphocytes

The thymus secretes thymosins, which promote the differentiation of T-lymphocytes for cell-mediated immunity and also aid antibody production. Lowering blood calcium is the job of thyrocalcitonin, not thymosin.

43. Answer: (B) 2n; 2n; n; n; 2n; n; 2n; and 3n

Nucellus and the megaspore mother cell are diploid; meiosis gives a haploid megaspore, whose products include the haploid egg and haploid polar nuclei; the zygote is 2n, the fused secondary nucleus is 2n, and its fusion with a male gamete gives the triploid primary endosperm nucleus. Sequences that make the egg 2n or the PEN 2n are wrong.

44. Answer: (B) Trypanosoma

Trypanosoma, the cause of sleeping sickness, is a flagellated protozoan. Paramoecium is ciliated, Entamoeba is amoeboid (moves by pseudopodia) and Plasmodium is a sporozoan.

45. Answer: (D) RuBP binds with O₂ to form two molecules of phosphoglycolate

When RuBisCO binds O₂, one RuBP gives one molecule of phosphoglycerate and one molecule of phosphoglycolate, not two phosphoglycolates. RuBisCO does have a much greater affinity for CO₂ than O₂, photorespiration produces no ATP or NADPH, and it does not occur in C₄ plants.

46. Answer: (C) PCR

PCR amplifies the pathogen's nucleic acid many times, so a bacterium or virus can be detected at very low concentration, before symptoms appear. ELISA detects antigens or antibodies and needs a larger pathogen load or an immune response, and leucocyte counts are not pathogen-specific.

47. Answer: (B) pressure

Pacinian corpuscles are lamellated mechanoreceptors deep in the dermis that respond to deep pressure and vibration. Temperature is sensed by thermoreceptors, light by photoreceptors and gravity by the vestibular apparatus.

48. Answer: (D) Coleoptile

In grass embryos the shoot apex and a few leaf primordia are enclosed in a hollow foliar sheath called the coleoptile. The coleorrhiza is the undifferentiated sheath around the radicle and root cap, while epicotyl and hypocotyl are portions of the embryonal axis.

49. Answer: (D) Biomagnification

Biomagnification is the rise in concentration of a persistent toxicant such as DDT or mercury at each higher trophic level, because it cannot be metabolised or excreted. Eutrophication is nutrient enrichment and ageing of a water body, not toxicant build-up.

50. Answer: (C) Conduct water and mineral salts.

Vessels are long tubes of dead lignified cells in the xylem whose main role is conducting water and minerals from roots to the aerial parts. Transporting food made in leaves is the function of phloem sieve tubes, not vessels.

51. Answer: (B) Polyribosome

Several ribosomes translating the same mRNA together form a polyribosome (polysome). A polypeptide is the product of translation and an Okazaki fragment is a short piece of lagging-strand DNA made in replication.

52. Answer: (B) Sere

The entire sequence of communities that replace one another from the pioneer stage to the climax community is called a sere, and each stage is a seral stage. Nudation (formation of a bare area), migration and ecesis (establishment) are only individual steps of succession.

53. Answer: (B) Capsid

The nucleic acid of a virus is enclosed in a protein coat called the capsid, made of subunits called capsomeres. A capsule is the slimy outer layer of some bacteria, and trichome refers to plant hairs or filaments of cyanobacteria.

54. Answer: (B) Magnesium

Magnesium is the central atom of the porphyrin ring of chlorophyll and also maintains the structure of ribosomes. Nitrogen is part of the ring too but is not the element that maintains ribosome structure, while calcium is used in the middle lamella.

55. Answer: (C) Jointed appendages - Prawn, Centipede, Grasshopper

Prawn, centipede and grasshopper are all arthropods with jointed appendages. Tapeworm has no respiratory system, Hydra is radially symmetrical and adult sea urchin is radial, and the liver fluke is a flatworm without metameric segmentation.

56. Answer: (D) Pancreas and gall bladder

Cholecystokinin (CCK), released by the duodenum, acts on the pancreas to secrete pancreatic enzymes and on the gall bladder to release bile. Gastric glands are stimulated by gastrin, not CCK.

57. Answer: (C) 1986

The Environment (Protection) Act was passed by the Government of India in 1986, after the Bhopal gas tragedy. The other years do not correspond to this legislation.

58. Answer: (B) RER → Cis face of Golgi body → Trans face of Golgi body → Secretory vesicles

Proteins made on the RER reach the receiving cis (forming) face of the Golgi, move through the cisternae and leave from the trans (maturing) face in secretory vesicles. Entering at the trans face reverses the polarity of the Golgi.

59. Answer: (D) Mango

Mango has alternate phyllotaxy, with a single leaf at each node. Guava and Calotropis have opposite leaves (a pair at each node), and mint has opposite decussate leaves.

60. Answer: (B) Lymphocytes

In the first gene therapy (1990) for ADA deficiency, lymphocytes from the patient's blood were grown in culture, given a functional ADA cDNA using a retroviral vector, and returned to the patient. Erythrocytes lack a nucleus, so they cannot carry and express the introduced gene.

61. Answer: (D) Vaults

Vaults are barrier contraceptives placed over the cervix by the female. Cu T and Multiload 375 are copper-releasing IUDs and Progestasert is a hormone-releasing IUD.

62. Answer: (C) Oat

F.W. Went isolated auxin from the coleoptile tips of oat (*Avena sativa*) seedlings using agar blocks. Maize, wheat and rice coleoptiles were not used in his classic experiment.

63. Answer: (C) It allows ventricles to receive all the blood from the atria.

The short AV-nodal delay lets the atria finish contracting and push their blood into the ventricles before ventricular systole begins. It does not make atrial contraction stronger or serve atrial filling from the venae cavae.

64. Answer: (C) - 196°C

Liquid nitrogen boils at -196°C, and pollen grains are cryopreserved at this temperature in pollen banks for years. The other temperatures are not the temperature of liquid nitrogen.

65. Answer: (B) Companion cells help in maintaining the pressure gradient in sieve tubes.

Companion cells are connected to sieve tube elements by pit fields and help maintain the pressure gradient in the sieve tubes. Each sieve tube element is a single cell that loses its nucleus, phloem parenchyma is absent in most monocots, and phloem fibres are sclerenchymatous.

66. Answer: (D) (a)-(iv), (b)-(iii), (c)-(ii), (d)-(i)

Plasmodium causes malaria, Wuchereria (a filarial worm) causes elephantiasis, Entamoeba histolytica causes amoebiasis and the fungus Microsporium causes ringworm. Pairing Wuchereria with ringworm swaps a helminth with a fungal disease.

67. Answer: (C) Can sequester CO₂

Trees fix atmospheric CO₂ in photosynthesis and store the carbon in their biomass, lowering the concentration of this greenhouse gas. Giving out O₂ or shading the ground does not reduce the greenhouse effect.

68. Answer: (A) Planting trees in open areas

Van Mahotsava, celebrated in the first week of July in India, is a festival of planting trees. Sacred groves are traditional forest patches protected for religious reasons, a different practice.

69. Answer: (B) Paul Ehrlich

Stanford ecologist Paul Ehrlich proposed the rivet popper hypothesis, comparing species in an ecosystem to rivets in an aeroplane. Humboldt described species-area relationships and David Tilman showed that plots with more species have more stable productivity.

70. Answer: (B) Linkage and recombination were discovered by Sutton

Linkage and recombination were discovered by T.H. Morgan through his *Drosophila* experiments, not by Sutton. Sutton (with Boveri) proposed the chromosomal theory of inheritance, and de Vries, Correns and von Tschermak rediscovered Mendel's work in 1900.

71. Answer: (B) Inbreeding depression

Continued self-pollination increases homozygosity, exposing harmful recessive alleles and reducing fertility and vigour, which is inbreeding depression. Heterosis (hybrid vigour) is the opposite outcome produced by outcrossing.

72. Answer: (C) they were outcompeted by more highly evolved animals reaching here from North America

When South America joined North America, the native pouched mammals of South America were overridden and outcompeted by North American fauna that migrated in. Disease outbreaks or climatic shifts are not the explanation NCERT gives.

73. Answer: (C) His observations were based on natural, open pollination

Mendel made his crosses by controlled artificial pollination (emasculatation and bagging), not by natural open pollination. He did choose seven characters with two contrasting forms, start from true-breeding lines and use large samples, which gave his data statistical reliability.

74. Answer: (B) Synthesized by bacteria as part of their defense mechanism

Restriction endonucleases are made by bacteria to cut the DNA of invading bacteriophages, restricting their growth, which is a defence mechanism. Joining DNA molecules is done by DNA ligase, and DNA synthesis in vitro needs DNA polymerase.

75. Answer: (C) Descending limb of loop of Henle is impermeable to water.

The descending limb of Henle's loop is permeable to water but almost impermeable to electrolytes, so water leaves it and the filtrate becomes concentrated. It is the ascending limb that is impermeable to water.

76. Answer: (D) Stolons - Agave

Agave propagates by bulbils, which are modified buds, not by stolons. Water hyacinth spreads by offsets, potato tubers sprout from their eyes (nodes), and ginger is a rhizome.

77. Answer: (D) One male gamete is discharged into it during fertilization.

The pollen tube releases two male gametes into the synergid of the embryo sac: one fuses with the egg and the other with the polar nuclei (double fertilisation). The embryo sac is the female gametophyte inside the ovule, and it develops from a megaspore formed by meiosis.

78. Answer: (D) Ribozyme

Ribozymes are catalytic RNA molecules (for example the peptidyl transferase activity of rRNA), so they are not proteins. Polymerases, ligases and lysozyme are all protein enzymes.

79. Answer: (C) Differentiate between polymorphic DNA sequences among individuals.

DNA fingerprinting compares repetitive, highly polymorphic DNA sequences (VNTRs), which differ between individuals and are inherited from parents. It does not compare whole genomes, and it is slower and more expensive than taking conventional fingerprints.

80. Answer: (C) It migrates to the ocean for spawning

Petromyzon (lamprey) is marine but migrates to fresh water for spawning; the adults die soon after and the larvae return to the ocean after metamorphosis, so migrating to the ocean to spawn is false. Cyclostomes are scaleless, have a circular jawless sucking mouth and a closed circulatory system, so the statement about closed circulation is true.

81. Answer: (D) Bilateral

Echinoderm larvae are bilaterally symmetrical, while the adults become radially symmetrical. Radial symmetry describes the adult, not the larva.

82. Answer: (D) Cotton seeds carrying an endotoxin gene from *Bacillus thuringiensis* against pink boll-worm

Bt stands for *Bacillus thuringiensis*; Bt cotton carries its cry gene coding for an insecticidal protein toxin that kills bollworms. Baculoviruses are separate biocontrol agents, and Bt cotton gives insect resistance rather than resistance to microbial infection.

83. Answer: (D) 50% bands similar to father and 50% similar to mother DNA fingerprint pattern.

A child gets one set of chromosomes from each parent, so about half of the bands in its DNA fingerprint match the father and half match the mother. A complete match with either parent, or with both, is impossible for a biological child.

84. Answer: (B) Detritivores feed at all trophic levels except the producer level

Detritivores feed on dead organic matter from every trophic level, including dead leaves and wood of producers, so excluding the producer level is false. Primary consumers are by definition herbivores, one organism such as a sparrow can feed at more than one trophic level, and energy decreases at each higher level.

85. Answer: (C) Marasmus is a simultaneous deficiency of proteins and calories while Kwashiorkor is due to just protein deficiency unaccompanied by calorie deficiency.

Marasmus results from a combined deficiency of proteins and calories, typically in infants under a year, whereas kwashiorkor is caused by protein deficiency when calorie intake is adequate. Calling marasmus purely a calorie deficiency misses the protein component, and neither disease is a vitamin deficiency.

Questions as set in the AIPMT/NEET papers conducted by CBSE and NTA. Answers checked and explanations written by the RankUp team. RankUp is not affiliated with CBSE or NTA.