NEET 2025 — Biology Question Paper with Solutions

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

NEET 2025

1. The protein portion of an enzyme is called:

(A) Apoenzyme
(B) Prosthetic group
(C) Cofactor
(D) Coenzyme

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2. Given below are two statements:
Statement I: The primary source of energy in an ecosystem is solar energy.
Statement II : The rate of production of organic matter during photosynthesis in an ecosystem is called net primary productivity (NPP).
In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Statement I is correct but statement II is incorrect
(B) Statement I is incorrect but statement II is correct
(C) Both statement I and statement II are correct
(D) Both statement I and statement II are incorrect

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3. Given below are two statements : One is labelled as Assertion (A) and the other is labelled as
Reason (R).
Assertion (A) : A typical unfertilised, angiosperm embryo sac at maturity is 8 nucleate and 7-celled.
Reason (R) : The egg apparatus has 2 polar nuclei.
In the light of the above statements, choose the correct answer from the options given below :

(A) A is true but R is false
(B) A is false but R is true
(C) Both A and R are true and R is the correct explanation of A
(D) Both A and R are true but R is NOT the correct explanation of A

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4. Neoplastic characteristics of cells refer to:
A. A mass of proliferating cell
B. Rapid growth of cells
C. Invasion and damage to the surrounding tissue
D. Those confined to original location
Choose the correct answer from the options given below:

(A) A, B, D only
(B) B, C, D only
(C) A, B only
(D) A, B, C only

NEET 2025

5. Which one of the following is the characteristic feature of gymnosperms?

(A) Seeds are absent
(B) Gymnosperms have flowers for reproduction
(C) Seeds are enclosed in fruits
(D) Seeds are naked

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6. Match List-I with List-II

List - I List - II

A Progesterone I Pars intermedia

B Relaxin II Ovary

C Melanocyte stimulating hormone III Adrenal Medulla

D Catecholamines IV Corpus luteum

Choose the correct answer from the options given below :

(A) A-II, B-IV, C-I, D-III
(B) A-III, B-II, C-IV, D-I
(C) A-IV, B-II, C-I, D-III
(D) A-IV, B-II, C-III, D-I

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7. Which chromosome in the human genome has the highest number of genes?

(A) Chromosome 1
(B) Chromosome 10
(C) Chromosome X
(D) Chromosome Y

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8. Which of the following statements about RuBisCO is true?

(A) It is an enzyme involved in the photolysis of water
(B) It catalyzes the carboxylation of RuBP
(C) It is active only in the dark
(D) It has higher affinity for oxygen than carbon dioxide

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9. The first menstruation is called :

(A) Diapause
(B) Ovulation
(C) Menopause
(D) Menarche

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10. Which of the following genetically engineered organisms was used by Eli Lilly to prepare human insulin?

(A) Virus
(B) Phage
(C) Bacterium
(D) Yeast

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11. Given below are two statements: one is labelled as Assertion (A) and the other is labelled as Reason (R).

Assertion (A) : All vertebrates are chordates but all chordates are not vertebrate.

Reason (R) : The members of subphylum vertebrata possess notochord during the embryonic period, the notochord is replaced by cartilaginous or bony vertebral column in adults.

In the light of the above statements, choose the correct answer from the options given below:

(A) (A) is true but (R) is false
(B) (A) is false but (R) is true
(C) Both (A) and (R) are true and (R) is the correct explanation of (A)
(D) Both (A) and (R) are true but (R) is not the correct explanation of (A)

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12. What is the main function of the spindle fibers during mitosis?

(A) To repair damaged DNA
(B) To regulate cell growth
(C) To separate the chromosomes
(D) To synthesize new DNA

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13. Match List-I with List-II

List - I List - II

A Alfred Hershey and Martha Chase I Streptococcus pneumoniae

B Euchromatin II Densely packed and dark-stained

C Frederick Griffith III Loosely packed and light-stained

D Heterochromatin IV DNA as genetic material confirmation

Choose the correct answer from the options given below:

(A) A-IV, B-III, C-I, D-II
(B) A-III, B-II, C-IV, D-I
(C) A-II, B-IV, C-I, D-III
(D) A-IV, B-II, C-I, D-III

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14. Match List-I with List-II

List - I List - II

A Adenosine I Nitrogen base

B Adenylic acid II Nucleotide

C Adenine III Nucleoside

D Alanine IV Amino acid

Choose the option with all correct matches.

(A) A-III, B-II, C-I, D-IV
(B) A-II, B-III, C-I, D-IV
(C) A-III, B-IV, C-II, D-I
(D) A-III, B-II, C-IV, D-I

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15. In frog, the Renal portal system is a special venous connection that acts to link:

(A) Kidney and intestine
(B) Kidney and lower part of body
(C) Liver and intestine
(D) Liver and kidney

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16. Which of the following are the post-transcriptional events in an eukaryotic cell?

A. Transport of pre-mRNA to cytoplasm prior to splicing.

B. Removal of introns and joining of exons.

C. Addition of methyl group at 5' end of hnRNA.

D. Addition of adenine residues at 3' end of hnRNA.

E. Base pairing of two complementary RNAs.

Choose the correct answer from the options given below :

(A) B, C, E only
(B) C, D, E only
(C) A, B, C only
(D) B, C, D only

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17. Given below are two statements: One is labelled as Assertion (A) and the other is labelled as
Reason (R).
Assertion (A) : Both wind and water pollinated flowers are not very colourful and do not produce nectar.
Reason (R) : The flowers produce enormous amount of pollen grains in wind and water pollinated flowers.
In the light of the above statements, choose the correct answer from the options given below:

(A) A is true but R is false
(B) A is false but R is true
(C) Both A and R are true and R is the correct explanation of A
(D) Both A and R are true but R is NOT the correct explanation of A

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18. Epiphytes that are growing on a mango branch is an example of which of the following?

(A) Predation
(B) Amensalism
(C) Commensalism
(D) Mutualism

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19. Find the correct statement :
(A) In human pregnancy, the major organ systems are formed at the end of 12 weeks.
(B) In human pregnancy the major organ systems are formed at the end of 8 weeks.
(C) In human pregnancy heart is formed after one month of gestation.
(D) In human pregnancy, limbs and digits develop by the end of second month.
(E) In human pregnancy the appearance of hair is usually observed in the fifth month.
Choose the correct answer from the options given below :

(A) B, C, D and E only
(B) A, C, D and E only
(C) A and E only
(D) B and C only

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20. Consider the following statements regarding function of adrenal medullary hormones:
(A) It causes pupilary constriction.
(B) It is a hyperglycemic hormone.
(C) It causes piloerection.
(D) It increases strength of heart contraction.
Choose the correct answer from the options given below :

(A) A, C and D only
(B) D only
(C) C and D only
(D) B, C and D only

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21. Read the following statements on plant growth and development.

(A) Parthenocarpy can be induced by auxins.

(B) Plant growth regulators can be involved in promotion as well as inhibition of growth.

(C) Dedifferentiation is a pre-requisite for re-differentiation.

(D) Abscisic acid is a plant growth promoter.

(E) Apical dominance promotes the growth of lateral buds.

Choose the option with all correct statements.

(A) A, D, E only
(B) B, D, E only
(C) A, B, C only
(D) A, C, E only

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22. Which of the following hormones released from the pituitary is actually synthesized in the hypothalamus?

(A) Follicle-stimulating hormone (FSH)
(B) Adrenocorticotropic hormone (ACTH)
(C) Luteinizing hormone (LH)
(D) Anti-diuretic hormone (ADH)

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23. Which of the following is an example of non-distilled alcoholic beverage produced by yeast?

(A) Beer
(B) Rum
(C) Whisky
(D) Brandy

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24. What is the pattern of inheritance for polygenic trait?

(A) Autosomal dominant pattern
(B) X-linked recessive inheritance pattern
(C) Mendelian inheritance pattern
(D) Non-mendelian inheritance pattern

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25. Match List-I with List-II.

List - I	List - II
A Head	I Enzymes
B Middle piece	II Sperm motility
C Acrosome	III Energy
D Tail	IV Genetic material

Choose the correct answer from the options given below :

(A) A-III, B-IV, C-II, D-I
(B) A-III, B-II, C-I, D-IV
(C) A-IV, B-III, C-I, D-II
(D) A-IV, B-III, C-II, D-I

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26. Which of the following is an example of a zygomorphic flower?

(A) Pea
(B) Chilli
(C) Petunia
(D) Datura

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27. Which of following organisms cannot fix nitrogen?

A. Azotobacter

B. Oscillatoria

C. Anabaena

D. Volvox

E. Nostoc

Choose the correct answer from the options given below:

(A) B only
(B) E only
(C) A only
(D) D only

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28. Which one of the following is an example of ex-situ conservation?

(A) Zoos and botanical gardens
(B) Protected areas
(C) National Park
(D) Wildlife Sanctuary

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29. Who is known as the father of Ecology in India?

(A) Ram Udar
(B) Birbal Sahni
(C) S.R. Kashyap
(D) Ramdeo Misra

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30. Given below are two statements:

Statement I: In the RNA world, RNA is considered the first genetic material evolved to carry out essential life processes. RNA acts as a genetic material and also as a catalyst for some important biochemical reactions in living systems. Being reactive, RNA is unstable.

Statement II: DNA evolved from RNA and is a more stable genetic material. Its double helical strands being complementary, resist changes by evolving repairing mechanism.

In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Statement I is correct but statement II is incorrect
(B) Statement I is incorrect but statement II is correct
(C) Both statement I and statement II are correct
(D) Both statement I and statement II are incorrect

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31. Given below are two statements :

Statement I : Transfer RNAs and ribosomal RNA do not interact with mRNA.

Statement II : RNA interference (RNAi) takes place in all eukaryotic organisms as a method of cellular defence.

In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Statement I is correct but statement II is incorrect
(B) Statement I is incorrect but statement II is correct
(C) Both statement I and statement II are correct
(D) Both statement I and statement II are incorrect

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32. Match List-I with List-II.

List - I List - II

A Heart I Erythropoietin

B Kidney II Aldosterone

C Gastro-intestinal tract III Atrial natriuretic factor

D Adrenal Cortex IV Secretin

Choose the correct answer from the options given below :

(A) A-I, B-III, C-IV, D-II
(B) A-III, B-I, C-IV, D-II
(C) A-II, B-I, C-III, D-IV
(D) A-IV, B-III, C-II, D-I

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33. All living members of the class Cyclostomata are :

(A) Symbiotic
(B) Ectoparasite
(C) Free living
(D) Endoparasite

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34. Streptokinase produced by bacterium Streptococcus is used for

(A) Liver disease treatment
(B) Removing clots from blood vessels
(C) Curd production
(D) Ethanol production

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35. Role of the water vascular system in Echinoderms is :

A. Respiration and Locomotion

B. Excretion and Locomotion

C. Capture and transport of food

D. Digestion and Respiration

E. Digestion and Excretion

Choose the correct answer from the options given below :

(A) B and C Only
(B) B, D and E Only
(C) A and B Only
(D) A and C Only

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36. Match List-I with List-II.

List - I List - II

A Pteridophyte I Salvia

B Bryophyte II Ginkgo

C Angiosperm III Polytrichum

D Gymnosperm IV Salvinia

Choose the option with all correct matches.

(A) A-III, B-IV, C-I, D-II
(B) A-IV, B-III, C-II, D-I
(C) A-III, B-IV, C-II, D-I
(D) A-IV, B-III, C-I, D-II

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37. Which are correct:

A. Computed tomography and magnetic resonance imaging detect cancers of internal organs.

B. Chemotherapeutics drugs are used to kill non-cancerous cells.

C. α-interferon activate the cancer patients' immune system and helps in destroying the tumour.

D. Chemotherapeutic drugs are biological response modifiers.

E. In the case of leukaemia blood cell counts are decreased.

Choose the correct answer from the options given below:

(A) C and D only
(B) A and C only
(C) B and D only
(D) D and E only

NEET 2025

38. What are the potential drawbacks in adoption of the IVF method?

A. High fatality risk to mother

B. Expensive instruments and reagents

C. Husband/wife necessary for being donors

D. Less adoption of orphans

E. Not available in India

F. Possibility that the early embryo does not survive

Choose the correct answer from the options given below:

(A) A, B, C, D only
(B) A, B, C, E, F only
(C) B, D, F only
(D) A, C, D, F only

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39. Consider the following :

A. The reductive division for the human female gametogenesis starts earlier than that of the male gametogenesis.

B. The gap between the first meiotic division and the second meiotic division is much shorter for males compared to females.

C. The first polar body is associated with the formation of the primary oocyte.

D. Luteinizing Hormone (LH) surge leads to disintegration of the endometrium and onset of menstrual bleeding.

Choose the correct answer from the options given below:

(A) B and D are true
(B) B and C are true
(C) A and B are true
(D) A and C are true

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40. In bryophytes, the gemmae help in which one of the following?

(A) Nutrient absorption
(B) Gaseous exchange
(C) Sexual reproduction
(D) Asexual reproduction

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41. Which one of the following statements refers to Reductionist Biology?

(A) Chemical approach to study and understand living organisms
(B) Behavioural approach to study and understand living organisms
(C) Physico-chemical approach to study and understand living organisms
(D) Physiological approach to study and understand living organisms

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42. After maturation, in primary lymphoid organs, the lymphocytes migrate for interaction with antigens to secondary lymphoid organ(s) / tissue(s) like

A. thymus
B. bone marrow
C. spleen
D. lymph nodes
E. Peyer's patches

Choose the correct answer from the options given below

(A) E, A, B only
(B) C, D, E only
(C) B, C, D only
(D) A, B, C only

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43. Match List-I with List-II

List - I	List - II
A The Evil Quartet	I Cryopreservation
B Ex situ conservation	II Alien species invasion
C Lantana camara	III Causes of biodiversity losses
D Dodo	IV Extinction

Choose the option with all correct matches.

(A) A-III, B-IV, C-II, D-I
(B) A-III, B-II, C-IV, D-I
(C) A-III, B-II, C-I, D-IV
(D) A-III, B-I, C-II, D-IV

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44. How many meiotic and mitotic divisions need to occur for the development of a mature female gametophyte from the megaspore mother cell in an angiosperm plant?

(A) 1 Meiosis and 3 Mitosis
(B) No Meiosis and 2 Mitosis
(C) 2 Meiosis and 3 Mitosis
(D) 1 Meiosis and 2 Mitosis

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45. Which of the following type of immunity is present at the time of birth and is a non-specific type of defence in the human body?

(A) Cell-mediated Immunity
(B) Humoral Immunity
(C) Acquired Immunity
(D) Innate Immunity

NEET 2025

46. Given below are two statements : One is labelled as Assertion (A) and other is labelled as Reason (R).
Assertion (A) : Cells of the tapetum possess dense cytoplasm and generally have more than one nucleus.
Reason (R) : Presence of more than one nucleus in the tapetum increases the efficiency of nourishing the developing microspore mother cells.
In light of the above statements, choose the most appropriate answer from the options given below:

(A) A is true but R is false
(B) A is false but R is true
(C) Both A and R are true and R is the correct explanation of A
(D) Both A and R are true but R is NOT the correct explanation of A

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47. From the statements given below choose the correct option :
A. The eukaryotic ribosomes are 80S and prokaryotic ribosomes are 70S.
B. Each ribosome has two sub-units.
C. The two sub-units of 80 S ribosome are 60 S and 40 S while that of 70 S are 50 S and 30 S .
D. The two sub-units of 80 S ribosome are 60 S and 20 S and that of 70 S are 50 S and 20 S .
E. The two sub-units of 80 S are 60 S and 30 S and that of 70 S are 50 S and 30 S .

(A) A, B, E are true
(B) B, D, E are true
(C) A, B, C are true
(D) A, B, D are true

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48. Which one of the following enzymes contains 'Haem' as the prosthetic group?

(A) Succinate dehydrogenase
(B) Catalase
(C) RuBisCo
(D) Carbonic anhydrase

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49. What is the name of the blood vessel that carries deoxygenated blood from the body to the heart in a frog?

(A) Pulmonary vein
(B) Vena cava
(C) Aorta
(D) Pulmonary artery

NEET 2025

50. Given below are the stages in the life cycle of pteridophytes. Arrange the following stages in the correct sequence.
A. Prothallus stage
B. Meiosis in spore mother cells
C. Fertilisation
D. Formation of archegonia and antheridia in gametophyte.
E. Transfer of antherozoids to the archegonia in presence of water.
Choose the correct answer from the options given below:

(A) D, E, C, A, B
(B) E, D, C, B, A
(C) B, A, D, E, C
(D) B, A, E, C, D

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51. The blue and white selectable markers have been developed which differentiate recombinant colonies from nonrecombinant colonies on the basis of their ability to produce colour in the presence of a chromogenic substrate.
Given below are two statements about this method:
Statement I : The blue coloured colonies have DNA insert in the plasmid and they are identified as recombinant colonies.
Statement II : The colonies without blue colour have DNA insert in the plasmid and are identified as recombinant colonies.
In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Statement I is correct but Statement II is incorrect
(B) Statement I is incorrect but Statement II is correct
(C) Both Statement I and Statement II are correct
(D) Both Statement I and Statement II are incorrect

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52. Which of the following microbes is NOT involved in the preparation of household products?
A. Aspergillus niger
B. Lactobacillus
C. Trichoderma polysporum
D. Saccharomyces cerevisiae
E. Propionibacterium sharmanii
Choose the correct answer from the options given below:

(A) C and D only
(B) C and E only
(C) A and B only
(D) A and C only

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53. Silencing of specific mRNA is possible via RNAi because of

(A) Complementary tRNA
(B) Non-complementary ssRNA
(C) Complementary dsRNA
(D) Inhibitory ssRNA

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54. The complex II of mitochondrial electron transport chain is also known as

(A) Cytochrome c oxidase
(B) NADH dehydrogenase
(C) Cytochrome bc_1
(D) Succinate dehydrogenase

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55. While trying to find out the characteristic of a newly found animal, a researcher did the histology of adult animal and observed a cavity with presence of mesodermal tissue towards the body wall but no mesodermal tissue was observed towards the alimentary canal. What could be the possible coelom of that animal?

(A) Schizocoelomate
(B) Spongocoelomate
(C) Acoelomate
(D) Pseudocoelomate

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56. Given below are two statements:

Statement I: In a floral formula ⊕ stands for zygomorphic nature of the flower, and G̲ stands for inferior ovary.

Statement II: In a floral formula ⊕ stands for actinomorphic nature of the flower and G̲ stands for superior ovary.

In the light of the above statements, choose the correct answer from the options given below:

(A) Statement I is correct but Statement II is incorrect
(B) Statement I is incorrect but Statement II is correct
(C) Both Statement I and Statement II are correct
(D) Both Statement I and Statement II are incorrect

NEET 2025

57. Given below are two statements:

Statement I: In ecosystem, there is unidirectional flow of energy of sun from producers to consumers.

Statement II: Ecosystems are exempted from 2nd law of thermodynamics.

In the light of the above statements, choose the most appropriate answer from the options given below:

(A) Statement I is correct but statement II is incorrect
(B) Statement I is incorrect but statement II is correct
(C) Both statement I and statement II are correct
(D) Both statement I and statement II are incorrect

NEET 2025

58. Which of the following is the unit of productivity of an Ecosystem?

(A) KCal m^{-3}
(B) (KCal m^{-2}) yr^{-1}
(C) g m^{-2}
(D) KCal m^{-2}

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59. In the seeds of cereals, the outer covering of endosperm separates the embryo by a protein-rich layer called:

(A) Integument
(B) Aleurone layer
(C) Coleoptile
(D) Coleorhiza

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60. Match List-I with List-II

List - I	List - II
A Chlorophyll a	I Yellow-green
B Chlorophyll b	II Yellow
C Xanthophylls	III Blue-green
D Carotenoids	IV Yellow to Yellow-orange

Choose the option with all correct matches.

(A) A-I, B-II, C-IV, D-III
(B) A-I, B-IV, C-III, D-II
(C) A-III, B-IV, C-II, D-I
(D) A-III, B-I, C-II, D-IV

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61. Who proposed that the genetic code for amino acids should be made up of three nucleotides?

(A) Jacque Monod
(B) Franklin Stahl
(C) George Gamow
(D) Francis Crick

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62. Histones are enriched with -

(A) Phenylalanine & Leucine
(B) Phenylalanine & Arginine
(C) Lysine & Arginine
(D) Leucine & Lysine

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63. Which of the following enzyme(s) are NOT essential for gene cloning?

A. Restriction enzymes
B. DNA ligase
C. DNA mutase
D. DNA recombinase
E. DNA polymerase
Choose the correct answer from the options given below:

(A) D and E only
(B) B and C only
(C) C and D only
(D) A and B only

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64. A specialised membranous structure in a prokaryotic cell which helps in cell wall formation, DNA replication and respiration is

(A) Cristae
(B) Endoplasmic Reticulum
(C) Mesosome
(D) Chromatophores

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65. Which factor is important for termination of transcription?

(A) ρ (rho)
(B) γ (gamma)
(C) α (alpha)
(D) σ (sigma)

NEET 2025

66. Which of the following statement is correct about location of the male frog copulatory pad?

(A) Second digit of fore limb
(B) First digit of the fore limb
(C) First and Second digit of fore limb
(D) First digit of hind limb

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67. Identify the statement that is NOT correct.

(A) Antigen binding site is located at C-terminal region of antibody molecules.
(B) Constant region of heavy and light chains are located at C-terminus of antibody molecules
(C) Each antibody has two light and two heavy chains.
(D) The heavy and light chains are held together by disulfide bonds.

NEET 2025

68. Match List I with List II :

List - I List - II

A Scutellum I Persistent nucellus

B Non-albuminous seed II Cotyledon of Monocot seed

C Epiblast III Groundnut

D Perisperm IV Rudimentary cotyledon

Choose the option with all correct matches.

(A) A-IV, B- III, C-I, D-II
(B) A-II, B- IV, C-III, D-I
(C) A-II, B- III, C-IV, D-I
(D) A-IV, B- III, C-II, D-I

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69. Find the statement that is NOT correct with regard to the structure of monocot stem.

(A) Vascular bundles are conjoint and closed.
(B) Phloem parenchyma is absent.
(C) Hypodermis is parenchymatous.
(D) Vascular bundles are scattered.

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70. Twins are born to a family that lives next door to you. The twins are a boy and a girl. Which of the following must be true?

(A) They were conceived through in vitro fertilization.
(B) They have 75% identical genetic content.
(C) They are monozygotic twins.
(D) They are fraternal twins.

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71. Sweet potato and potato represent a certain type of evolution. Select the correct combination of terms to explain the evolution.

(A) Homology, convergent
(B) Analogy, divergent
(C) Analogy, convergent
(D) Homology, divergent

NEET 2025

72. Which one of the following phytohormones promotes nutrient mobilization which helps in the delay of leaf senescence in plants?

(A) Gibberellin
(B) Cytokinin
(C) Ethylene
(D) Abscisic acid

NEET 2025

73. Why can't insulin be given orally to diabetic patients?

(A) Because of structural variation
(B) Its bioavailability will be increased
(C) Human body will elicit strong immune response
(D) It will be digested in Gastro-Intestinal (GI) tract

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74. Name the class of enzyme that usually catalyze the following reaction :
S − G + S# → S + S# − G
Where, G → a group other than hydrogen
S → a substrate
S# → another substrate

(A) Transferase
(B) Ligase
(C) Hydrolase
(D) Lyase

NEET 2025

75. Given below are two statements:
Statement I : The DNA fragments extracted from gel electrophoresis can be used in construction of recombinant DNA.
Statement II : Smaller size DNA fragments are observed near anode while larger fragments are found near the wells in an agarose gel.
In the light of the above statements, choose the most appropriate answer from the options given below :

(A) Statement I is correct but statement II is incorrect
(B) Statement I is incorrect but statement II is correct
(C) Both statement I and statement II are correct
(D) Both statement I and statement II are incorrect

NEET 2025

76. The correct sequence of events in the life cycle of bryophytes is
A. Fusion of antherozoid with egg.
B. Attachment of gametophyte to substratum.
C. Reduction division to produce haploid spores.
D. Formation of sporophyte.
E. Release of antherozoids into water.
Choose the correct answer from the options given below :

(A) B, E, A, D, C
(B) D, E, A, B, C
(C) D, E, A, C, B
(D) B, E, A, C, D

NEET 2025

77. Genes R and Y follow independent assortment. If RRYY produce round yellow seeds and rryy produce wrinkled green seeds, what will be the phenotypic ratio of the F2 generation?

(A) Phenotypic ratio - 9 : 3 : 3 : 1
(B) Phenotypic ratio - 9 : 7
(C) Phenotypic ratio - 1 : 2 : 1
(D) Phenotypic ratio - 3 : 1

NEET 2025

78. Each of the following characteristics represent a Kingdom proposed by Whittaker. Arrange the following in increasing order of complexity of body organization.

A. Multicellular heterotrophs with cell wall made of chitin.

B. Heterotrophs with tissue/organ/organ system level of body organization.

C. Prokaryotes with cell wall made of polysaccharides and amino acids.

D. Eukaryotic autotrophs with tissue/organ level of body organization.

E. Eukaryotes with cellular body organization.

Choose the correct answer from the options given below :

(A) A, C, E, D, B
(B) C, E, A, B, D
(C) A, C, E, B, D
(D) C, E, A, D, B

NEET 2025

79. Match List-I with List- II.

List - I	List - II
A Centromere	I Mitochondrion
B Cilium	II Cell division
C Cristae	III Cell movement
D Cell membrane	IV Phospholipid Bilayer

Choose the correct answer from the options given below :

(A) A-IV, B-II, C-III, D-I
(B) A-II, B-III, C-I, D-IV
(C) A-I, B-II, C-III, D-IV
(D) A-II, B-I, C-IV, D-III

NEET 2025

80. Which one of the following equations represents the Verhulst-Pearl Logistic Growth of population?

(A) $dN/dt = rN[(N - K)/N]$
(B) $dN/dt = N[(r - K)/K]$
(C) $dN/dt = r[(K - N)/K]$
(D) $dN/dt = rN[(K - N)/K]$

NEET 2025

81. Match List-I with List-II

List - I	List - II
A Emphysema	I Rapid spasms in muscle due to low Ca^{++} in body fluid
B Angina Pectoris	II Damaged alveolar walls and decreased respiratory surface
C Glomerulonephritis	III Acute chest pain when not enough oxygen is reaching to heart muscle
D Tetany	IV Inflammation of glomeruli of kidney

Choose the correct answer from the options given below :

(A) A-II, B-IV, C-III, D-I
(B) A-II, B-III, C-IV, D-I
(C) A-III, B-I, C-IV, D-II
(D) A-III, B-I, C-II, D-IV

NEET 2025

82. Cardiac activities of the heart are regulated by:

A. Nodal tissue

B. A special neural centre in the medulla oblongata

C. Adrenal medullary hormones

D. Adrenal cortical hormones

Choose the correct answer from the options given below :

(A) A, C and D Only
(B) A, B and D Only
(C) A, B and C Only
(D) A, B, C and D

Answer key and explanations

1. Answer: (A) Apoenzyme

The protein part of a conjugated enzyme is the apoenzyme; together with its non-protein cofactor it forms the active holoenzyme. Prosthetic groups and coenzymes are kinds of non-protein cofactors, not the protein portion.

2. Answer: (A) Statement I is correct but statement II is incorrect

Sunlight is the primary energy source of nearly all ecosystems, so Statement I is correct. The total rate of production of organic matter during photosynthesis is gross primary productivity; net primary productivity is what remains after respiratory losses, so Statement II is incorrect.

3. Answer: (A) A is true but R is false

A mature embryo sac has 8 nuclei in 7 cells: three antipodals, two synergids, one egg and one binucleate central cell, so the Assertion is true. The egg apparatus consists of the egg cell and two synergids; the two polar nuclei lie in the central cell, so the Reason is false.

4. Answer: (D) A, B, C only

Neoplastic (malignant) cells form a mass of proliferating cells, grow rapidly and invade and damage surrounding tissue. Cells that remain confined to their original location describe a benign tumour, not neoplastic malignancy.

5. Answer: (D) Seeds are naked

Gymnosperms bear ovules that are not enclosed by an ovary wall, so their seeds remain naked. Flowers and fruits enclosing seeds are features of angiosperms.

6. Answer: (C) A-IV, B-II, C-I, D-III

Progesterone is secreted mainly by the corpus luteum, relaxin by the ovary, melanocyte stimulating hormone by the pars intermedia, and catecholamines by the adrenal medulla. The trap is pairing progesterone with the ovary in general instead of the corpus luteum.

7. Answer: (A) Chromosome 1

The Human Genome Project found chromosome 1 to carry the most genes (about 2968). Chromosome Y has the fewest genes (about 231).

8. Answer: (B) It catalyzes the carboxylation of RuBP

RuBisCO catalyses the carboxylation of RuBP, the first step of the Calvin cycle. It does not split water, works in light-driven conditions as part of the dark reactions, and has a higher affinity for CO_2 than for O_2 (it binds O_2 only when CO_2 is low, causing photorespiration).

9. Answer: (D) Menarche

The first menstruation at puberty is called menarche. Menopause is the cessation of menstrual cycles around 50 years of age.

10. Answer: (C) Bacterium

Eli Lilly prepared DNA sequences for the A and B chains of insulin and introduced them into plasmids of the bacterium E. coli, then joined the separately produced chains. No virus, phage or yeast was used as the producing organism.

11. Answer: (C) Both (A) and (R) are true and (R) is the correct explanation of (A)

Vertebrates have a notochord only in the embryo, which is replaced by a vertebral column in adults; chordates without this replacement are not vertebrates. This is exactly why every vertebrate is a chordate but not every chordate is a vertebrate, so the Reason correctly explains the Assertion.

12. Answer: (C) To separate the chromosomes

Spindle fibres attach to kinetochores and pull sister chromatids to opposite poles at anaphase, separating the chromosomes. DNA synthesis and repair happen at other times and do not involve the spindle.

13. Answer: (A) A-IV, B-III, C-I, D-II

Hershey and Chase confirmed DNA as the genetic material; euchromatin is loosely packed and light-stained; Griffith worked with Streptococcus pneumoniae; heterochromatin is densely packed and dark-stained. Swapping the two chromatin types is the common trap.

14. Answer: (A) A-III, B-II, C-I, D-IV

Adenosine is a nucleoside (adenine + sugar), adenylic acid is a nucleotide (nucleoside + phosphate), adenine is a nitrogen base, and alanine is an amino acid. Confusing nucleoside and nucleotide is the main trap.

15. Answer: (B) Kidney and lower part of body

In frog, the renal portal system carries venous blood from the lower parts of the body to the kidneys. The connection between intestine and liver is the hepatic portal system.

16. Answer: (D) B, C, D only

Processing of hnRNA in eukaryotes includes splicing (removal of introns and joining of exons), capping at the 5′ end with methyl guanosine triphosphate, and tailing with adenylate residues at the 3′ end. Splicing occurs before mRNA leaves the nucleus, so transport of unspliced pre-mRNA to the cytoplasm is wrong, and pairing of two complementary RNAs is RNA interference, not processing.

17. Answer: (D) Both A and R are true but R is NOT the correct explanation of A

Wind- and water-pollinated flowers do not need to attract animals, so they are not colourful and produce no nectar; they also produce enormous numbers of pollen grains. Both statements are true, but the lack of colour and nectar is explained by the absence of animal pollinators, not by the large pollen output.

18. Answer: (C) Commensalism

An epiphyte gets support and access to light by growing on the mango branch while the mango is neither harmed nor benefited, which is commensalism. It is not mutualism because the host gains nothing.

19. Answer: (B) A, C, D and E only

By the end of 12 weeks (first trimester) most major organ systems are formed; the heart forms after one month; limbs and digits develop by the end of the second month; hair appears and first movements are felt in the fifth month. The claim that major organ systems are formed by the end of 8 weeks is the incorrect one.

20. Answer: (D) B, C and D only

Adrenaline and noradrenaline raise blood glucose by glycogenolysis, cause piloerection, and increase the strength of heart contraction. They dilate rather than constrict the pupil, so pupillary constriction is wrong.

21. Answer: (C) A, B, C only

Auxins can induce parthenocarpy, growth regulators can both promote and inhibit growth, and redifferentiation follows dedifferentiation. Abscisic acid is a growth inhibitor, and apical dominance suppresses rather than promotes lateral bud growth.

22. Answer: (D) Anti-diuretic hormone (ADH)

ADH (vasopressin) is synthesised by hypothalamic neurosecretory cells and transported along axons to the posterior pituitary for release. FSH, LH and ACTH are synthesised in the anterior pituitary itself.

23. Answer: (A) Beer

Wine and beer are produced by yeast fermentation without distillation. Whisky, brandy and rum are made by distilling the fermented broth.

24. Answer: (D) Non-mendelian inheritance pattern

A polygenic trait is controlled by three or more genes with additive effects, giving continuous variation such as human skin colour. It does not show simple Mendelian dominant/recessive ratios, so it is treated as a non-Mendelian pattern; it is neither autosomal dominant nor X-linked.

25. Answer: (C) A-IV, B-III, C-I, D-II

The sperm head carries the nucleus (genetic material), the middle piece has mitochondria that provide energy, the acrosome holds enzymes for penetrating the ovum, and the tail gives motility. Matching the head with energy is the trap.

26. Answer: (A) Pea

Pea has a papilionaceous corolla that can be cut into two equal halves along only one plane, so it is zygomorphic. Chilli, petunia and datura flowers are actinomorphic.

27. Answer: (D) D only

Volvox is a colonial green alga with no nitrogenase and cannot fix nitrogen. Azotobacter is a free-living nitrogen-fixing bacterium, and Oscillatoria, Anabaena and Nostoc are nitrogen-fixing cyanobacteria.

28. Answer: (A) Zoos and botanical gardens

Ex situ conservation protects species outside their natural habitat, as in zoos, botanical gardens and seed banks. Protected areas, national parks and wildlife sanctuaries conserve species in their natural habitats, which is in situ conservation.

29. Answer: (D) Ramdeo Misra

Ramdeo Misra laid the foundations of ecology teaching and research in India and is called the father of Indian ecology. Birbal Sahni is known for palaeobotany and S.R. Kashyap for bryology.

30. Answer: (C) Both statement I and statement II are correct

In the RNA world, RNA acted both as genetic material and as a catalyst, and being reactive it was unstable, so Statement I is correct. DNA arose from RNA with chemical changes that make it more stable, and its complementary double strands resist change through repair mechanisms, so Statement II is also correct.

31. Answer: (B) Statement I is incorrect but statement II is correct

tRNA and rRNA interact with mRNA during translation: tRNA anticodons pair with mRNA codons on the ribosome, so Statement I is incorrect. RNA interference occurs in all eukaryotes as a method of cellular defence, so Statement II is correct.

32. Answer: (B) A-III, B-I, C-IV, D-II

The heart secretes atrial natriuretic factor, the kidney erythropoietin, the gastro-intestinal tract secretin, and the adrenal cortex aldosterone. Pairing the heart with erythropoietin is the trap.

33. Answer: (B) Ectoparasite

All living cyclostomes (lampreys and hagfishes) are ectoparasites on some fishes. They migrate for spawning but are not free-living or endoparasitic.

34. Answer: (B) Removing clots from blood vessels

Streptokinase from Streptococcus, modified by genetic engineering, is used as a clot buster to remove clots from blood vessels of patients with myocardial infarction. Curd and ethanol are made by other microbes.

35. Answer: (D) A and C Only

The water vascular system of echinoderms helps in locomotion, capture and transport of food, and respiration. It is not an organ of excretion or digestion.

36. Answer: (D) A-IV, B-III, C-I, D-II

Salvinia is a pteridophyte, Polytrichum a bryophyte, Salvia an angiosperm and Ginkgo a gymnosperm. The trap is confusing Salvinia (a water fern) with Salvia (a flowering plant).

37. Answer: (B) A and C only

CT and MRI detect cancers of internal organs, and α-interferon activates the immune system to help destroy the tumour. Chemotherapeutic drugs kill cancerous cells and are not biological response modifiers (α-interferon is), and leukaemia raises rather than lowers blood cell counts.

38. Answer: (C) B, D, F only

IVF needs expensive instruments and reagents, the early embryo may not survive after transfer, and couples choosing IVF reduce the adoption of orphans. It carries no high fatality risk to the mother, donor gametes need not come from the husband or wife, and it is available in India.

39. Answer: (C) A and B are true

Meiosis in females begins in the foetal ovary, long before males begin it at puberty, and the gap between the two meiotic divisions is short in males but very long in females (meiosis II finishes only at fertilisation). The first polar body forms when the primary oocyte becomes the secondary oocyte, and the LH surge triggers ovulation, not menstruation.

40. Answer: (D) Asexual reproduction

Gemmae are green, multicellular asexual buds formed in gemma cups of liverworts; they detach and grow into new plants. They are means of vegetative (asexual) reproduction.

41. Answer: (C) Physico-chemical approach to study and understand living organisms

Reductionist biology studies and understands living organisms by a physico-chemical approach, breaking life processes down to molecules and reactions. A purely chemical, behavioural or physiological approach is not what the term refers to.

42. Answer: (B) C, D, E only

Secondary lymphoid organs include the spleen, lymph nodes, tonsils, Peyer's patches and MALT, where mature lymphocytes meet antigens. The thymus and bone marrow are primary lymphoid organs where lymphocytes mature.

43. Answer: (D) A-III, B-I, C-II, D-IV

The evil quartet lists the causes of biodiversity loss, cryopreservation is an ex situ method, Lantana camara is an invasive alien species, and the dodo is an example of extinction. Pairing ex situ conservation with alien species is the trap.

44. Answer: (A) 1 Meiosis and 3 Mitosis

The megaspore mother cell undergoes one meiosis to form four megaspores; the functional megaspore then goes through three successive mitotic divisions to give the 8-nucleate embryo sac. Two mitoses would give only four nuclei.

45. Answer: (D) Innate Immunity

Innate immunity is present from birth and gives non-specific defence through barriers such as skin, mucus, phagocytes and fever. Acquired immunity, including humoral and cell-mediated responses, is specific and develops after exposure to antigens.

46. Answer: (C) Both A and R are true and R is the correct explanation of A

Tapetal cells have dense cytoplasm and generally more than one nucleus, and the tapetum nourishes the developing microspores. Being multinucleate raises their metabolic activity, which makes this nourishing role more efficient, so the Reason explains the Assertion.

47. Answer: (C) A, B, C are true

Eukaryotic ribosomes are 80S and prokaryotic ones 70S; each has two subunits, 60S + 40S and 50S + 30S. Subunits of 20S or 30S for the 80S ribosome are wrong.

48. Answer: (B) Catalase

Haem is the prosthetic group of peroxidase and catalase, which break down hydrogen peroxide. Succinate dehydrogenase uses FAD, carbonic anhydrase uses zinc and RuBisCO has no haem.

49. Answer: (B) Vena cava

In frog, the vena cavae bring deoxygenated blood from the body to the sinus venosus, which opens into the right atrium. Pulmonary veins carry oxygenated blood from the lungs and the aorta carries blood away from the heart.

50. Answer: (C) B, A, D, E, C

In pteridophytes, spore mother cells undergo meiosis to form spores, which germinate into the prothallus; the prothallus bears antheridia and archegonia, antherozoids reach the archegonia through water, and fertilisation follows. Putting fertilisation before the transfer of antherozoids is the trap.

51. Answer: (B) Statement I is incorrect but Statement II is correct

An insert in the β-galactosidase gene inactivates it, so recombinant colonies cannot act on the chromogenic substrate and remain colourless (white), while non-recombinants turn blue. So the blue colonies lack the insert, Statement I is incorrect and Statement II is correct.

52. Answer: (D) A and C only

Lactobacillus (curd), Saccharomyces cerevisiae (bread dough) and Propionibacterium sharmanii (Swiss cheese) are used for household or food products. Aspergillus niger is used industrially for citric acid and Trichoderma polysporum for the drug cyclosporin A.

53. Answer: (C) Complementary dsRNA

In RNA interference, a complementary double-stranded RNA binds the specific mRNA and prevents its translation, silencing it. Single-stranded or non-complementary RNA cannot target a particular mRNA.

54. Answer: (D) Succinate dehydrogenase

Complex II of the mitochondrial electron transport chain is succinate dehydrogenase, which passes electrons from $FADH_2$ to ubiquinone. Complex I is NADH dehydrogenase, complex III is cytochrome bc_1, and complex IV is cytochrome c oxidase.

55. Answer: (D) Pseudocoelomate

A body cavity lined by mesoderm only on the body-wall side, with mesoderm scattered as pouches rather than covering the gut, is a pseudocoelom, as in aschelminthes. In a true coelom (schizocoelom) mesoderm lines both the body wall and the gut.

56. Answer: (B) Statement I is incorrect but Statement II is correct

In a floral formula, ⊕ means actinomorphic and G̲ (G with a line below) means a superior ovary. So Statement I is wrong on both counts and Statement II is correct.

57. Answer: (A) Statement I is correct but statement II is incorrect

Energy enters as sunlight, passes from producers to consumers and is lost as heat, so its flow is one-way. Ecosystems obey the second law of thermodynamics and need a constant energy input to stay organised, so Statement II is wrong.

58. Answer: (B) (KCal m^{-2}) yr^{-1}

Productivity is the rate of biomass or energy production per unit area over a time period, expressed as g m^{-2} yr^{-1} or (kcal m^{-2}) yr^{-1}. kcal m^{-2} and g m^{-2} have no time component and describe standing energy or biomass, not productivity.

59. Answer: (B) Aleurone layer

In cereal grains, the outer layer of the endosperm is the protein-rich aleurone layer, which separates the endosperm from the embryo. Coleoptile and coleorhiza are sheaths of the plumule and radicle.

60. Answer: (D) A-III, B-I, C-II, D-IV

On a chromatogram, chlorophyll a is bright or blue-green, chlorophyll b yellow-green, xanthophylls yellow and carotenoids yellow to yellow-orange. Swapping the two chlorophyll colours is the trap.

61. Answer: (C) George Gamow

George Gamow argued that 4 bases must code for 20 amino acids, so the code needs combinations of three nucleotides ($4^3 = 64$). Crick later helped confirm the triplet nature experimentally, but the proposal came from Gamow.

62. Answer: (C) Lysine & Arginine

Histones are rich in the basic amino acids lysine and arginine, whose positive charges bind the negatively charged DNA. Phenylalanine and leucine are not basic.

63. Answer: (C) C and D only

Gene cloning needs restriction enzymes to cut DNA, DNA ligase to join fragments and DNA polymerase for amplification. 'DNA mutase' and 'DNA recombinase' are not tools of recombinant DNA technology.

64. Answer: (C) Mesosome

Mesosomes are infoldings of the prokaryotic plasma membrane that help in cell wall formation, DNA replication and its distribution to daughter cells, and respiration. Chromatophores are pigment-bearing membranes for photosynthesis, and cristae and ER are not found in prokaryotes.

65. Answer: (A) ρ (rho)

In bacteria, the rho (ρ) factor binds RNA polymerase and causes transcription to stop. The sigma (σ) factor is needed for initiation.

66. Answer: (B) First digit of the fore limb

Male frogs have a copulatory (nuptial) pad on the first digit of each forelimb, used to grip the female in amplexus. It is absent from the hind limb and other digits.

67. Answer: (A) Antigen binding site is located at C-terminal region of antibody molecules.

The antigen-binding sites lie in the variable regions at the N-terminal ends of the heavy and light chains, so placing them at the C-terminal region is incorrect. Constant regions are at the C-terminal side, each antibody has two heavy and two light chains (H_2L_2), and disulphide bonds hold the chains together.

68. Answer: (C) A-II, B- III, C-IV, D-I

The scutellum is the single cotyledon of a monocot (grass) seed, groundnut has a non-albuminous seed, the epiblast is a rudimentary cotyledon, and the perisperm is persistent nucellus. Pairing the scutellum with the epiblast's role is the trap.

69. Answer: (C) Hypodermis is parenchymatous.

The monocot stem has a sclerenchymatous hypodermis, so calling it parenchymatous is wrong. Its vascular bundles are conjoint, closed and scattered, and phloem parenchyma is absent.

70. Answer: (D) They are fraternal twins.

A boy and a girl cannot come from a single zygote, so the twins must have formed from two separate eggs fertilised by two sperms (fraternal or dizygotic). Fraternal twins share on average about 50% of their genes, not 75%, and IVF is not required.

71. Answer: (C) Analogy, convergent

The sweet potato is a modified root and the potato a modified stem; both store food, so they are analogous organs. Different structures evolving a similar function reflects convergent evolution.

72. Answer: (B) Cytokinin

Cytokinins promote nutrient mobilisation, which delays leaf senescence. Ethylene and abscisic acid speed up senescence.

73. Answer: (D) It will be digested in Gastro-Intestinal (GI) tract

Insulin is a polypeptide hormone, so if swallowed it would be broken down by proteolytic enzymes in the gut before it could act; it must be injected. The issue is digestion, not immunity or structure.

74. Answer: (A) Transferase

The reaction moves a group G (other than hydrogen) from one substrate to another, which is what transferases catalyse. Ligases join two compounds, hydrolases add water to break bonds, and lyases remove groups to form double bonds.

75. Answer: (C) Both statement I and statement II are correct

Separated DNA bands are cut from the gel and eluted, then used to construct recombinant DNA, so Statement I is correct. DNA is negatively charged and moves toward the anode, smaller fragments moving farther, so larger fragments stay near the wells and Statement II is also correct.

76. Answer: (A) B, E, A, D, C

The gametophyte attaches to the substratum by rhizoids, antherozoids are released into water, an antherozoid fuses with the egg, the zygote forms the sporophyte, and meiosis in the capsule forms haploid spores. Sequences starting with the sporophyte ignore that the gametophyte is the dominant independent phase.

77. Answer: (A) Phenotypic ratio - 9 : 3 : 3 : 1

RRYY × rryy gives RrYy in F_1; with independent assortment, F_2 shows round yellow, round green, wrinkled yellow and wrinkled green in a 9 : 3 : 3 : 1 ratio. The 9 : 7 ratio needs complementary gene interaction, and 3 : 1 and 1 : 2 : 1 are monohybrid ratios.

78. Answer: (D) C, E, A, D, B

Monera (prokaryotes with a cell wall of polysaccharides and amino acids) < Protista (eukaryotes with cellular organisation) < Fungi (multicellular heterotrophs with chitin walls) < Plantae (eukaryotic autotrophs with tissue/organ level) < Animalia (heterotrophs with tissue/organ/organ-system level). Putting animals before plants is the trap.

79. Answer: (B) A-II, B-III, C-I, D-IV

The centromere holds sister chromatids and is needed in cell division, cilia cause cell movement, cristae are infoldings of the inner mitochondrial membrane, and the cell membrane is a phospholipid bilayer.

80. Answer: (D) $dN/dt = rN[(K - N)/K]$

Verhulst-Pearl logistic growth is $dN/dt = rN[(K - N)/K]$, where growth slows as N approaches the carrying capacity K. The other forms either reverse the sign of the limiting term or drop N or r.

81. Answer: (B) A-II, B-III, C-IV, D-I

Emphysema damages alveolar walls and reduces the respiratory surface; angina pectoris is acute chest pain when heart muscle gets too little oxygen; glomerulonephritis is inflammation of kidney glomeruli; tetany is rapid muscle spasms due to low Ca^{++} in body fluid.

82. Answer: (C) A, B and C Only

Heart beat starts in the auto-excitable nodal tissue, a neural centre in the medulla oblongata moderates it through autonomic nerves, and adrenal medullary hormones raise cardiac output. Adrenal cortical hormones are not listed as regulators of cardiac activity.

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.