CUET PG 2025 Botany Question Paper

Time Allowed :1 Hour 30 Mins	Maximum Marks :300	Total Questions :75

General Instructions

Read the following instructions very carefully and strictly follow them:

1. The examination duration is 90 minutes. Manage your time effectively to attempt all questions within this period.
2. The total marks for this examination are 300. Aim to maximize your score by strategically answering each question.
3. There are 75 mandatory questions to be attempted in the Agro forestry paper. Ensure that all questions are answered.
4. Questions may appear in a shuffled order. Do not assume a fixed sequence and focus on each question as you proceed.
5. The marking of answers will be displayed as you answer. Use this feature to monitor your performance and adjust your strategy as needed.
6. You may mark questions for review and edit your answers later. Make sure to allocate time for reviewing marked questions before final submission.
7. Be aware of the detailed section and sub-section guidelines provided in the exam. Understanding these will aid in effectively navigating the exam.

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1. Transformation in bacteria was discovered by:

(A) F. Griffith
(B) Lederberg and Tatum
(C) Avery
(D) McCarty

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2. In angiosperms, which process involves the fusion of male gamete with the egg cell?

(A) Double fertilization
(B) Syngamy
(C) Fragmentation
(D) Pollination

3. Which of the following is used to stain endospores?

(A) Safranin
(B) Malachite green
(C) Crystal violet
(D) Brilliant green

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4. Match the LIST-I with LIST-II

LIST-I (Family/Characteristic, etc.)	**LIST-II (Species/Examples)**
A. Myrtaceae	I. Psidium
B. Hypanthodium inflorescence	II. Carnation
C. Caryophyllaceae	III. Fig
D. Asteraceae	IV. Inula

Choose the correct answer from the options given below:

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

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5. Which of the following bacteria belong to the coliform group ?
A. *Escherichia coli*
B. *Streptococcus faecalis*
C. *Clostridium perfringens*
D. *Bacillus*
Choose the correct answer from the options given below:

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

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6. To increase the amount of mugineic acid, rice plants were transformed (using *Agrobacterium*) with a fragment of barley genomic DNA containing two *naat* genes; *naat-A* and *naat-B*, encoding the subunits of the enzyme

(A) S-adenosylmethionine synthetase
(B) Nicotinamine aminotransferase
(C) Nicotinamine synthase
(D) Deoxymugineic acid synthase

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7. Guttation occurs when:

(A) Transpiration rate is very high
(B) Transpiration rate is very low
(C) Cell sap is pure water
(D) Temperature is high

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8. A flower is hypogynous with axile placentation and swollen placenta. Which family does this flower belong to?

(A) Asteraceae
(B) Lamiaceae
(C) Solanaceae
(D) Malvaceae

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9. Flooding stress is also known as:

(A) Chilling stress
(B) Reactive oxygen species
(C) Oxygen deficient stress
(D) Drought stress

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10. What is the role of NAD(P)H as a component of Nitrate reductase in Nitrogen fixation?

(A) As a prosthetic group
(B) As a cofactor
(C) As an electron donor
(D) As an electron accepter

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11. White jute is obtained from:

(A) *Corchorus olitorius*
(B) *Corchorus capsularis*
(C) *Cocus nucifera*
(D) *Crotalaria juncea*

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12. The major phytochemicals present in leaves of *Camellia sinensis* are:
A. Epicatechin gallate
B. Caffeine
C. Theobromine
D. Epigallocatechin gallate
Choose the correct answer from the options given below:

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

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13. Match the LIST-I with LIST-II

LIST-I **Plant Name**	**LIST-II** **Most common part as medicine**
A. *Withania somnifera*	I. Fruit
B. *Aloe barbedensis*	II. All parts of plants
C. *Aegle marmelos*	III. Root
D. *Datura metel*	IV. Leaves

Choose the correct answer from the options given below:

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

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14. The botanical name of Fenugreek (methi):

(A) *Papaver somniferum*
(B) *Trigonella foenum-graecum*
(C) *Nigella sativa*

(D) *Elettaria cardamomum*

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15. Match the LIST-I with LIST-II

LIST-I **Class of Mutagens**	**LIST-II** **Examples**
A. Alkylating agent	I. Acridine Orange
B. Base analog	II. Nitrous acid
C. Intercalating agent	III. Mustard gas
D. Deamination agent	IV. 5-Bromouracil

Choose the correct answer from the options given below:

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

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16. A specimen cited in the protologue is neither the holotype nor an isotype, nor one of the syntypes. This specimen is known as:

(A) Topotype
(B) Paratype
(C) Neotype
(D) Epitype

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17. Match the LIST-I with LIST-II

LIST-I **Gene Interaction**	**LIST-II** **Dihybrid ratio for a single character**
A. Duplicate dominant epistasis	I. 9:7
B. Duplicate recessive epistasis	II. 15:1
C. Recessive epistasis	III. 9:3:4
D. Dominant & Recessive Epistasis	IV. 13:3

Choose the correct answer from the options given below:

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

18. Match the LIST-I with LIST-II

LIST-I (Characteristic, feature)	**LIST-II (Family)**
A. Monoadelphous stamen	I. Malvaceae
B. Cremocarp	II. Lamiaceae
C. Gynobasic style	III. Apiaceae
D. Capitulum	IV. Asteraceae

Choose the correct answer from the options given below:

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

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19. In which of the following molecular markers, polymerase chain reaction (PCR) is required?
A. Restriction Fragment Length Polymorphism (RFLP)
B. Random Amplified Polymorphic DNAs (RAPD)
C. Amplified Fragment Length Polymorphism (AFLP)
D. Sequence-Tagged Sites (STSs)
Choose the correct answer from the options given below:

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

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20. The genera which belongs to the family Characeae are:
A. *Tolypella*
B. *Nitella*
C. *Nigella*
D. *Chara*
Choose the correct answer from the options given below:

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

21. The elements of the xylem are:
A. Tracheids
B. Vessels
C. Xylem parenchyma
D. Sclereids
Choose the correct answer from the options given below :

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

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22. The role of Bulliform cells in monocotyledonous leaves is :

(A) to prevent excessive transpiration by rolling of leaves
(B) to protect the mesophyll cells of the leaf
(C) in exchange of gases with the surrounding environment.
(D) in storage

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23. Match the LIST-I with LIST-II

LIST-I **Types of Sclereids**	**LIST-II** **Examples**
A. Astrosclereids	I. Leaves of Monocots
B. Macrosclereids	II. Olive leaves
C. Osteosclereids	III. Kidney bean seeds
D. Trichosclereids	IV. *Nymphea* leaves

Choose the correct answer from the options given below:

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

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24. Which of the following statements are correct regarding protein synthesis in eukaryotes?
A. 3'-Cap of mRNA present.
B. Ribosomes of 80S type dissociate into 40S and 60S subunits.

C. Translation is not simultaneous with transcription.
D. Initiation codon of mRNA is recognised by anticodon of Met-tRNA.
Choose the correct answer from the options given below:

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

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25. Paracytic type of stomata are distinctive feature of:

(A) Ranunculaceae
(B) Brassicaceae
(C) Rubiaceae
(D) Caryophyllaceae

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26. *Selaginella* is also known as:

(A) Resurrection plant
(B) Peat moss
(C) Club moss
(D) Horsetail

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27. Specialised cells are generally found in the plant leaves which contain outgrowths of epidermal cell wall, made of calcium carbonate or silicon dioxide in a cellulose matrix are called as:

(A) Raphides
(B) Cystolith
(C) Druses
(D) Lithocysts

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28. Which of the following amino acid is basic in nature?

(A) Alanine
(B) Lysine
(C) Threonine

(D) Methionine

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29. The example of facultative CAM plant which carries on C metabolism under unstressed conditions is:

(A) *Mesembryanthemum crystallinum*
(B) *Opuntia*
(C) *Chrysanthemum*
(D) *Amaranthus edulis*

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30. Arrange the following substrates of the glycolysis pathway in a chronological order of their occurrence in the pathway, starting from Glucose.
A. Fructose-6-phosphate
B. Pyruvic acid
C. Glucose-6-phosphate
D. 2- Phosphoglycerate
Choose the correct answer from the options given below:

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

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31. Identify the plants from the following which do not exhibit Kranz anatomy:
A. *Aloe*
B. *Zea mays*
C. *Agave*
D. *Opuntia*
Choose the correct answer from the options given below:

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

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32. Match the LIST-I with LIST-II

LIST-I **Minerals**	**LIST-II** **Deficiency Symptoms in plants**
A. Calcium	I. Intervenous chlorosis associated with the development of small necrotic spots
B. Zinc	II. Accumulation of Urea in the leaves
C. Manganese	III. Necrosis of young meristematic regions such as root tips or young leaves
D. Nickel	IV. Display of rosette habit

Choose the correct answer from the options given below:

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

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33. What is the correct general scheme of the fungal succession on herbivore dung:
A. Basidiomycetes
B. Discomycetes
C. Phycomycetes
D. Pyrenomycetes
Choose the correct answer from the options given below:

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

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34. Which of the following is a macrophyte?

(A) *Spirogyra*
(B) Diatoms
(C) *Azolla*
(D) *Eudorina*

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35. The common inter-cellular parasitic algae among the following is:

(A) *Cladophora*
(B) *Chlamydomonas chrenbergii*
(C) *Cephaleuros*
(D) *Protoderma*

36. The requirement of sunlight for the germination of seeds, is known as:

(A) Phototropism
(B) Photoblasty
(C) Photonasty
(D) Nyctinasty

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37. Among the following ecosystems, which has the least Net Primary Production (NPP)?

(A) Savanna
(B) Estuaries
(C) Open ocean
(D) Agricultural land

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38. Which of the following is NOT the characteristic feature of xerophytic plants?

(A) Lacks Aerenchyma
(B) Chlorophyll mostly in stem and leaves
(C) Palisade generally on both sides of leaves
(D) Thin walled epidermal cells

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39. 'Aconite', a drug used for nasal problems and sore throat, is obtained from tuberous roots of:

(A) *Ocimum sanctum*
(B) *Aconitum ferox*
(C) *Withania somnifera*
(D) *Azadirachta indica*

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40. If the number of chromosomes in the egg cell of a plant is 8, then what would be the number of chromosomes in its endosperm?

(A) 8
(B) 16
(C) 24

(D) 12

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41. Which of the following mutations is most likely to contribute to the development of cancer?

(A) Loss-of-function mutation in a tumor suppressor gene.
(B) Gain-of function in a DNA repair enzyme.
(C) Silent mutation in a proto-oncogene.
(D) Deletion of non-coding intronic regions in a tumor suppressor gene.

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42. What is the correct sequence of Transmembrane multiprotein complexes of the electron transport chain during respiration?
A. Succinate dehydrogenase
B. NADH dehydrogenase
C. Cytochrome c oxidase
D. Cytochrome bc1 complex
Choose the correct answer from the options given below:

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

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43. Which nitrogen fixing symbiont is associated with sugarcane as a host plant?

(A) Frankia
(B) Acetobacter
(C) Anabaena
(D) Nostoc

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44. Cytokinin treatment extends the life span of detached *Xanthium* leaves by delaying chlorophyll and protein degradation. This experiment is called:

(A) Richmond-Lang effect
(B) Nyctinastic effect
(C) Epinasty
(D) Depot effect

45. Which among the following is responsible for imparting blue and purple colour in some type of berries?

(A) Carotenoids
(B) Anthocyanins
(C) Isoflavanoids
(D) Aurones

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46. *Synchytrium* is _____ fungi.

(A) Holocarpic and polycentric
(B) Holocarpic and endobiotic
(C) Eucarpic and polycentric
(D) Eucarpic and monocentric

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47. During sexual reproduction in *Rhizopus*, projections from two compatible hyphae are attracted towards each other. These hyphae are called -

(A) Chlamydospores
(B) Azygospores
(C) Progametangia
(D) Zygophores

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48. Arrange the stages in the life cycle of "*Puccinia graminis*" in correct order of their occurrence, starting from *Triticum aestivum*
A. Teliospores appear as black raised streaks along leaf sheaths and stems of infected plants.
B. Basidiospores are discharged by an explosive mechanism and disseminated by wind.
C. Uredinospores germinate on wheat and spread the disease rapidly, under favorable conditions.
D. Basidiospores germinate on the leaves of the alternate host.
Choose the correct answer from the options given below:

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

49. Which one of the following is a correct example of Fruticose Lichen?

(A) *Rhizocarpon*
(B) *Parmelia*
(C) *Cladonia*
(D) *Graphis*

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50. In *Sphagnum*, the sporogonium is elevated by a special gametophytic structure known as:

(A) Pseudopodium
(B) Perichaetium
(C) Antheridium
(D) Amphithecium

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51. Censer mechanism for spore dispersal from the capsule occurs in _____.

(A) Pellia
(B) Funaria
(C) Pogonatum
(D) Polytrichum

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52. Circinate vernation in ferns refers to -

(A) Uncoiling of new leaves from the base towards the apex
(B) System of leaf gaps in the stem
(C) Arrangement of sori on the leaf surface
(D) Presence of adventitious roots on the rhizome

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53. The characteristic of Cleistogamous flowers is :

(A) They are pollinated by wind.
(B) They never open and are self-pollinated
(C) They are exclusively pollinated by insects.
(D) They are always open and cross pollinated

54. What is the role of Gibberellic acid in plants?

(A) It promotes cell division and elongation in stem tissues.
(B) It increases the levels of anti-oxidants
(C) It decreases the levels of plant growth hormones.
(D) It inhibits the synthesis of plant secondary metabolites.

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55. Which of the following hormones is synthesized from methionine?

(A) Auxin
(B) Gibberellin
(C) Cytokinin
(D) Ethylene

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56. The early development of monocot and dicot embryo is similar up to which stage?

(A) Octant stage
(B) Diad stage
(C) Globular stage
(D) Quadrant stage

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57. Mesosome is a specialized and differentiated form of _____.

(A) Ribosomes
(B) Mitochondria
(C) Cell membrane
(D) Cell wall

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58. In which specific region of the chloroplast, does Calvin cycle occurs?

(A) Thylakoid membranes
(B) Stroma
(C) Grana
(D) Inner membrane

59. A eukaryotic cell is exposed to a chemical that inhibits the 5' capping of pre-mRNA. What is the most likely effect on translation?

(A) Translation will initiate but elongation will be impaired.
(B) Translation will fail to initiate due to improper ribosome binding.
(C) The polyadenylation will not occur.
(D) Splicing of introns will be unaffected.

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60. What effect does the hypermethylation of promoter regions typically have on gene expression?

(A) Activation of transcription.
(B) Silencing of transcription.
(C) No effect on transcription.
(D) Increased translational efficiency.

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61. Treating chromatin with a non specific nuclease yields a segment of about 168 bp which is bound to 9 histone molecules (H2A, H2B, H3, H4 and H1). This whole structure is known as:

(A) Histone Octamer
(B) Nucleosome
(C) Chromatosome
(D) Histosome

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62. The correct karyotype description of Patau Syndrome is _____.

(A) 47, +21
(B) 47, +18
(C) 47, +13
(D) 45, XO

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63. What is the primary function of Bt toxin in genetically modified crops like Bt Cotton?

(A) Enhancing nutrient content.
(B) Providing resistance to fungal infections.

(C) Acting as a natural insecticide.
(D) Increasing drought tolerance.

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64. A plasmid vector contains a multiple cloning site (MCS) within the lac-Z gene. If foreign DNA is inserted into the MCS, what happens when competent cells are transformed with this plasmid and allowed to grow on a nutrient medium plate with X-gal and IPTG?

(A) Transformed cells with recombinant plasmids will appear blue.
(B) Transformed cells with recombinant plasmids will appear white.
(C) All transformed cells will appear blue.
(D) Non-transformed cells will appear white.

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65. Sequentially arrange the steps involved in cryopreservation of plant cells in order of their occurrence.
A. Raising sterile tissue culture
B. Determination of viability
C. Freezing, Storage
D. Addition of cryoprotectants.
Choose the correct answer from the options given below:

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

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66. Which of the following is a characteristic feature of Bacterial Artificial Chromosome (BAC) vector?

(A) They can carry large DNA inserts.
(B) They use eukaryotic cells as hosts.
(C) They lack selectable markers.
(D) They do not replicate autonomously.

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67. Which sequence of steps is correct in the development of a genetically modified (GM) crop?
A. Insertion of the gene into the vector.
B. Identification of a desired gene.

C. Selection and screening of transformed plants.
D. Transfer of the vector into a plant cell.
Choose the correct answer from the options given below:

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

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68. Which of the following order is not included in Stachyospermae?

(A) Cordaitales
(B) Ginkgoales
(C) Cycadales
(D) Coniferales

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69. Match the LIST-I with LIST-II

LIST-I **Type of proteins**	**LIST-II** **Examples**
A. Structural proteins	I. Ion Channels
B. Transport Proteins	II. Insulin
C. Hormonal Proteins	III. Seed Proteins
D. Storage Proteins	IV. Collagen

Choose the correct answer from the options given below:

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

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70. Which of the following is incorrectly matched ?

(A) Amino acids - Proteins
(B) Fatty acids - Deoxynucleotides
(C) Glucose - Polysaccharides
(D) Nucleoside triphosphate - Nucleic acids

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71. The enzyme responsible for synthesizing RNA primers during DNA replication is -

(A) DNA polymerase
(B) Primase
(C) Topoisomerase
(D) Helicase

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72. Which of the following best explains the fluidity of the plasma membrane ?

(A) The presence of phospholipids in a rigid bilayer.
(B) The movement of proteins and lipids within the bilayer.
(C) The fixed positions of membrane proteins.
(D) The attachment of cholesterol to membrane proteins.

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73. Sequence the following events involved in a point mutation in DNA.
A. Alteration in the amino acid sequence of a protein.
B. Change in mRNA codon during transcription.
C. Substitution of a single nucleotide in the DNA sequence.
D. Possible disruption of protein function or structure.
Choose the correct answer from the options given below:

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

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74. Identify the correct sequence of steps in a dihybrid cross to test Mendel's Law of Independent Assortment
A. Selection of two traits in the parent generation.
B. Crossing of pure - breeding parents.
C. Analysis of phenotypic ratios in the F generation.
D. Observations of gamete combinations in the F generation.
Choose the correct answer from the options given below:

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

75. Select the phases which are included in the 'Interphase'.
A. S phase
B. M phase
C. G phase
D. G phase
Choose the correct answer from the options given below:

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