C.S.E. AGRICULTURE AGRICULTURE – 2005
(PRELIMINARY)

Time Allowed: Two Hours *Maximum Marks: 300*

1. Consld.er the following statements:

1. Inaia is the largest producer of safflower oil in the world
2. Areawise, India is the largest cultivator of tea in the world Which of the statements given above is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

2. Which one among the following components of soil organic matter is most resistant to decomposition?

(a) Cellulose (b) Hemicellulose
(c) Starch (d) Lignin

3. Which one of the following is a measure of the net positive charge held on soil exchange complex?

(a) Anion exchange capacity (b) Cation exchange capacity
(c) Base exchange capacity (d) Electrical conductivity

4. Volatilisation loss of ammonia in soil increases with the increase in:

(a) Calcium carbonate content of soil
(b) Moisture content of soil
(c) Clay content of soil
(d) Cation exchange capacity of soil

5. The deficiency of which one of the following causes Khaira disease?

(a) Copper (b) Iron
(c) Phosphorus (d) Zinc

6. Which one of the following factors is responsible for poor fruit setting in custard apple?

(a) Dioecious nature (b) Heterostyly
(c) Dichogamy (d) Self-incompatibility

7. Which of the following scientists proposed the Critical Level Concept for nutrients in soil?

(a) Jackson (b) Cate and Nelson
(c) Stelin (d) Schofield

8. Match List I (Nutrient Element) with List II (Source in Soil) and select the correct answer using the codes given below the lists:

List I	List II
A Calcium	1. Apatite
B. Nitrogen	2. Dolomite
C. Phosphorus	3. Feldspar
D. Potassium	4. Organics

	A	B	C	D		A	B	C	D
(a)	2	1	4	3	(b)	3	4	1	2
(c)	3	1	4	2	(d)	2	4	1	3

9. Which one of the following organisms is involved in the formation of N_2O?

(a) Thiobacillus ferroxidans (b) Paracoccus denitriiicans

(c) Nitrosomonas europaea (d) Desulfovibrio desulfuiicans

10. Which one of the following is the correct order regarding thermal conductivity of soils?

(a) Peat > Clay > Loam > Sand (b) Clay > Loam > Sand > Peat

(c) Loam > Sand > Peat > Clay (d) Sand > Loam > Clay > Peat

11. Ammonium fixation in the soil is due to

(a) Microbial assimilation (b) Microbial fixation

(c) Microbial immobilization (d) Soil exchange reaction

12. Which one of the following soil properties does *not* change by cropping and cultivation?

(a) Bulk density (b) Particle density

(c) Porosity (d) Permeability

13. Size of the spray drop from a mist sprayer varies from

(a) 1 - 50 µm (b) 50 - 100 µm

(c) 100 - 200 µm (d) 200 - 300 µm

14. Which one of the following is a pest of apple?

(a) *Sylepta luna/is* (b) *Iodostoma subscota/um*

(c) *Cydia hemidoxa* (d) *Eriosoma /anigerum*

15. Cartap hydrochloride, a contact & stomach poison insecticide is isolated from

(a) *Streptomyces grisea* (b) *Streptomyces avermiti/is*

(c) *Lumbriconeseis heteropoda* (d) *Bacil/us sub/ilis*

16. The use of flood jet nozzle is required for

(a) Minimizing the drift of chemicals

(b) Increasing the droplet size

(c) Quick delivery of spray fluid

(d) Better adhesion of spray fluid

17. Consider the following statements:

1. The sequence of nucleotides recognised by a restriction endonuclease is present in only one strand of DNA, running in 3' - 5' direction.
2. At present, more than a hundred restriction endonucleases have been discovered.
3. Reverse transcriptase synthesizes DNA using RNA as a template.

Which of the statements given above are correct

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

18. Where is National Institute of Agriculture Marketing locatd?

(a) Jaipur (b) Kamal

(c) Lucknow (d) Vijayawada

19. With reference to photosynthesis, consider the following statements:

1. Ferridoxin is located in the thylakoid membrane.
2. Phaeophytin is actually a chlorophyll b molecule that does not contain a magnesium ion.
3. The reactions that break down water and produce oxygen and protons are located in stroma.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2

(c) 1 and 3 (d) 2 and 3

20. Which one of the following pairs is *not* correctly matched

substance	**Part of the plant yielding substance**
(a) Cocaine	Leaves
(b) Colchicin	Bulb
(c) Digitalin	Root
(d) Opium	Fruit

21. With reference to flowering plants, consider the following statements:

1. Pollen grains contain auxin.
2. Pollination prevents ovary abscission.
3. Normal seeds synthesise auxins, gibberellins & cytokinins. Which of the statements given above are correct?

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

Directions: The following 9 (Nine) items consist of two statements: one labelled as the 'Assertion (A)' and the other as 'Reason (R)'. You are to examine these two statements carefully and select the answers to these items using the codes given below:

(a) Both A and R are individually true and R is the correct explanation of A

(b) Both A and R are individually true but R is not the correct explanation of A

(c) A is true but R is false

(d) A is false but R is true

22. Assertion (A) : In order to overcome the problems facing Indian agriculture, the Government of India evolved the Macro Management of Agriculture by integrating 27 identified schemes.

Reason (R) : As Agriculture is a subject under Concurrent List in the Seventh Schedule of the Constitution of India, the primary responsibility for increasing agricultural production rests with the Union Govt.

23. Assertion (A) : Without NAD+, ATP cannot be formed in glycolysis.

Reason (R) : Without NAD+, 3-phosphoglyceraldehyde cannot be oxidized to 1, 3-diphosphoglycerate.

24. Assertion (A) : Ethephon is used to hasten ripening in banana.

Reason (R) : Ethephon releases auxin.

25. **Assertion (A) :** A change in the ratio of input-prices correspondingly changes the slope of the iso-cost line.

Reason (R) : The slope of the iso-cost line indicates the ratio of factor-prices.

26. **Assertion (A) :** Dwarf wheat is always sown shallow compared to tall wheat.

Reason (R) : The coleoptile length is longer in case of mexican wheat as compared to tall wheat.

27. **Assertion (A) :** The rosette habit of cabbage can be changed drastically by the application of Gibberellic Acid (GA).

Reason (R) : Since Gibberellic Acid helps in cell division and differentiation, the rosette habit of cabbage is changed.

28. **Assertion (A :** With reference to soils, isomorphous substitution is an important mechanism through which negative charges are developed.

Reason (R) : Isomorphous substitution of lower valent ions occurs by higher valent ions.

29. **Assertion (A):** The rotating disc aerosol generator is not useful for generating aerosol of pesticides like pyrethrum.

Reason (R) : Pyrethrum is a heat sensitive pesticide of plant origin.

30. **Assertion (A :** All young soils are deficient in nitrogen.

Reason (R) : Nitrogen is not a significant component of any type of rock.

31. **Which one of the following pairs is *not* correctly matched?**

Crop	Important moisture sensitive stage
(a) Rice	Panicle initiation, flowering
(b) Sugarcane	Germination
(c) Cotton	Flowering, boll development
(d) Chillies	Flowering

32. **Consider the following statements:**

1. A gram of guava fruit has more vitamin C than a gram of orange fruit.
2. Papaya does not contain vitamin C.
3. Jack fruit has a digestive enzyme bromelin.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2

(c) 1 and 3 (d) 2 and 3

33. **Anti-cancer drug vincristin is obtained from**

(a) *Piper nigrum* (b) *Rauwolfia serpentina*

(c) *Hemidesmus indicus* (d) *Catharanthus roseus*

34. **Consider the following statements:**

1. All the proteins of mitochondria are encoded by mitochondrial genome.
2. The chloroplast DNA does not code for all chloroplast proteins. Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

35. Match List I (Plant) with List II (Propagation) and select the correct answer using the codes given below the lists:

List I	List II
A. Pineapple	1. Soft wood cutting
B. Citrus	2. Root cutting
C Peach	3. Budding
D. Sapota	3. Sucker
	5. Stone grafting

	A	B	C	D
(a)	4	3	2	1
(b)	5	2	3	4
(c)	5	3	2	4
(d)	4	2	3	1

36. Consider the following statements :

1. The strawberry propagates by runners.
2. The chrysanthemum propagates by suckers.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

37. Which one of the following fruit crops is highly susceptible to salinity?

(a) Date palm *(Phoenix dactylifera)*

(b) Ber *(Zizyphus jujuba)*

(e) Pomegranate *(Punica granatum)*

(d) Almond *(Amygdalus communis)*

38. Which one of the following is the best test for ripeness of table grapes?

(a) Colour of the fruit

(b) Sweetness and change in seed colour

(c) Softness of the fruit

(d) Ease of separation of grapes from the vines

39. Match List I (Crop) with List II (Cultivar) and select the correct answer using the codes given below the lists:

List.	List II
A. Banana	1. Sonaka
B. Grapes	2. Poovan
C. Cane	3. Superstar
D. Rose	4. Pusa Kesar

	A	B	C	D
(a)	3	1	4	2
(b)	3	4	1	2
(c)	2	4	1	3
(d)	2	1	4	3

40. Consider the following statements:

1. In Indian agriculture, oil seeds are next to sugarcane in area coverage, production and value.
2. India's share in the world production of mango is more than 45%.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

41. Which one of the following fruits is good in curing diabetes?

(a) Bel' *(Zizyphus jujuba)*
(b) Date palm *(Phoenix dactyli/era)*
(c) Apple *(Pyrus malus)*
(d) Jamun *(Eugenia jambo/ana or Syzygium cumiwi)*

42. Consider the following statements:

1. The medicinal plant *Glycyrrhiza glabra* is a legume.
2. The leaves of *Cassia angusti/o/ia* are purgative.

43. Which of the statements given above is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

43. Which one of the following chemicals is used to keep the fruits and vegetables firm?

(a) Calcium chloride (b) Sodium benzoate
(c) Ascorbic acid (d) Sodium chloride

44. Consider the following statements:

1. Sunn hemp is obtained from *Crotalaria juncea* of family Papilionaceae.
2. Jute *(Corchorus capsu/aris)* fibres are actually the scelerenchymatous tissue of secondary phloem.
3. The stem of narcotic plant *Cannabis sativa* yields fibres used in making ropes and sacks.

Which of the statements .given above are correct?

(a) 1 and 2 (b) 2 and 3
(c) 1 and 3 (d) 1, 2 and 3

45. The heat treatment given before canning of vegetables with boiling water or steam followed by cooling is termed as

(a) Blanching (b) Brining
(c) Clinching (d) Exhausting

46. Consider the following statements:

The causes of deterioration in canned fruit products are

1. Bacteria. 2. Iron salts.
3. Copper salts.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2
(c) 2 and 3 (d) 1, 2 and 3

47. When should the fertilizer be applied to lawn grass?

(a) When it is available at the lowest price
(b) In summer time for cool season grasses
(c) When the grass begins the dormant rest cycle
(d) Just before the beginning of the active growth cycle of the grass

48. With reference to mutagenic agents, consider the following statements:

1. Acridine dyes cause frame shift mutations.
2. Ultraviolet light causes point mutations.
3. Five-bromouracil causes transition mutation.

Which of the statements given above are correct?

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

49. What is the amount of ammonium nitrogen and nitrate nitrogen presence in 25 kg of calcium ammonium nitrate (20 % N)?

(a) 1.5 kg ammonium nitrogen and 3.5 kg nitrate nitrogen

(b) 2.5 kg ammonium nitrogen and 2.5 kg nitrate nitrogen

(c) 3.5 kg ammonium nitrogen and 1.5 kg nitrate nitrogen

(d) 4.5 kg ammonium nitrogen and 0.5 kg nitrate nitrogen

50. Match List I (Disease) with List II (Crop) and select the correct answer using the codes given below the lists:

List I	List II
A. Late blight	1. Wheat
B. Loose smut	2. Potato
C. Blast	3. Pear
D. Fire blight	4. Rice

	A	B	C	D		A	B	C	D
(a)	3	4	1	2	(b)	2	4	1	3
(c)	2	1	4	3	(d)	3	1	4	2

51. The interspecific semiochemicals which provide adaptive advantage to the emitter (producer) species are known as

(a) Allomones (b) Hormones

(c) Kairomones (d) Pheromones

52. In which one of the following crops has the outbreak of woolyaphid been noticed recently?

(a) Maize (b) Barley

(c) Sugarcane (d) Cotton

53. Agronomic research carried out on farmer's field with active participation of the farmer is called

(a) On-farm research (b) Adaptive research

(c) Operational research (d) Diversified research

54. Match list I (Weed) with List II (Family) and select the correct answer using the codes given below the lists:

List I	List II
A Parthenium hysterophorus	1. Aizoaceae
B. Trianthema portulacastrum	2. Compositae
C. Eichhornia crassipes	3. Pontederiaceae

	A	B	C		A	B	C
(a)	1	2	3	(b)	3	1	2
(c)	2	3	1	(d)	2	1	3

55. With reference to root hairs of plants, consider the following statements:

1. Root hairs are the extensions of the cortex cells of the root.
2. The cell wall of root hairs acts as a semi-permeable membrane.

Which of these statements is/are correct?

(a) 1 only (b) 2 only
(c) Both 1 and 2 (d) Neither 1 nor 2

56. The nozzle used to produce fog is

(a) Gaseous energy nozzle
(b) Thermal energy nozzle
(c) Centrifugal energy nozzle
(d) Kinetic energy nozzle

57. The critical stages of irrigation in cotton are

(a) Vegetation and flowering (b) Squaring and flowering
(c) Flowering and boiling (d) Bolling and boll opening

58. Which one of the following is most remunerative in lowland farming system?

(a) Rice - Fish culture (b) Rice - Poultry - Fish culture
(c) Rice - Dairy (d) Rice - Sericulture

59. Which one of the following companion cropping systems is most prevalent in Andaman and Nicobar Islands?

(a) Coconut + Sugarcane (b) Coconut + Maize
(c) Coconut + Black pepper (d) Coconut + Sunflower

60. Which one of the following aphids feeds on pulses?

(a) Rhopalosiphum maidis (b) Myzus persicae
(c) Lipaphis erysimi (d) Aphis cracivora

61. Which of the following is the characteristic of clay particles in the soil?

(a) Less than 0.002 mm in diameter and consist of primary minerals
(b) Less than 0.002 mm in diameter and consist of primary and secondary minerals
(c) 0.002 – 0.05 mm in diameter and consist of secondary minerals
(d) Less than 0.002 mm in diameter and consist of secondary minerals

62. Consider the following:

1. Buddlea asiatica 2. Duranta plumerii
3. Carnation (Dianthus caryophyllus)

Which of the above is/are suitable for cut-flower industry?

(a) 1 and 2 (b) 2 only
(c) 1 and 3 (d) 3 only

63. **Kewada or screwpine *(Pandanus),* an important aromatic plant, is found in plenty in**

(a) Coastal tracts of Orissa

(b) Sand dunes of Rajasthan

(c) Foothills of Himachal Pradesh

(d) Cold desert of Ladakh

64. **The fruit pulp of which one of the following medicinal plants is used as laxative?**

(a) Atropa belladonna (b) Anethum graveolens

(c) Cassia fistula (d) Rauwolfia serpentina

65. **Which one of the following pairs is responsible for tundu disease of wheat?**

(a) Nematode and Bacterium (b) Bacterium and Fungus

(c) Nematode and Fungus (d) Virus and Nematode

66. **In which one of the following characters do mycoplasmas differ from bacteria?**

(a) Reproduction of fission (b) Cell wall

(c) Culture in cell free medium (d) Visibility under optical microscope

67. **Which of the following is correct regarding viroid?**

(a) RNA containing 50 - 100 base pairs with protein coat

(b) DNA containing 50 - 100 base pairs with protein coat

(c) RNA containing 250 - 400 nucleotides without protein coat

(d) DNA containing 250 - 400 nucleotides without protein coat

68. **Match List I (Common Name) with List II (Scientific Name) and select the correct answer using the codes given below the lists:**

List I	List II
A. Ring nematode	1. Hoplolaimus sp.
B. Spiral nematode	2. Criconemoides sp.
C. Lesion nematode	3. Pratylenchus sp.
D. Lance nematode	4. Helicotylenchus sp.

	A	B	C	D
(a)	1	3	4	2
(c)	1	4	3	2

	A	B	C	D
(b)	2	4	3	1
(d)	2	3	4	1

69. **The amount of carbendazim 50% wettable powder required to prepare 1000 ppm solution is**

(a) 1g in 1 litre of water (b) 0.1g in 1 litre of water

(c) 2g in 1 litre of water (d) 0.2g in 1 litre of water

70. **After initiation of crown gall disease caused by *Agrobacterium tumefaciens,* its spread and development**

(a) Depend on growth and reproduction of bacteria

(b) Depend on auxin production by bacteria

(c) Depend on non-plasmid genome of bacteria

(d) Is independent of bacteria

71. Consider the following statements:

Modern soil classification (taxonomy) is based on

1. Soil morphology
2. Soil genesis
3. Climate of soil formation
4. Age of soil

Which of the statements given above are correct?

(a) 1, 2 and 3 (b) 2 and 3

(c) 1, 2 and 4 (d) 1 and 4

72. Which one of the following pairs is *not* correctly matched?

(a) Acid soils — Al toxicity

(b) Saline alkali soils — K toxicity

(c) Water logged soils — Methane emission

(d) Sandy soils — Nutrient leaching

73. The bushy appearance with dead heart in sugarcane at 6th internode is due to

(a) Excess irrigation (b) Excess nitrogen

(c) Top borer (d) Mealy bug

74. Which one among the following is the pneumatic sprayer?

(a) Foot sprayer (b) Stirrup sprayer

(c) Hand compression sprayer (d) Rocker sprayer

75. Match List I (Agroclimatic Zones) with List II (Main Strategy of Development) and select the correct answer using the codes given below the lists:

List I	List II
A. Lower Gangetic plains	1. Reclamation of ravenous area
B. Central plateau and hills	2. Emphasis on increasing the tree cover
C. Western dry region	3. Crop diversification
D. Trans-gangetic plains	4. Minor irrigation programmes

	A	B	C	D
(a)	3	1	2	4
(c)	3	2	1	4

	A	B	C	D
(b)	4	1	2	3
(d)	4	2	1	3

76. Consider the following statements:

1. For increasing the production of oilseeds/edible oils and to attain self-sufficiency in their production, a centrally sponsored Oilseeds Production Programme is being implemented in 28 states.
2. Convergence of Oilseeds Production Programme with Watershed Development Programme is one of the thrust areas identified for increasing the production of oilseeds during the Tenth Five Year Plan.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

77. The market equilibrium for an agricultural commodity is determined by

(a) The market demand for the commodity

(b) The market supply of the commodity

(c) The balancing of the forces of demand and supply for the commodity

(d) Imports and exports

78. Consider the following crops:

1. Cereal crops
2. Plantation crops
3. Pulses and oilseeds

Which of the above crops are exempted from enforcement of ceiling on land holdings?

(a) 1 and 2 (b) 2 only

(c) 2 and 3 (d) 3 only

79. Which one of the following structural changes is becoming increasingly popular in the agricultural marketing system in India?

(a) Integration (b) Specialization

(c) Diversification (d) Decentralisation

80. Consider the following statements:

1. Vacuoles implant cells have single membrane.
2. Mitochondrial DNA lacks histones.
3. Smooth Endoplasmic Reticulum is involved in lipid synthesis and membrane assembly.

Which of the statements given above is/are correct?

(a) 1 only (b) 1 and 2

(c) 2 and 3 (d) 1, 2 and 3

81. Which one of the following refers to inter-regional allocation of agricultural production credit?

(a) Proportionate number of farmers

(b) Variation in the cost of production

(c) Proportionate cultivated area

(d) Differential productivity of capital

82. Consider the following statements:

The presence of very large number of middlemen in agricultural marketing could be attributed to

1. The demand for farm products over a large area.
2. Highly scattered agricultural production.
3. Difficult transportation of agricultural products which also involves special care.

Which of the statements given above is/are correct?

(a) 1 and 2 (b) 2 and 3

(c) 3 only (d) 1, 2 and 3

83. To produce more output per unit of land, a cultivator will

(a) Resort to diversification

(b) Use land intensively

(c) Use land extensively

(d) Use land intensively as well as extensively

84. Which of the following characterizes co-operative joint farming?

(a) Ownership and cultivation are individual practices

(b) Ownership is individual and the reward is based on the contribution of labour

(c) Cultivation is joint and the reward is based on the contribution of land

(d) Cultivation is joint but the reward is not *based* on the contribution of land

85. A farm is said to be diversified when

(a) Crop enterprise is mixed with livestock enterprise

(b) Any' one of the enterprises contributes more than 50% of the total income.

(c) None of the enterprises contributes more than 50% of the total income

(d) Crop enterprise is combined with forestry

86. Consider the following statements:

1. The smallest unit of DNA which is capable of undergoing crossing over and recombination is called cistron.
2. In protein synthesis the enzyme that catalyses peptide bonding is located in the smaller subunit of ribosomes.
3. In cell cycle, replication of DNA occurs during G1 phase. Which of the statements given above is/are correct?

(a) 1 and 2 (b) 2 only

(c) 2 and 3 (d) 3 only

87. Which one of the following types of soils is most suitable for groundnut cultivation?

(a) Sandy and sandy-loam soil (b) Loam and clay soil

(c) Clayey soil (d) Silty soil

88. The concave Production Possibility Curve (PPC) is very common in agriculture because of

(a) Constant rates of substitution between two products

(b) Increasing rates of substitution between two products

(c) Increasing rates of substitution between two factors

(d) Increasing rates of substitution between two factors and between two products

89. Scientific name of macaroni wheat is

(a) *Triticum aestivum* (b) *Triticum dicoccum*

(c) *Triticum duram* (d) *Triticum vulgare*

90. Match List I with List II and select the correct answer using the codes given below the lists:

List I (Crop)	List II (Variety)
A Castor	1. BR 13
B. Pigeonpea	2. lal Bahadur
C. Maize	3. Kissan
D. Wheat	4. NPH 1

	A	B	C	D
(a)	4	3	1	2
(c)	2	1	3	4

	A	B	C	D
(b)	4	1	3	2
(d)	2	3	1	4

91. Consider the following statements:

1. Muriate of potash is not suitable for sugarcane.
2. Saltpetre contains 65% K20.
3. Single superphosphate contains gypsum.
4. Ammonium phosphates are completely water soluble. Which of the statements given above are correct?

(a) 1 and 2 (b) 1, 3 and 4
(c) 3 and 4 (d) 1, 2, 3 and 4

92. With reference to the food grain cultivation next to Uttar Pradesh, which one among the following states has the highest irrigated area?

(a) Andhra Pradesh (b) Maharashtra
(c) Punjab (d) West Bengal

93. The Chromosome theory of inheritance was first postulated by

(a) Avery, McCarty and Macleod (b) Frederick Griffith
(c) Morgan and Sturtevant (d) Sutton and Boveri

94. In meiosis, reduction in the number of chromosomes occurs in

(a) Diakinesis (b) Anaphase I
(c) Metaphase I (d) Anaphase II

95. Which one of the following is the correct sequence in the biosynthetic pathway of Indole Acetic Acid (IAA)?

(a) Tryptophan - Indole pyruvic acid - Indoleacetaldehyde - IAA
(b) Indole pyruvic acid - Indoleacetaldehyde - Tryptophan - IAA
(c) Tryptophan - Indoleacetaldehyde - Indole pyruvic acid - IAA
(d) Indoleacetaldehyde - Indole pyruvic acid - Tryptophan - IAA

96. Which one of the following pairs is *not* correctly matched?

(a) Cucurbits : Self pollinated
(b) French bean : Self pollinated
(c) Brinjal : Often cross pollinated
(d) Pea : Self pollinated

97. What is RNA splicing?

(a) Termination of RNA synthesis at specific base sequences within the DNA molecule

(b) The excision of the introns and the formation of final Mrna molecule by joining the exons

(c) The beginning of transcription as soon as the RNA polymerase-promoter complex is formed and an appropriate nucleotide binds to the enzyme

(d) Release of newly formed RNA after the termination of transcription

98. Which one of the following phytohormones controls the apical dominance in plants?

(a) Auxin (b) Cytokinin

(c) Ethylene (d) Giberellin

99. Whi.ch one of the following processes is most adversely affected by the deficiency of magnesium in plants?

(a) Defoliation

(b) Upward translocation of nutrients

(c) Downward movement of nutrients

(d) Photosynthesis and carbohydrate metabolism

100. Consider the following amino acids:

1. Cysteine 2. Methionine

3. Glutamic acid

Which of the above contain sulphur?

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

101. Which one of the following pairs is *not* correctly matched?

(a) Copper — Plastocyanin

(b) Iron — Phytochrome

(c) Magnesium — Chlorophyll

(d) Cobalt — Vitamin B_{12}

102. With reference to photorespiration in plants, consider the following statements:

1. With the increase in temperature and oxygen concentration, the affinity of RuBP carboxylase decreases for CO_2 and increase for O_2.

2. The peroxisomes present in the cells metabolise glycolate into glycine; and glycine into serine and CO_2.

3. In plants adapted to C4 pathway of photosynthesis to overcome photorespiratory losses, the CO2 is fixed in mesophyll cells.

Which of the statements given above are correct?

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

103. In marigold and sweet pea plants, which one of the following conditions favours cross pollination?

(a) Dichogamy (b) Herkogamy

(c) Self-sterility (d) Unisexuality

104. Consider the following statements:

1. India imports the entire potassic fertilizers as there is no indigenous source available.
2. The all-India average fertilizer consumption is 140 kglha.

Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

105. Which one among the following elements is a component of cell membrane?

(a) Sulphur (b) Zinc

(c) Molybdenum (d) Phosphorus

106. Match List I with List II and select the correct answer using the codes given below the lists:

List I (Pest)	List II (Crop)
A. San Jose Scale	1. Coconut
B. Stem fly	2. Apple
C. Black headed caterpillar	3. Soy bean
D. Fruit sucking moths	4. Citrus

	A	B	C	D
(a)	4	1	3	2
(c)	2	3	1	4

	A	B	C	D
(b)	4	3	1	2
(d)	2	1	3	4

107. Conversion of $N0_3$ - N to N_2, NO and N_20 is known as

(a) Oxidation (b) Denitrification

(c) Mineralisation (d) Nitrification

108. Consider the following statements:

1. Ethyl methane sulphonate is widely employed in the *artificial* induction of polyploidy.
2. Colchicin *is* used for inducing gene mutations. Which of the statements given above is/are correct?

(a) 1 only (b) 2 only

(c) Both 1 and 2 (d) Neither 1 nor 2

109. Which one of the following causes a disease in wheat due to which small, linear or oblong dark brown blotches, studded with minute black dots, appear on floral bracts and nodal tissues of culms?

(a) *Altemaria triticina* (b) *Dilophosopora rolisli*

(c) *Helminthosporium sativum* (d) *Septoria nodorum*

1I0. Consic1er the following statements:

Tomato hybrids are becoming popular due to

1. High yield 2. Resistance to insects

3. Uniform fruit size

Which of the statements given above is/are correct?

(a) 1 only (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

111. Synthetic variety is developed by

(a) *Crossing* inbred lines tested for GCA

(b) Mixing seeds of inbred lines

(c) Crossing inbred lines tested for SCA

(d) Mixing seeds of open-pollinated cultivars

112. Consider the following statements:

1. In autopolyploids, the time of blooming is earlier and also shortened due to fast growth rate
2. Fertility level and seed set are very high in induced polyploids.
3. *Gossypium hirsutum* is an example of amphidiploidy. Which of the statements given above is/are correct?

(a) 1 and 2 (b) 2 only

(c) 3 only (d) 1 and 3

113. Tift-23A, a cytoplasmic male sterile line, is used for development of hybrids in

(a) Sorghum (b) Maize

(c) Rice (d) Pearl millet

114. Consider the following statements:

Haploids can be artificially produced by

1. X-ray treatment 2. Delayed pollination
3. Anther culture

Which of the statements given above is/are correct?

(a) 1 and 2 (b) 1 and 3

(c) 3 only (d) 1, 2 and 3

115. The male sterility used in the development of hybrid wheat has been derived from

(a) Triticum dicoccum (b) Triticum durum

(c) *Triticum timopheevi* (d) *Triticum monococcum*

116. Consider the following statements:

1. All tRNA molecules have guanine residue at 5' end.
2. The amino acid is accepted by tRNA at 3' end only.
3. All tRNA molecules have CCA sequence at 3' end. Which of the statements given above are correct?

(a) 1 and 2 (b) 2 and 3

(c) 1 and 3 (d) 1, 2 and 3

117. The Wobble hypothesis regarding genetic code (codons and anticodons) was proposed by

(a) Nirenberg (b) Leder

(c) Khorana (d) Crick

Il8. Consider the following characters of *Pisum sativum* :

1. Colour of cotyledon
2. Colour *of* seed coat
3. Shape *of* seed
4. Length *of* pod

Which *of* the above were taken into account in Mendel's experiments *on* hybridization?

(a) 1, 2 and 3 (b) 2, 3 and 4

(c) 1 and 4 (d) 1, 2, 3 and 4

119. Which one of the following statements is *not* correct?

(a) Rough Endoplasmic Reticulum is particularly well developed in cells actively engaged in protein synthesis

(b) Ribosomes have large contents *of* lipids in *their* compositions

(d) Golgi *complex* is involved in *the* formation *of* cell plate during cell division

(d) In germinating seeds, glyoxysomes convert fatty acids into sugars

120. The development of seed without sexual fusion of male and female gametes is known as

(a) Vegetative reproduction (b) Apomixis

(c) Self-incompatibility (d) Apospory

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1.	(c)	2.	(d)	3.	(b)	4.	(a)	5.	(d)	6.	(c)
7.	(b)	8.	(d)	9.	(b)	10.	(d)	11.	(d)	12.	(b)
13.	(b)	14.	(d)	15.	(c)	16.	(a)	17.	(b)	18.	(a)
19.	(a)	20.	(c)	21.	(b)	22.	(c)	23.	(a)	24.	(c)
25.	(a)	26.	(c)	27.	(c)	28.	(b)	29.	(a)	30.	(a)
31.	(b)	32.	(c)	33.	(d)	34.	(b)	35.	(a)	36.	(c)
37.	(d)	38.	(d)	39.	(b)	40.	(b)	41.	(d)	42.	(c)
43.	(a)	44.	(d)	45.	(a)	46.	(d)	47.	(d)	48.	(d)
49.	(b)	50.	(c)	51.	(a)	52.	(c)	53.	(a)	54.	(d)
55.	(d)	56.	(b)	57.	(c)	58.	(b)	59.	(c)	60.	(d)
61.	(d)	62.	(b)	63.	(a)	64.	(c)	65.	(a)	66.	(b)
67.	(c)	68.	(b)	69.	(c)	70.	(c)	71.	(c)	72.	(b)
73.	(c)	74.	(c)	75.	(b)	76.	(c)	77.	(c)	78.	(b)
79.	(a)	80.	(d)	81.	(b)	82.	(d)	83.	(b)	84.	(c)
85.	(c)	86.	(a)	87.	(a)	88.	(b)	89.	(c)	90.	(b)
91.	(h}	92.	(c)	93.	(d)	94.	(b)	95.	(a)	96.	(a)
97.	(b)	98.	(a)	99.	(d)	100.	(a)	101.	(b)	102.	(c)
103.	(a)	104	(a)	105.	(d)	106.	(c)	107.	(b)	108.	(d)
109.	(a)	110.	(d)	111.	(a)	112.	(c)	113.	(d)	114.	(d)
115.	(c)	116.	(d)	117.	(d)	118.	(a)	119.	(b)	120.	(b)