

DO NOT OPEN THIS TEST BOOKLET UNTIL YOU ARE ASKED TO DO SO

## COMBINED COMPETITIVE (PRELIMINARY) EXAMINATION, 2012

Serial No.

**BOTANY**  
**Code No. 03**

**A**

*Time Allowed : Two Hours*

*Maximum Marks : 300*

### INSTRUCTIONS

1. IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS, ETC, IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.
2. ENCODE CLEARLY THE TEST BOOKLET SERIES ~~A, B, C OR D~~ AS THE CASE MAY BE IN THE APPROPRIATE PLACE IN THE RESPONSE SHEET.
3. You have to enter your Roll Number on this Your Roll No.  
Test Booklet in the Box provided alongside.  
*DO NOT* write *anything else* on the Test Booklet.
4. This Booklet contains 120 items (questions). Each item comprises *four* responses (answers). You will select *one* response which you want to mark on the Response Sheet. In case you feel that there is more than one correct response, mark the response which you consider the best. In any case, choose ONLY ONE response for each item.
5. In case you find any discrepancy in this test booklet in any question(s) or the Responses, a written representation explaining the details of such alleged discrepancy, be submitted within three days, indicating the Question No(s) and the Test Booklet Series, in which the discrepancy is alleged. Representation not received within time shall not be entertained at all.
6. You have to mark all your responses ONLY on the separate Response Sheet provided. *See directions in the Response Sheet.*
7. All items carry equal marks. Attempt ALL items. Your total marks will depend only on the number of correct responses marked by you in the Response Sheet.
8. Before you proceed to mark in the Response Sheet the response to various items in the Test Booklet, you have to fill in some particulars in the Response Sheet as per instructions sent to you with your Admit Card and Instructions.
9. While writing Centre, Subject and Roll No. on the top of the Response Sheet in appropriate boxes use



**“ONLY BALL POINT PEN”.**

10. After you have completed filling in all your responses on the Response Sheet and the examination has concluded, you should hand over to the Invigilator only the Response Sheet. You are permitted to take away with you the Test Booklet.

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**TDC-41586-A**

**1**

## **ROUGH WORK**

**TDC-41586-A**

**2**

1. Most of the swollen part of fleshy root is comprised by hypocotyl in:  
 (A) Radish (B) Carrot  
 (C) Turnip (D) Beet
2. Buttress roots are found in:  
 (A) Almond (B) Simbal  
 (C) Pipal (D) All of the above
3. Leaf roots are present in:  
 (A) *Eichhornia* (B) *Jussiaea*  
 (C) *Bryophyllum* (D) *Salvinia*
4. The example of leaf opposed stem tendrils is:  
 (A) *Cucurbita* (B) Grape-vine  
 (C) *Passiflora* (D) *Antigonon*
5. The stiff and pointed structures in *Bougainvillea* are called  
 (A) Thorns (B) Spines  
 (C) Prickles (D) Bristles
6. The type of compound leaves in *Coriander* is:  
 (A) Unipinnate (B) Bipinnate  
 (C) Tripinnate (D) Decompound
7. In Australian *Acacia*, the leaves are modified into:  
 (A) Cladodes (B) Phylloclades  
 (C) Phyllodes (D) Tendrils
8. In *Nepenthes*, the pitcher is a modification of:  
 (A) Leaf base (B) Petiole  
 (C) Lamina (D) Stipules
9. Raceme of Racemes is also termed as:  
 (A) Umbel (B) Spadix  
 (C) Panicle (D) Corymb
10. The inflorescence in *Euphorbia* species is:  
 (A) Verticillaster (B) Cyathium  
 (C) Cymose head (D) Capitulum
11. The maturation of anthers and stigma of a flower at different times is:  
 (A) Dicliny (B) Dichogamy  
 (C) Prepotency (D) Herkogamy

- (A) Eucarpic  
(C) Parthenocarpic
- (B) Pseudocarpic  
(D) Pseudocarpic and Parthenocarpic
13. Testa of seed is inseparably fused with the pericarp in:  
(A) Pea  
(C) Maize
- (B) Gram  
(D) Castor
14. The cocci are found in the fruits of:  
(A) Fennel  
(C) *Acer*
- (B) *Althaea*  
(D) *Castor*
15. The fruit of *Litchi* is:  
(A) Succulent and single seeded  
(C) Dry and single seeded
- (B) Succulent and many seeded  
(D) Dry and many seeded
16. Aleurone layer in Maize grain is a part of:  
(A) Pericarp  
(C) Scutellum
- (B) Endosperm  
(D) All of the above
17. The type of seed germination in Maize is:  
(A) Epigeal  
(C) Mainly epigeal and partially Hypogeal
- (B) Hypogeal  
(D) Partially Epigeal and mainly Hypogeal
18. Censer mechanism for dispersal of seeds occur in:  
(A) Poppy  
(C) *Sonchus*
- (B) *Calotropis*  
(D) *Albizzia*
19. Autochory takes place in:  
(A) Pea  
(C) Balsam
- (B) *Geranium*  
(D) All of the above
20. The 'Father of Taxonomy' is:  
(A) Aristotle  
(C) Linnaeus
- (B) Lamarck  
(D) Watson and Crick
21. Protocells are:  
(A) Autotrophic  
(C) Heterotrophic
- (B) Epiphytic  
(D) Saprophytic
22. Pangenesis theory was proposed by:  
(A) Weismann  
(C) Lamarck
- (B) Charles Darwin  
(D) Hudo De Vries
- TDC-41586-A**
23. 'Ontogeny repeats phylogeny' is known by:  
(A) Biogenetic law  
(C) Law of Heredity
- (B) Natural selection theory  
(D) Mutation theory

24. Plants were divided into herbs, shrubs and trees by:  
(A) Lamarck (B) Darwin  
(C) Theophrastus (D) Linnaeus
25. Reappearance of ancestral characters in an organism is termed as:  
(A) Vestigial (B) Atavism  
(C) Homologous (D) Analogous
26. Cytoplasmic connections through the two neighboring cells are called:  
(A) Endoplasmic reticulum (B) Golgi bodies  
(C) Plasmodesmata (D) Mitochondria
27. Temperature of cell remains constant due to the presence of:  
(A) Water (B) Proteins  
(C) Carbohydrates (D) Lipids
28. Contractile vacuoles play a role in:  
(A) Reproduction (B) Streaming movements  
(C) Excretion (D) Water absorption
29. Coenocytic cells are:  
(A) Uninucleate (B) Binucleate  
(C) Multinucleate (D) None of the above
30. Which of the following contain chromatophores?  
(A) Bacteria (B) Algae  
(C) Fungi (D) All of the above
31. Autolysis occurs through  
(A) Lysosomes (B) Vacuoles  
(C) Nucleus (D) Centrioles
32. Nucleolous reappear during  
(A) Prophase (B) Metaphase  
(C) Anaphase (D) Telophase
33. Synapsis occurs during:  
(A) Leptotene (B) Zygotene  
(C) Pachytene (D) Diplotene

TDC-41586-A

5

[Turn over

34. Molecules of lipid and proteins of the plasma membrane are bound together by:  
(A) Electrostatic force (B) Centripetal force  
(C) Centrifugal force (D) Van der Waal's force

35. Balbiani rings are found in:  
 (A) Somatic chromosomes (B) Lampbrush chromosomes  
 (C) Polytene chromosomes (D) Sat chromosomes
36. The cells having thickenings on their walls which are bordering the intercellular spaces constitute:  
 (A) Angular Collenchyma (B) Lacunate Collenchyma  
 (C) Lamellar Collenchyma (D) Plate Collenchyma
37. The term 'Hadrome' is related to:  
 (A) Phloem (B) Endodermis  
 (C) Xylem (D) Epidermis
38. The nuclear enzymes are composed of:  
 (A) Nucleoprotamines (B) Nucleohistone proteins  
 (C) Non-histone proteins (D) Histomines
39. Chromosomes not associated with the sex are known as:  
 (A) Autosomes (B) Y-chromosomes  
 (C) Polytene chromosomes (D) Lampbrush chromosomes
40. Shape of meristematic cells in the vascular cambium is:  
 (A) Isodiametric (B) Polygonal  
 (C) Irregular (D) Fusiform
41. The term 'Plastochron' is used to describe:  
 (A) Coloration of plastocyanin  
 (B) Widening of apical meristem  
 (C) Narrowing of apical meristem  
 (D) Period between the initiation of two successive leaves
42. Root cap is formed from the \_\_\_\_\_ in Dicotyledons.  
 (A) Root meristem (B) Innermost initial cells  
 (C) Median initial cells (D) Terminal initial cells
43. Vascular bundles scattered in the pith are referred to as:  
 (A) Concentric (B) Medullary  
 (C) Cortical (D) Radial

**TDC-41586-A**

**6**

44. Gene that does not determine a character but simply modifies it, is termed as:  
 (A) Pleiotropic gene (B) Penetrance gene  
 (C) Holandrice gene (D) Supplementary gene
45. Causal organism for the 'Wart Disease of Potato' is:

- (A) *Oplidium* (B) *Physoderma*  
(C) *Synchytrium* (D) *Urophlyctis*
46. The disease 'Ergot of Rye' is caused by  
(A) *Claviceps* (B) *Fusarium*  
(C) *Neurospora* (D) *Cystopus*
47. The bacteria without flagella are known as:  
(A) Monotrichous (B) Lophotrichous  
(C) Atrichous (D) Petritrichous
48. Elaters are found in  
(A) *Rhynia* (B) *Riccia*  
(C) *Funaria* (D) *Pellia*
49. The type of pollen liberation known as 'Sulphur Shower' is observed in:  
(A) *Cycas* (B) *Pinus*  
(C) *Araucaria* (D) *Agathis*
50. Aril is found in the ovule of:  
(A) *Pinus* (B) *Cedrus*  
(C) *Cycas* (D) *Taxus*
51. In Cabbage, the leaves are \_\_\_\_\_ arranged.  
(A) Involutely (B) Arcinately  
(C) Plicately (D) Crumpledly
52. Transportation of hormones in plant is:  
(A) Apex to base (B) Base to apex  
(C) Uniform distribution (D) All of the above
53. According to Relay Pump Hypothesis, water rises in the stem due to activity of cells of :  
(A) Medullary rays (B) Inner cortex  
(C) Pericycle (D) Endodermis
54. Guard cells in some Monocots may be:  
(A) Dome shaped (B) Dumbbell shaped  
(C) Spathulate (D) Wedge shaped



55. Enzymatic interconversion of starch-sugar was thought for the opening of stomata due to discovery of enzyme:
- (A) Phosphorylase (B) Phosphoglucomutase  
(C) Hexokinase (D) Phosphatase
56. According to the active  $K^+$  Transport Hypothesis, besides organic acids, the turgidity of guard cells is controlled by movement of following ions:
- (A)  $K^+$ ,  $Na^+$ ,  $Cl^-$  (B)  $K^+$ ,  $Na^+$ ,  $H^+$   
(C)  $K^+$ ,  $H^+$ ,  $Cl^-$  (D)  $K^+$ ,  $Na^+$ ,  $H^+$ ,  $Cl^-$
57. Which element is left as such when chlorophyll is burnt?
- (A) Iron (B) Manganese  
(C) Magnesium (D) Molybdenum
58. Rapid deterioration of root and shoot occurs due to the deficiency of:
- (A) Calcium (B) Phosphorus  
(C) Carbon (D) Molybdenum
59. When *Hydrilla* is removed from aquatic habitat to be planted in soil:
- (A) The plant will dry up and die  
(B) The plant would grow though with a stunted growth  
(C) The number of lacunae reduce and a thick cuticle is developed  
(D) It start producing collenchyma and sclerenchyma cells for mechanical support
60. Kreb's cycle start with the formation of a six carbon compound by reaction between:
- (A) Malic acid and acetyl coenzyme A  
(B) Succinic acid and pyruvic acid  
(C) Fumaric acid and pyruvic acid  
(D) Oxaloacetic acid and acetyl coenzyme A
61. Seedless fruits can be produced by treating the unpollinated flowers with:
- (A) Auxins (B) Gibberellins  
(C) Cytokinins (D) Lanolin
62. The primary precursor of IAA is
- (A) Phenylalanine (B) Tyrosine  
(C) Tryptophan (D) Leucine
63. Elongation of a genetically dwarf plant is possible with the application of:
- (A) Kinetin (B)  $GA_3$   
(C) IAA (D) 2,4-D

64. Idea that the genes control production of an enzyme was first given by:
- (A) T.H. Morgan (B) E.I. Tatum

- (C) A. Garrod (D) A. Kornberg
65. The plane of cell wall formation in a dividing cell is determined by:  
 (A) Microfilaments (B) Microtubules  
 (C) Endoplasmic reticulum (D) Golgi apparatus
66. The shape of nuclear spindle is:  
 (A) Cylindrical (B) Conical  
 (C) Elliptical (D) Discoid
67. The number of linkage groups in a plant correspond to:  
 (A) Number of chiasmata (B) Basic number of chromosomes  
 (C) Haploid number of chromosomes (D) Diploid number of chromosomes
68. 'Balausta' fruit is present in:  
 (A) Pomegranate (B) Bael  
 (C) Orange (D) Cucumber
69. The pericarp is not differentiated into epicarp, mesocarp and endocarp in:  
 (A) Berries (B) Drupes  
 (C) Pomes (D) All of the above
70. Dichlamydeous flowers have:  
 (A) Calyx (B) Corolla  
 (C) Both Calyx and Corolla (D) Both Androecium and Gynoecium
71. Involucral bracts are present in:  
 (A) Nut (B) Capitulum  
 (C) Spadix (D) Catkin
72. *Triticale* is an example of \_\_\_\_\_ hybridization.  
 (A) Intervarietal (B) Intravarietal  
 (C) Interspecific (D) Intergeneric
73. Pollinia are present in the flower of:  
 (A) *Sonchus* (B) *Ageratum*  
 (C) *Calotropis* (D) *Antirrhinum*
74. Montreal protocol is associated with:  
 (A) Protection of forest cover and wildlife (B) Protection of ozone layer  
 (C) Bio-fuel reserves (D) Green house gases
- TDC-41586-A 9 [Turn over
75. Sandalwood cultivation is mainly confined to:  
 (A) Kerala (B) Orissa  
 (C) Tamil Nadu (D) Karnataka

76. The drug aconite is obtained from the \_\_\_\_\_ of *Aconitum heterophyllum*.  
 (A) Seeds (B) Stem  
 (C) Roots (D) Leaves
77. A hypothesis suggesting, 'high energy state consists of a proton-concentration gradient and an electric field across the functional membrane' is:  
 (A) Phosphorylation Hypothesis (B) Chemiosmotic Hypothesis  
 (C) Van Neil's Hypothesis (D) None of the above
78. Amla (*Embllica officinalis*) belongs to the family:  
 (A) Fabaceae (B) Euphorbiaceae  
 (C) Malvaceae (D) Verbenaceae
79. Katha is extracted from \_\_\_\_\_ of khair (*Acacia catechu*).  
 (A) Bark (B) Leaves  
 (C) Heartwood (D) Sapwood
80. Indian State leading in pineapple cultivation is:  
 (A) Assam (B) Bihar  
 (C) Maharashtra (D) Orissa
81. The free energy change upon addition of a unit quantity, specifically a gram molecular weight of a substance is called the:  
 (A) Solute potential (B) Standard free energy  
 (C) Chemical potential (D) Gibbs free energy
82. The amount of energy required to raise the temperature of a unit mass of a substance by 1°C is called its:  
 (A) Latent heat (B) Heat of vaporization  
 (C) Specific heat (D) Endothermic energy
83. Protandry is a condition of flower in which:  
 (A) Anthers mature first  
 (B) Carpel mature first  
 (C) Both mature at the same time  
 (D) Anthers and stigmas lie at different levels
84. In gymnosperms, the endosperm is:  
 (A) Haploid (B) Diploid  
 (C) Triploid (D) Tetraploid

TDC-41586-A

10

85. If the stigma gets pollinated by pollens of the same flower, phenomenon is:  
 (A) Autogamy (B) Allogamy  
 (C) Xenogamy (D) Geitonogamy
86. Inorganic materials are stored by seeds in the form of:

- (A) Pectin  
(C) Cellulose
- (B) Volutin  
(D) Phytin
87. Production of auxins is \_\_\_\_\_ by light.  
(A) Inhibited  
(C) Not altered
- (B) Promoted  
(D) None of the above
88. Which of the followings can be used as biofertilizers?  
(A) Algae and bacteria  
(C) Azolla
- (B) Mycological VA mycorrhizae  
(D) All of the above
89. Plantlets developed from anther cultures are:  
(A) Haploids  
(C) Triploids
- (B) Diploids  
(D) Polyploids
90. Which of the followings is also known as levulose or fruit sugar?  
(A) Glucose  
(C) Mannose
- (B) Fructose  
(D) Maltose
91. Cells lacking turgor pressure entirely are referred to as:  
(A) Dead cells  
(C) Flaccid cells
- (B) Inactive cells  
(D) Immotile cells
92. The most harmful ionizing radiation is:  
(A)  $\alpha$ -particles  
(C)  $\gamma$ -rays
- (B)  $\beta$ -particles  
(D) All of the above
93. The value of water potential for pure water is:  
(A)  $10^6$  dynes/sq. cm.  
(C) 0.987 atmosphere
- (B)  $10^8$  dynes/sq. cm.  
(D) Zero
94. Diffusion of water into endodermis takes place through:  
(A) Casparian strips  
(C) Both (A) and (B)
- (B) Passage cells  
(D) Special pores
95. Root cap is absent in:  
(A) *Zea mays*  
(C) *Nymphaea*
- (B) *Helianthus*  
(D) *Azolla*

TDC-41586-A

11

[Turn over

96. In hydrophytes buoyancy is provided due to:  
(A) Collenchymas  
(C) Sclerenchyma
- (B) Aerenchyma  
(D) Chlorenchyma
97. In aerial roots of epiphytic orchids water is retained in:  
(A) Velamen tissue  
(C) Vascular tissue
- (B) Prosenchyma tissue  
(D) Chlorenchyma tissue

98. Fleshy leaf like structures in *Opuntia* is modification of:  
(A) Root (B) Flower  
(C) Petiole (D) Stem
99. Which of the followings is a secretory structure?  
(A) Idioblast (B) Prosenchyma  
(C) Phyllode (D) Phylloclade
100. Carnivory habit is observed in:  
(A) *Sonchus* (B) *Manihot*  
(C) *Euphorbia* (D) *Drosera*
101. The breathing roots are present in:  
(A) *Avicenia* (B) *Cassia*  
(C) *Alocassia* (D) *Colocasia*
102. The smallest flowering plant in the world is:  
(A) *Wolffia microscopica* (B) *Lemna gibba*  
(C) *Cyperus tricep* (D) *Brassica niger*
103. Which plant is called as fire of the forest?  
(A) *Erythrina indica* (B) *Bombax malabaricum*  
(C) *Butea monosperma* (D) *Woodfordia floribunda*
104. Which of the following fruit is a drupe?  
(A) Banana (B) Papaya  
(C) Fig (D) Mango
105. Which of the following is a false fruit?  
(A) Papaya (B) Pineapple  
(C) Cashew nut (D) Areca nut
106. Which of the following fruit is a berry?  
(A) Coconut (B) Almond  
(C) Tomato (D) Areca nut

107. Which of the following is best known nitrogen fixing bacteria?  
 (A) *Rhizoctonium* (B) *Rhizobium*  
 (C) *Arizin* (D) *Cocus*
108. Loss of water in the form of droplets is:  
 (A) Desiccation (B) Imbibition  
 (C) Guttation (D) Transpiration
109. The term binomial nomenclature was coined by:  
 (A) Engler and Prantl (B) Bentham and Hooker  
 (C) Linnaeus (D) Hutchinson
110. Which of the following gymnosperm is having anticancerous properties?  
 (A) *Taxodium distichum* (B) *Taxodium speciosum*  
 (C) *Taxus baccata* (D) *Junoperous virginiana*
111. Plants showing movement in their organs due to touch is:  
 (A) Chemonasty (B) Epinasty  
 (C) Thermonasty (D) Thigmonasty
112. In plant cell, enlargement and differentiation is controlled by hormones:  
 (A) Zeatin and Ethylene (B) Ethylene and Cytokinins  
 (C) Gibberellins and Cytokinins (D) Auxins and Abscisic acid
113. In plant cells division is controlled by:  
 (A) Abscisic acid (B) Ethylene  
 (C) Auxins (D) Cytokinins
114. Agar-agar is obtained from:  
 (A) Algae (B) Fungi  
 (C) Bryophyte (D) Pteridophyta
115. Clove is a:  
 (A) Bark drug (B) Root drug  
 (C) Flower drug (D) Leaf drug
116. The monosaccharides present in cane sugar are:  
 (A) Glucose + Mannose (B) Glucose + Lactose  
 (C) Glucose + Fructose (D) Glucose + Galactose
117. Which of the following *Ficus* species is largest spreading?  
 (A) *F. benghalensis* (B) *F. benjamina*  
 (C) *F. elastica* (D) *F. glomerata*

- (A) Unidirectional
- (C) Tridirectional

- (B) Bidirectional
- (D) Multidirectional

119. Which of the following diseases is caused by fungi?

- (A) Little leaf of Brinjal
- (B) Tunda disease of Apple
- (C) Fruit rot of Papaya
- (D) Red rot of Sugarcane

120. Which of the following diseases is caused by bacteria?

- (A) Late blight of Potato
- (B) Powdery mildew of wheat
- (C) Citrus canker
- (D) Tobacco mosaic

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**TDC-41586-A**

**15**



## **ROUGH WORK**

**TDC-41586-A**

**16**

**300**