

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

**COMBINED COMPETITIVE (PRELIMINARY) EXAMINATION, 2010**

Serial No.

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



*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  
Test Booklet in the Box provided alongside.  
*Do NOT write anything else on the Test Booklet.*
- Your Roll No.  
\_\_\_\_\_
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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## **ROUGH WORK**

1. Most of the sea weeds belong to class :  
(A) Chlorophyceae (B) Dinophyceae  
(C) Phaeophyceae (D) Cyanophyceae
  
2. Algae useful as Bio-fertilizer generally belong to class :  
(A) Cyanophyceae (B) Chlorophyceae  
(C) Xanthophyceae (D) Bacillariophyceae
  
3. Mushrooms, puff-balls, toad-stools belong to the class :  
(A) Phycomycetes (B) Ascomycetes  
(C) Basidiomycetes (D) Deuteromycetes
  
4. Sexual reproduction is absent among :  
(A) Phycomycetes (B) Ascomycetes  
(C) Basidiomycetes (D) Deuteromycetes
  
5. In most fungi mycelial wall is made up of :  
(A) Chitin (B) Cellulose  
(C) Hemicellulose (D) Pectin
  
6. Fungal spores produced asexually at the tip of hyphae are called :  
(A) Conidia (B) Sporangiphore  
(C) Spores (D) Arthospores
  
7. Most poisonous mushroom is :  
(A) *Agaricus* (B) *Polyprous*  
(C) *Amanita* (D) *Lycoperdon*
  
8. Flowers of Fungi are :  
(A) Mushroom (B) Toad stools  
(C) Puff balls (D) Molds
  
9. Fungi which occur on wood are :  
(A) Epibiotic (B) Epicarpic  
(C) Epixylic (D) Epigeon

10. Fungi can be stained by :
- (A) Cotton blue (B) Safranine  
(C) Glycerine (D) Lactophenol
11. Basidiospores are characteristic of :
- (A) Bread mold (B) Mushrooms  
(C) *Aspergillus* (D) Yeast
12. Respiratory structure in bacteria are :
- (A) Mitochondria (B) Ribosomes  
(C) Mesosomes (D) None
13. Bacteria are regarded to be plants because :
- (A) Some of them are green (B) They are present everywhere  
(C) Some of them cannot move (D) They have a rigid cell wall
14. Bacteria do not need sunlight to grow because :
- (A) They prepare their food without the help of light  
(B) They do not like sunlight brightness  
(C) Due to absence of chlorophyll they are incapable of manufacturing their own food  
(D) They use other kinds of light for manufacturing their own food
15. A free-living bacterium capable of fixing atmosphere nitrogen is :
- (A) *Staphylococcus* (B) *Streptococcus*  
(C) *Azotobacter* (D) None
16. Bacteria have the following organelles :
- (A) Mesosomes (B) Golgi bodies  
(C) Mitochondria (D) Lysosome

17. A bacterial cell differs from higher plants in lacking :
- (A) Amitosis (B) A true nucleus  
(C) Cell wall (D) Ribosomes
18. Bacteria cannot survive in a highly salted pickle because :
- (A) Salt inhibit reproduction  
(B) Bacteria do not get enough light for photosynthesis  
(C) They became plasmolysed and consequently killed  
(D) The pickle does not contain nutrients necessary for bacteria to live.
19. Bacteria have incipient nucleus (nucleoid) and hence they are placed in :
- (A) Prokaryota (B) Eukaryota  
(C) Both (D) None
20. Bacterial leaf blight is a serious disease of :
- (A) Paddy (B) Potato  
(C) Wheat (D) Tomato
21. Muramic acid is present in the cell wall of :
- (A) Yeast (B) Bacteria  
(C) Rhizopus (D) Virus
22. Tobacco mosaic virus (TMV) was first isolated in crystalline state by :
- (A) Sabin (B) Bergold  
(C) Chase (D) Stanley
23. Bacteriophage consists of :
- (A) Carbon and nitrogen (B) DNA  
(C) Nucleoprotein (D) Protein only

24. Viruses are essentially made up of :  
(A) Proteins and nucleic acids (B) Starch carbohydrates  
(C) Proteins and lipids (D) Starch, protein and carbohydrates
25. Mosaic of sugarcane is caused by :  
(A) Bacteria (B) Virus  
(C) Fungi (D) Polio
26. First isolated virus is :  
(A) Poliomyelitis virus (B) Virus of influenza  
(C) TMV of tobacco (D) None of the above
27. Bacteriophage is similar to fungus :  
(A) In having RNA as genetic material (B) In having DNA as genetic material  
(C) In having cell wall (D) Mode of reproduction
28. Which of the following statement is correct ?  
(A) Viruses do not contain nucleic acid (B) All viruses contain DNA  
(C) All viruses contain RNA (D) Some viruses contain DNA and some RNA
29. Which one is a viral disease group ?  
(A) Influenza, Measles and Mumps (B) Chicken pox, Small pox  
(C) Polio, Hydrophobia (D) All the above
30. A moss differs from a fern in having :  
(A) Alternation of generation (B) Swimming sperms  
(C) dependent sporophyte (D) An independent gametes

31. Annulus in moss capsule separates :
- (A) Operculum from collumella                      (B) Theca from collumella  
(C) Operculum from theca                              (D) Columella from apophysis
32. The central middle part of the moss capsule is sterile and is known as :
- (A) Apophysis    (B) Spore sac  
(C) Operculum    (D) Columella
33. The development of sporophytes from moss gametophytes without sexual fusion is called :
- (A) Apogamy    (B) Apospory  
(C) Amphimixis    (D) Parthenogenesis
34. In which of the following groups would you place a plant which produces spores and embryos but lacks seeds and vascular tissues ?
- (A) Fungi    (B) Pteridophytes  
(C) Bryophytes    (D) Gymnosperms
35. Spore mother cells of bryophytes are :
- (A) Haploid    (B) Diploid  
(C) Tetraploid    (D) Polyploid
36. The gametophyte of moss is :
- (A) Capsule    (B) Seta  
(C) Zygote    (D) Protonema
37. Polystelic stem is seen in :
- (A) Selaginella    (B) Riccia  
(C) Funaria    (D) Cycas

38. Formation of sporophyte from vegetative portion of prothallus :
- (A) Apospory (B) Parthenogenesis  
(C) Parthenocarpy (D) Apogamy
39. Meiosis does not take place in the formation of gametes from :
- (A) Prothallus (B) Protonema  
(C) Sporangium (D) Promycelium
40. Which of the following does not have a central pith ?
- (A) Siphonostele (B) Dictyostele  
(C) Protostele (D) Solenostele
41. The place or point where sporangium of fern bursts is :
- (A) Operculum (B) Annulus  
(C) Stomium (D) Ostiole
42. Fern differs from moss in having :
- (A) Motile sperms (B) Distinct alteration of generation  
(C) Independent sporophyte (D) Independent gametophyte
43. Photosynthesis leaves of fern plants are known as :
- (A) Fronds (B) Sporophylls  
(C) Ramenta (D) Microphylls
44. Guard cells differ from epidermal cells in having :
- (A) Mitochondria (B) Vacuole  
(C) Cell wall (D) Chloroplast
45. Sporangia bearing leaf is called :
- (A) Ramentum (B) Indusium  
(C) Sorus (D) Sporophyll

46. Cells which undergo meiosis in the life cycle of *Selaginella* are :
- (A) Zygotes (B) Spore mother cells  
(C) Spores (D) Gametophyte
47. Coralloid roots help the plant in :
- (A) Absorption of water (B) Absorption and fixation of Nitrogen  
(C) Anchorage (D) None of the above
48. The *Cycas* is a gymnosperm because :
- (A) Its xylem consists of trachieds (B) It lacks ovary but has exposed ovules  
(C) It forms seeds (D) It bears pollen grains
49. *Cycas* and *Pteris* resemble each other in the presence of :
- (A) Cambium (B) Ciliate sperms  
(C) Vessels (D) Seeds
50. Secondary wood in *Cycas* is devoid of :
- (A) Protoxylem (B) Metaxylem  
(C) Vessels (D) Trachieds
51. Endosperm of *pinus* or *cycas* is found to be :
- (A) Haploid (B) Diploid  
(C) Triploid (D) Tetraploid
52. Fruits are not found in gymnosperms due to absence of :
- (A) Ovary (B) Pollination  
(C) Seeds (D) Fertilization
53. *Cycas* differ from *Selaginella* in having :
- (A) Embryo (B) Seed  
(C) Megaspores (D) Motile sperms

54. Organisms which fix atmospheric nitrogen in the soil are found among :
- (A) Mosses (B) Green algae  
(C) Soil fungi (D) Bacteria
55. Mineral matter in the soil is due to :
- (A) Decomposition of humus (B) Heavy rain fall  
(C) Disintegration of rocks (D) Transporation of top soil
56. Plants have supply of water from soil as :
- (A) Runoff water (B) Gravitational water  
(C) Capillary water (D) Hygroscopic water
57. Chlorophyll contains :
- (A) Iron (B) Magnesium  
(C) Potassium (D) Manganese
58. Chlorosis occurs in plants grown in :
- (A) Darkness (B) Shade  
(C) Strong light (D) Iron-free medium
59. Which one is an inorganic nutrient ?
- (A) Cellulose (B) Vitamin  
(C) Calcium (D) Protein
60. Root hairs occur in the zone of :
- (A) Cell division (B) Cell elongation  
(C) Cell maturation (D) None of the above
61. Root cap has no role in water absorption because :
- (A) It has no direct connection with soil (B) It has loosely arranged cells  
(C) It has cells containing chloroplast (D) It has no root hairs

62. When a cell is fully turgid its :  
(A)  $SP=TP$  (B)  $DPD=O$   
(C)  $OP=O$  (D)  $DPD=OP$
63. Stomatal opening in a general leaf is controlled by :  
(A) Guard cells (B) Palisade cells  
(C) Parenchyma cells (D) Mesophyll cells
64. Exudation of water in the form of liquid from leaves of plants is called :  
(A) Guttation (B) Osmosis  
(C) Transpiration (D) Plasmolysis
65. Rate of transpiration can be measured by :  
(A) Potometer (B) Auxanometer  
(C) Manometer (D) Hygrometer
66. Enzymes connected with Kreb's cycle are packed in :  
(A) Mitochondria (B) Chloroplast  
(C) Nucleus (D) Ribosomes
67. In photosynthesis light :  
(A) is converted into kinetic energy (B) acts directly on C  
(C) is converted into chemical energy (D) acts like catalysts
68. The first compound that accepts Carbon dioxide during dark phase is :  
(A) NADP (B) Ferredoxin  
(C) RuBp (D) Cytochrome
69. When ATP is converted into ADP, it releases :  
(A) Electricity (B) Hormones  
(C) Enzymes (D) Energy

70. If fructose-6-biphosphate participate in glycolysis, the net gain of ATP will be :  
(A) 1 (B) 2  
(C) 3 (D) 4
71. Biological equilibrium is equilibrium among :  
(A) Producers (B) Producers & consumers  
(C) Decomposers & producers (D) Producer, decomposer & consumers
72. MAB stands for :  
(A) Man & Biosphere (B) Man, antibiotic & bacterium  
(C) Man & biotic community (D) Meyer, Anderson & Bisby
73. Herbivores utilize how much energy from the food they get to build their body ?  
(A) 10% (B) 20%  
(C) 33% (D) 50%
74. If phytoplankton are destroyed in the sea, then :  
(A) It will affect the food chain (B) No affect will be seen  
(C) Algae will get more space to grow (D) Primary consumers will grow luxuriantly
75. Overgrazing by animals results in :  
(A) Sheet erosion (B) Rill erosion  
(C) Positive pollution (D) Negative pollution
76. The term hybridoma implies :  
(A) gametic fusion (B) hybrid virion  
(C) somatic hybridization (D) DNA-RNA hybrid
77. Saprophytic bacteria and fungi come under the group :  
(A) Producers (B) Omnivores  
(C) Decomposers (D) None of these

78. Study of a species in relation to its environment is known as :
- (A) Synecology (B) Autecology  
(C) Ecology (D) All the above
79. Mangrove vegetation is found in :
- (A) Kullu valley (B) Sundarbans  
(C) Western ghats (D) Dehradun valley
80. Progeny of a cross made between two pure parents show increased vigour and productivity. This is due to :
- (A) Selection (B) Hybridization  
(C) Hybrid vigour (D) Mutation
81. Method of selection in plants showing vegetative propagation is :
- (A) Clonal selection (B) Mass selection  
(C) Pure line selection (D) Pedigree selection
82. Banana plants can be rapidly multiplied adopting :
- (A) Aerial grafting (B) Aerial stem cutting  
(C) Rhizome cutting (D) X-ray Irradiation of fruits
83. Mutagenic effect of X-rays was discovered by :
- (A) T.H.Morgan (B) H.J.Muller  
(C) G.W. Beadle (D) Hugo De vries
84. When chromosomes sets are presents in multiple of n, the condition is called :
- (A) Euploidy (Polyploidy) (B) Aneuploidy  
(C) Diploidy (D) Haploidy
85. Red rot of sugarcane is caused by :
- (A) *Colletrotrichum* (B) *Rhizoctonia*  
(C) *Pyricularia* (D) *Fusarium*

86. Covered smut of sorghum is caused by :  
(A) *Puccinia* (B) *Sphacelotheca*  
(C) *Cercospora* (D) *Colletrotrichum*
87. Which of the following is a fungicide ?  
(A) DDT (B) Bordeaux mixture  
(C) 2,4-D (D) Penicillin
88. Vascular wilt diseases are mostly caused by :  
(A) *Puccinia* (B) *Sphacelotheca*  
(C) *Fusarium* (D) *Colletrotrichum*
89. Damping off of seedlings is caused by species of :  
(A) *Pythium* (B) *Phytophthora*  
(C) *Albugo* (D) *Alternaria*
90. The function of rough endoplasmic reticulum is synthesis of :  
(A) Fat (B) Lipid  
(C) Protein (D) Steroid
91. Somoclonal variation are :  
(A) Caused by mutagens (B) Cause gamma rays  
(C) Produced in Tissue culture (D) Produced during sexual reproduction
92. DNA generally acts as template of :  
(A) only protein (B) only DNA  
(C) only RNA (D) both DNA and RNA
93. Formation of RNA from DNA is known as :  
(A) Transcription (B) Translation  
(C) Replication (D) Recombination
94. Which of the following wavelength is absorbed maximum for photosynthesis ?  
(A) 660 nm (B) 680 nm  
(C) 440 nm (D) 700 nm

95. Transamination is a/an :  
(A) irreversible process (B) reversible process  
(C) both of the above (D) none of the above
96. The most important lipids in eukaryotic cell membranes are :  
(A) Sterols (B) Glycolipids  
(C) Phospholipids (D) All the above
97. What does Bt stand for in popular crop of Bt cotton ?  
(A) Biotechnology (B) Tissue culture  
(C) *Bacillus thurengiensis* (D) None of these
98. First step in genetic engineering is :  
(A) Isolation of RNA (B) Isolation of Protein  
(C) Isolation of genetic material (D) Purification of protein
99. Natural genetic engineer is :  
(A) *Agrobacterium sp* (B) *Rhizobium sp*  
(C) *Bacillus sp* (D) *Bacteriophage*
100. The term hybridoma implies :  
(A) Gametic (B) Hybrid virion  
(C) Somatic hybridization (D) DNA-RNA hybrid
101. "Eobiont" means :  
(A) Mutual occurrence of two organisms (B) Parasite causing amoebiosis  
(C) First organism on earth (D) A nitrifying bacteria
102. Pure homozygous offsprings in a dihybrid cross in the F<sub>2</sub> generation will be :  
(A) 1/2 (B) 1/4  
(C) 1/8 (D) 1/16
103. Who coined the term 'meiosis' ?  
(A) F.F. Blackmann (B) I.B. Farmer (and Moore)  
(C) a. Flemming (D) Von Mohl

104. Synapsis is a characteristic of :  
(A) Leptotene (B) Zygotene  
(C) Pachytene (D) Diplotene
105. Stilt roots are produced by :  
(A) Lower internodes (B) Upper internodes  
(C) Lower nodes (D) Upper nodes
106. Velamen tissue is formed by :  
(A) Stem (B) Clinging roots  
(C) Hanging roots (D) None of these
107. Black pepper is a :  
(A) Tree (B) Shrub  
(C) Climber (D) 3 cm. tall herb
108. Smallest angle of divergence in altering phyllotaxy is :  
(A)  $144^\circ$  (B)  $180^\circ$   
(C)  $120^\circ$  (D)  $135^\circ$
109. Intercalary meristem results in :  
(A) Secondary growth (B) Primary growth  
(C) Apical growth (D) Periderm formation
110. The "Histogen theory" was proposed by :  
(A) Nageli (B) Hanstein  
(C) Schmidt (D) Haberlandt
111. Vessels are not found in :  
(A) Teak wood (B) Shisham wood  
(C) Chir wood (D) Sal wood
112. An elongated cell with tapering ends is termed :  
(A) Collenchyma (B) Vessel  
(C) Sclerenchyma (D) Trachieds

113. Micropropagation is carried out by :
- (A) Hybridisation (B) Genetic Recombination  
(C) Parasexual mechanism (D) Tissue culture
114. The outer Whorl of *Bougainvillea* flower consists of :
- (A) Bracts (B) Sepals  
(C) Petals (D) None of these
115. Pollen grain in Angiosperms contain :
- (A) Single prothallus cell (B) Two prothallus cells  
(C) Three prothallial cells (D) No prothallial cell
116. A typical example of cross pollination is :
- (A) Rice (B) Maize  
(C) Wheat (D) Cotton
117. The angiosperms are known as :
- (A) Magnoliophyta (B) Rosophyta  
(C) Mavophyta (D) Gramophyta
118. Who was first to distinguish between non-flowering and seed plants ?
- (A) Robert Brown (B) Linnaeus  
(C) John Ray (D) De Condolle
119. In which family out of the following, largest number of ovule occur in a carpel ?
- (A) Cruciferae (B) Ranunculaceae  
(C) Compositae (D) Leguminosae
120. The name of the family compositae is :
- (A) Brassicaceae (B) Asteraceae  
(C) Laminaceae (D) Bombaceae

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