

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

**TEST BOOKLET**  
**AP (CC) BOTANY—2018**

Time Allowed : 2 Hours]

[Maximum Marks : 100

All questions carry equal marks.

**INSTRUCTIONS**

1. Immediately after the commencement of the examination, you should check that 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. Write your Roll Number only in the box provided alongside.   
Do not write anything else on the Test Booklet.
3. This Test Booklet contains 100 items (questions). Each item comprises four responses (answers). Choose only one response for each item which you consider the best.
4. After the candidate has read each item in the Test Booklet and decided which of the given responses is correct or the best, he has to mark the circle containing the letter of the selected response by blackening it completely with Black or Blue ball pen. In the following example, response "C" is so marked :



5. Do the encoding carefully as given in the illustrations. While encoding your particulars or marking the answers on answer sheet, you should blacken the circle corresponding to the choice in full and no part of the circle should be left unfilled. After the response has been marked in the ANSWER SHEET, no erasing/fluid is allowed.
6. You have to mark all your responses ONLY on the ANSWER SHEET separately given according to 'INSTRUCTIONS FOR CANDIDATES' already supplied to you. Responses marked on the Test Booklet or in any paper other than the answer sheet shall not be examined.
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 Answer Sheet. There will be negative marking and 1/4 (0.25) of the marks will be deducted as penalty for wrong answers.
8. Before you proceed to mark responses in the Answer Sheet fill in the particulars in the front portion of the Answer Sheet as per the instructions sent to you.
9. If a candidate gives more than one answer, it will be treated as a wrong answer even if one of the given answers happens to be correct.
10. After you have completed the test, hand over the Answer Sheet only, to the Invigilator.

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1. In the seeds of Angiosperms the structure micropyle helps in :
  - (A) Water transportation
  - (B) Photosynthesis
  - (C) Water absorption
  - (D) Mineral transportation
  
2. Which of the following processes played important role in improving traits of cultivated plants during human history ?
  - (A) Sexual selection
  - (B) Artificial selection
  - (C) Natural selection
  - (D) Use of chemical pesticides and herbicides
  
3. In Gymnosperms, megasporophyll is equivalent to :
  - (A) Carpels
  - (B) Stamens
  - (C) Leaves
  - (D) Female cone
  
4. Ovules are largest in :
  - (A) *Pinus*
  - (B) *Ginkgo*
  - (C) *Cycas*
  - (D) *Cedrus*

5. Phloem tissue of Gymnosperms varies from phloem of Angiosperms in :
- (A) Presence of Parenchyma                      (B) Absence of companion cells  
(C) Absence of sieve tubes                      (D) Absence of sclerenchyma
6. Perisperm is formed by :
- (A) Outer integuments                      (B) Endosperm  
(C) Funiculus                      (D) Nucellus
7. In a typical angiospermic anther wall :
- (A) Tapetum lies just inner to the endothecium  
(B) Endothecium lies inner to the middle layers  
(C) Tapetum lies next to the epidermis  
(D) Middle layers lie between endothecium and tapetum
8. Who was first to describe the phenomenon of double fertilization ?
- (A) Hofmeister                      (B) Leeuwenhoek  
(C) Nawaschin                      (D) Strasburger
9. In a bisexual flower when gynoecium matures earlier than the androecium it is called :
- (A) Protogyny                      (B) Protandry  
(C) Autogamy                      (D) Heterogamy

10. Which of the following is considered as "living fossil" ?
- (A) *Pinus* (B) *Cycas*  
(C) *Zamia* (D) *Podocarpos*
11. In *Cycas* endosperm is :
- (A) Haploid and pre-fertilization product  
(B) Diploid and pre-fertilization product  
(C) Haploid and post-fertilization product  
(D) Diploid and post-fertilization product
12. In alpine region 'Red Snow' is caused by which of the following organisms ?
- (A) Red alga *Batrachospermum* (B) *Oscillatoria*  
(C) *Spirogyra* (D) *Chlamydomonas*
13. All the members of division Algae possess the pigments :
- (A) Chlorophyll *a* and Carotene  
(B) Chlorophyll *b* and Carotene  
(C) Chlorophyll *a* and Chlorophyll *b*  
(D) Phycobilins and Carotene

14. Pyrenoids are structures composed of :
- (A) Starch surrounded by protein grains
  - (B) Starch surrounded by oil droplets
  - (C) Protein surrounded by oil droplets
  - (D) Protein surrounded by starch grains
15. Eye spot or stigma is present in :
- (A) *Nostoc*
  - (B) *Chlamydomonas*
  - (C) *Spirogyra*
  - (D) *Ulothrix*
16. The nitrogen fixing algae belong to the class :
- (A) Rhodophyceae
  - (B) Cyanophyceae
  - (C) Chlorophyceae
  - (D) Phaeophyceae
17. The term Nanandrium in case of *Oedogonium* is used for :
- (A) Dwarf male
  - (B) Normal male
  - (C) Normal female
  - (D) Dwarf female
18. In a typical angiosperm, what is the sequence of structures encountered by the tip of a growing pollen tube on its way to the egg ?
- (A) Stigma, style, ovary, micropyle
  - (B) Stigma, ovary, style, micropyle
  - (C) Ovary, stigma, style, micropyle
  - (D) Ovary, stigma, micropyle, style

19. Filiform apparatus is located in :
- (A) Synergid (B) Anther wall  
(C) Secondary nucleus (D) Egg
20. The process of Fertilization in which male gametes are carried through pollen tube is known as :
- (A) Porogamy (B) Syngamy  
(C) Siphonogamy (D) Chalazogamy
21. The meristematic tissue which generally develops in the cortical region and produces cork on the outer side and secondary cortex on inner side is known as :
- (A) Phellem (B) Phelloderm  
(C) Periderm (D) Phellogen
22. The fully formed male gametophyte in angiosperms contains :
- (A) One generative cell, one tube cell and one body cell  
(B) One tube cell, one stalk cell and one generative cell  
(C) One tube nucleus, one vegetative cell and one generative cell  
(D) One vegetative nucleus and two male gametes

23. Which of the following types of pollination results in comparatively greater wastage of pollen grains ?
- (A) Chiropterophily (B) Anemophily  
(C) Entomophily (D) Ornithophily
24. Which of the following terms is *not* associated with the process of pollination ?
- (A) Syngamy (B) Autogamy  
(C) Allogamy (D) Geitonogamy
25. If an endosperm cell of an angiosperm contains 24 chromosomes, the number of chromosomes in each cell of root will be :
- (A) 8 (B) 4  
(C) 16 (D) 24
26. In which of the following physiological process carrier proteins are involved ?
- (A) Water transport (B) Water evaporation  
(C) Active transport (D) Passive transport
27. In which of the following group of plants for the first time sporophytic phase became dominant ?
- (A) Bryophytes (B) Pteridophytes  
(C) Angiosperms (D) Gymnosperms

28. Sporangium bearing leaf is called :
- (A) Sorus (B) Sporophyll  
(C) Romentum (D) Indusium
29. Heterospory is defined as the production of :
- (A) Diploid and tetraploid spores  
(B) Sexual and asexual spores  
(C) Large and small spores  
(D) Haploid and diploid spores
30. Formation of sporophyte from a vegetative portion of prothallus without sexual fusion is called :
- (A) Apogamy (B) Apospory  
(C) Apomixis (D) Apocarpus
31. A meristematic zone is present in the sporophyte of :
- (A) *Marchantia* (B) *Polytrichum*  
(C) *Porella* (D) *Anthoceros*
32. For dispersal of spores, dehiscence of moss capsule takes place by the rupture of which of the following ?
- (A) Calyptra (B) Operculum  
(C) Peristome (D) Annulus



33. In which of the following genus jacketed gametangia are found in ?
- (A) *Ulothrix* (B) *Polysiphonia*  
(C) *Riccia* (D) *Neurospora*
34. Leaf is composed of hyaline and vermiform green cells in :
- (A) *Funaria* (B) *Sphagnum*  
(C) *Polytrichum* (D) *Andreaea*
35. A cup-like structure in which foot of sporophyte is embedded in some mosses is known as :
- (A) Pseudopodium (B) Vaginula  
(C) Operculum (D) Spore sac
36. In which of the following group of plants, leaf performs dual function of photosynthesis and reproduction ?
- (A) Bryophyta (B) Pteridophyta  
(C) Gymnosperms (D) Angiosperms
37. Nurse cells are found in which of the following ?
- (A) *Riccia* (B) *Sphaerocarpos*  
(C) *Pellia* (D) *Anthoceros*

38. True elaters are absent in :
- (A) *Marchantia* (B) *Pellia*  
(C) *Porella* (D) *Anthoceros*
39. Parallel vertical photosynthetic lamellae are present in the leaves of :
- (A) *Funaria* (B) *Sphagnum*  
(C) *Andreaea* (D) *Polytrichum*
40. Which of the following taxon produces non-motile gametes ?
- (A) *Cladophora* (B) *Ulothrix*  
(C) *Spirogyra* (D) *Anabaena*
41. In Fungi reserve food is usually stored in the form of :
- (A) Starch (B) Lipid  
(C) Glycogen (D) Protein
42. In life cycle of a fungus, perfect stage refers to :
- (A) Perfectly healthy stage (B) Asexually reproducing stage  
(C) Sexually reproducing stage (D) None of these

43. The fruiting body of *Aspergillus* is called :
- (A) Apothecium (B) Perithecium  
(C) Cleistothecium (D) Hypanthodium
44. Fungi producing usually eight spores in a sac-like structure belong to :
- (A) Phycomycetes (B) Ascomycetes  
(C) Basidiomycetes (D) Deutromycetes
45. Powdery mildew causing pathogen belongs to the order :
- (A) Peranosporales (B) Uredinales  
(C) Erysiphales (D) Ustiginales
46. Genetic material of Tobacco mosaic virus is :
- (A) Double stranded DNA (B) Single stranded DNA  
(C) Double stranded RNA (D) Single stranded RNA
47. Exchange of genetic material in bacteria through conjugation was proved by :
- (A) Avery, Mcleod and McCarty (B) Robert Koch  
(C) Tatum and Leiderberg (D) Khurana

48. Infective part of virus was first identified by :
- (A) Stanley (B) Ivanowski  
(C) Baltimore (D) Hershey and Chase
49. Smooth endoplasmic reticulum is the site of :
- (A) Protein synthesis (B) Carbohydrate synthesis  
(C) Amino acid synthesis (D) Lipid synthesis
50. Which of the following structures is associated with the golgi complex ?
- (A) Cristae (B) Cisternae  
(C) Annuli (D) Quantasomes
51. Which of the following organelle in the cell is semi-autonomous ?
- (A) Peroxisomes (B) Chloroplast  
(C) Endoplasmic reticulum (D) Golgi bodies
52. The total of all harmful and lethal genes which are present in individuals is called :
- (A) Genome (B) Gene pool  
(C) Genetic drift (D) Genetic load

53. The term Pseudoalleles is used for genes :
- (A) With different loci which are very close and producing related phenotypic effect
  - (B) With same loci and control same trait
  - (C) Identical to other genes
  - (D) With different loci and control same trait
54. The phenomenon of Atavism is defined :
- (A) Inheritance of a trait by mother
  - (B) Inheritance of a trait by father
  - (C) Siblings show common character
  - (D) Inheritance of trait of a distant ancestor not shown by the parents
55. If the percentage of adenine in a DNA sample is 20%, what would be the percentage of other bases ?
- (A) T=30%, G=20%, C=30%
  - (B) T=40%, G=20%, C=20%
  - (C) T=20%, G=30%, C=30%
  - (D) T=20%, G=20%, C=40%

56. The negative charge of DNA is due to :
- (A) Sugar, phosphate and amino acids
  - (B) Deoxy ribose sugar
  - (C) Nitrogenous bases specifically adenine
  - (D) Phosphate group
57. In DNA molecule, two adjacent nucleotides are separated from each other by a distance of :
- (A) 6.8 Angstrom
  - (B) 3.4 Angstrom
  - (C) 1.7 Angstrom
  - (D) 10 Angstrom
58. The process of evolution of different species in a given geographical area starting from a point and literally spreading to other areas of geography is known as :
- (A) Migration
  - (B) Divergent evolution
  - (C) Adaptive radiation
  - (D) Natural selection
59. A resinous product used as a spice is obtained from :
- (A) *Coriandrum*
  - (B) *Myristica*
  - (C) *Crocus*
  - (D) *Ferula*

60. Which of the following statements is *not correct* ?
- (A) A-DNA is the dehydrated form of DNA
  - (B) The naturally occurring DNA is B-DNA and is also called as wet DNA
  - (C) Z-DNA is also called zig-zag DNA and is a right handed helix
  - (D) Z-DNA occurs in dehydrated high salt concentration
61. In DNA, the two strands of double helix are joined by :
- (A) Hydrogen bonds between sugars
  - (B) Phosphodiester bonds between sugars
  - (C) Hydrogen bonds between bases
  - (D) Any other type of bond
62. Watson and Cricks double helical DNA is a :
- (A) A-DNA
  - (B) B-DNA
  - (C) Z-DNA
  - (D) D-DNA
63. In plant taxonomy, the specimen used by the author for original publication is called :
- (A) Syntype
  - (B) Isotype
  - (C) Holotype
  - (D) Lectotype

64. Binomial system of nomenclature for plants is effective from :
- (A) May 1, 1753 (B) August 1, 1758  
(C) August 5, 1758 (D) May 1, 1553
65. Inflorescence in which pedicellate, bisexual flowers are borne acropetally, is known as :
- (A) Head (B) Spikelet  
(C) Raceme (D) Spike
66. The type of inflorescence found in maize and banana is known as :
- (A) Spadix (B) Spike  
(C) Catkin (D) Corymb
67. Verticillaster is modification of which type of inflorescence ?
- (A) Dichasial cyme (B) Corymb  
(C) Raceme (D) Cyathium
68. In which type of inflorescence, the ratio of female to male flowers is 1 : infinity ?
- (A) Cyathium (B) Catkin  
(C) Verticillaster (D) Hypanthodium



69. Which type of the inflorescence shows determinate growth ?
- (A) Raceme (B) Spike  
(C) Cymose (D) Panicle
70. Which of the following plants yields drug used in the treatment of hypertension ?
- (A) Psyllium (B) Sarpagandha  
(C) Ashwagandha (D) Licorice
71. Which of the following plants is used in the treatment of diarrhoea and constipation ?
- (A) *Aconitum* (B) *Digitalis*  
(C) *Plantago* (D) *Adhatoda*
72. Manila hemp is obtained from :
- (A) *Crotalaria juncea* (B) *Cannabis sativa*  
(C) *Musa textilis* (D) *Hibiscus cannabinus*
73. The process of gradual and fairly predictable change in which one community is replaced by another in a given area :
- (A) Gross Productivity (B) Ecological succession  
(C) Ecotone (D) Ecosystem

74. The phenomenon of increase in concentration of harmful substances at successive trophic levels in a ecosystem is known as :
- (A) Eutrophication (B) Biomagnification  
(C) Pollution (D) Biodegradation
75. In C<sub>4</sub> plants, which one of the following substances is absent in mesophyll cells ?
- (A) Rubisco (B) Phosphoenolpyruvate  
(C) PGA (D) PEP carboxylase
76. Which of the following growth regulators is known to delay senescence ?
- (A) Auxin (B) Ethylene  
(C) Kinetin (D) Gibberellic acid
77. The potential of a single isolated cell to develop into complete organism is known as :
- (A) Apomixis (B) Parthenogenesis  
(C) Totipotency (D) Anthesis
78. A piece of DNA which can be used as a carrier for the genes to be cloned is called :
- (A) Viroid (B) Virus  
(C) Vector (D) Mycoplasma

79. Who is considered father of Plant Tissue Culture ?
- (A) White (B) Skoog  
(C) Haberlandt (D) Miller
80. In Calvin cycle which of the following compounds is regenerated ?
- (A) Glucose (B) Phosphoglyceric acid  
(C) RuBP (D) Erythrose phosphate
81. According to 2011 census, the four districts of H.P. having highest percentage of Scheduled Caste population to the total population of the distt. in the descending order are :
- (A) Sirmaur, Mandi, Solan, Kullu  
(B) Sirmaur, Una, Bilaspur, Kullu  
(C) Mandi, Chamba, Hamirpur, Solan  
(D) Kinnaur, Kangra, L & S, Shimla
82. Who was first Chief Commissioner, when Himachal Pradesh came into existence on 15th April, 1948 and it was declared as 'part C' state ?
- (A) Dr. Y.S. Parmar (B) Sh. Pendralmoon  
(C) Sh. N.C. Mehta I.C.S. (D) Sh. Bhagwan Sahay I.C.S.

83. Which Pass separates Chotta Bhangal from Bara Bhangal ?
- (A) Chobia Pass (B) Dulachi Pass  
(C) Kuuzum Pass (D) Thanesar Pass
84. Which towns of H.P. have been brought under "AMRUT" Scheme ?
- (A) Shimla and Dharamshala (B) Shimla and Kullu  
(C) Mandi and Dharamshala (D) Hamirpur and Una
85. When was the state of H.P. declared open defecation free (ODF) by Govt. of India ?
- (A) 28th September, 2016 (B) 15th August, 2017  
(C) 28th Oct., 2016 (D) 26th Jan., 2017
86. On which date and year the District of Solan came into existence ?
- (A) 1st Nov., 1966 (B) 25th Jan., 1971  
(C) 1st Sept., 1972 (D) 1st Jan., 1972
87. Who was first Speaker of H.P. Vidhan Sabha in 1952 onwards ?
- (A) Sh. Desh Raj Mahajan (B) Pt. Jaiwant Ram  
(C) Sh. Sarwan Kumar (D) Rana Kultar Chand

88. Who from Himachal Pradesh has *not* been **Union** Cabinet Minister ?
- (A) Sh. Shanta Kumar (B) **Sh. Virbhadra Singh**
- (C) Prof. Prem Kumar Dhumal (D) **Sh. J.P. Nadda**
89. The first ever Community Development Project was **launched** in Himachal Pradesh at :
- (A) Mandi in Mandi Distt. (B) Chamba in Chamba Distt.
- (C) Kunihar in Solan Distt. (D) Ghumarwin in Bilaspur Distt.
90. Which Distt. of H.P. got first prize in soil health cards at the country level last year ?
- (A) Hamirpur (B) Kangra
- (C) Shimla (D) Mandi
91. Who is Comptroller and Auditor General of India (CAG) ?
- (A) Shankar Jai Krishan (B) Arvind Subramaniam
- (C) Rajiv Maharishi (D) Ajit Dhobhal

92. River "Shipra" is in which state and which is the main town on its bank ?

(A) Gujarat ; Ahmadabad

(B) Madhya Pradesh ; Ujjain

(C) Uttar Pradesh ; Lucknow

(D) Andhra Pradesh : Hyderabad

93. Who is first Field Marshal of Indian Army ?

(A) General K.S. Thimaya

(B) General G.G. Bewoor

(C) General Shankar Roy Chaudhary

(D) S.H.F.J. Manekshaw

94. What are the existing rates of tax slab under (GST) ?

(A) 5%, 12%, 18%, 28%

(B) 5%, 10%, 15%, 25%

(C) 7%, 14%, 21%, 28%

(D) 7%, 10%, 20%, 30%

95. Which state of Indian Union is smallest in terms of area ?

(A) Sikkim

(B) Goa

(C) Himachal Pradesh

(D) Assam

96. First Asian Games were organised where and on which date :
- (A) Rome (Italy) : 1st March, 1951  
(B) Pakistan (Lahore) : 4th March, 1951  
(C) India (New Delhi) : 4th March, 1951  
(D) Japan (Tokyo) : 1st March, 1950
97. The currency of Pakistan is :
- (A) Takka (B) Rupee  
(C) Dollar (D) Pound
98. Udai Shankar is associated with :
- (A) Dancing (B) Singing  
(C) Politics (D) Sports
99. Who is project advisor for first "Bullet Train" between Ahmadabad-Bombay ?
- (A) Narendra Modi (B) Vijay Rupani  
(C) Vijay Goel (D) Sanjay Sinha
100. Find odd term in the following series :
- 3, 5, 9, 11, 14, 17, 21
- (A) 3 (B) 14  
(C) 21 (D) 11