

COMMON P. & ENTRANCE TEST – 2023 (CPET-2023)

Test Booklet No. :

3438

Subject Code : **04**

Hall Ticket No. : . . .

Subject : **BOTANY**

TEST BOOKLET

Time Allowed : **60 Minutes**

Full Marks : **80**

: INSTRUCTIONS TO CANDIDATES :

1. The Test Booklet contains **16** pages including the cover page and **80** (Question No. 1 to 80) multiple choice questions.
2. DO NOT break the seal of the Test Booklet until the invigilator instructs to do so.
3. The candidates must check discrepancy, if any (like up-printed or torn or missing pages or missing questions) in the Test Booklet immediately after breaking the seal of the Test Booklet. If detected, the invigilator may be requested to replace the same.
4. Candidates are required to fill up and darken the **Hall Ticket No, Test Booklet Serial No. and OMR Answer Sheet Serial No.** in attendance sheet carefully. Wrongly filled in OMR Answer Sheet is liable for rejection.
5. Each question has four choices / answers marked (A), (B), (C), (D). Candidate has to select the most appropriate choice / answer to each question and darken the oval completely against the question number provided in the OMR Answer Sheet.
6. Indicate only one choice / answer from the options provided by darkening the appropriate oval in the OMR Answer Sheet. More than one response to a question shall be treated as a wrong answer.
7. Use only **Black Ball Point Pen** for darkening the oval for answering.
8. All the questions are compulsory and they carry equal marks. The total marks scored by a candidate depends on the number of correct choices / answers darkened in the OMR Answer Sheet. There will be no negative marking for wrong answers.
9. No candidate shall be allowed to leave the Examination Hall / Room till all OMR Answer Sheets have been collected by the invigilator.
10. On completion of the entrance test, the original OMR Answer Sheet be handed over to the invigilator. Candidates are allowed to take the second copy of the OMR Answer Sheet along with the used Test Booklet for reference.
11. Candidates are not allowed to carry any personal belongings including electronic devices such as scientific calculator, cell phones, headphones, ear buds, or any other type of devices that allow communication of any kind inside the Examination Room / Hall.
12. The candidates are advised not to scribble or make any mark on the OMR Answer Sheet except marking the answers at the appropriate places and filling up the details required. Rough work, if any, may be done in the blank sheet(s) provided at the end of the Test Booklet.
13. Any malpractice / use of unfair means will lead to your disqualification from the entrance test / admission process and may also lead to appropriate legal action as deemed fit.

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

SEAL

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1. The genetic material in case of Tobacco Mosaic Virus is :
(A) Single stranded RNA (B) Double stranded RNA
(C) Single stranded DNA (D) Double stranded DNA
2. A free living bacterium capable of fixing nitrogen is :
(A) *Rhizobium* (B) *E.coli*
(C) *Azotobacter* (D) *Streptococcus*
3. Cells of some filamentous cyanobacteria that are specialised for nitrogen fixation are called :
(A) Heterocyst (B) Volutin
(C) Mesosomes (D) Phycobilisomes
4. Palmella stage is seen in :
(A) *Chlamydomonas* (B) *Volvox*
(C) *Oedogonium* (D) *Coleochaete*
5. Cystocarp is formed in :
(A) *Vaucheria* (B) *Ectocarpus*
(C) *Polysiphonia* (D) *Sargassum*
6. Mycorrhiza is a symbiotic relationship between :
(A) Algae and Bryophyta (B) Algae and Fungi
(C) Fungi and root of higher plants (D) Algae and root of gymnosperm
7. Which of the following is an example of fruticose lichens ?
(A) *Cladonia* (B) *Parmelia*
(C) *Graphis* (D) *Leconera*

8. Aflatoxin is produced by the species of :
- (A) *Penicillium* (B) *Fusarium*
(C) *Aspergillus* (D) *Claviceps*
9. Early blight of potato is caused by :
- (A) *Claviceps purpurea* (B) *Synchytrium endobioticum*
(C) *Alternaria solani* (D) *Phytophthora infestans*
10. Pseudoelaters are found in the sporophyte of :
- (A) *Anthoceros* (B) *Marchantia*
(C) *Funaria* (D) *Riccia*
11. A cavity formed by the disintegration of protoxylem tracheids in *Equisetum* stem is called :
- (A) Central cavity (B) Air chamber
(C) Vallecular cavity (D) Carinal canal
12. Girdling leaf traces are the characteristic feature of the stem of :
- (A) *Cycas* (B) *Pinus*
(C) *Ginkgo* (D) *Gnetum*
13. Which of the following is the oldest era in the geological time scale ?
- (A) Cenozoic (B) Mesozoic
(C) Palaeozoic (D) Archaeozoic
14. The lateral roots in angiosperms are generally originated from :
- (A) Epiblema (B) Endodermis
(C) Pericycle (D) Cortex

15. Formation of distinct annual rings during secondary growth of stem mainly depends on :
- (A) Formation of phellogen
 - (B) Differential rainfall pattern
 - (C) Contrasting seasonal variation
 - (D) More or less uniform climate throughout the year
16. Interxylary phloem is formed due to :
- (A) abnormal behaviour of normal cambium
 - (B) anomalous behaviour of abnormal cambium
 - (C) anomalous position of cambium
 - (D) formation of accessory strip of cambium
17. Which one plays a key role in harvesting light energy ?
- (A) Mitochondria
 - (B) Nucleus
 - (C) Endoplasmic reticulum
 - (D) Chloroplast
18. The Abyssinian centre of origin of cultivated plants includes :
- (A) Mexico and Costa Rica
 - (B) Ethiopia and Eritrea
 - (C) Afghanistan and Uzbekistan
 - (D) Assam and Burma
19. The generic name of pearl millet is :
- (A) *Sorghum*
 - (B) *Pennisetum*
 - (C) *Hordeum*
 - (D) *Panicum*
20. Linseed oil is a :
- (A) drying oil
 - (B) semi-drying oil
 - (C) non-drying oil
 - (D) essential oil

21. Morphine is obtained from :
- (A) *Withania somnifera* (B) *Rauvolfia serpentina*
 (C) *Digitalis prpurea* (D) *Papaver somniferum*
22. Para rubber is obtained from :
- (A) *Ficus elastica* (B) *Hevea brasiliensis*
 (C) *Palaquium gutta* (D) *Castilla elastica*
23. Which of the following is a polysaccharide ?
- (A) Glucose (B) Glycogen
 (C) Maltose (D) Lactose
24. The unique properties of each amino acid are determined by its particular :
- (A) R group (B) Amino group
 (C) Number of bonds to other amino acids (D) Kinds of peptide bonds
25. The part of a DNA molecule that varies among DNA molecule is its :
- (A) Glycerol attachments (B) Sugars
 (C) Phosphates (D) Nitrogen bases
26. The active site of an enzyme is formed by a few of the enzymes :
- (A) R groups of the amino acids (B) Amino groups of the amino acids
 (C) Carboxyl groups of the amino acids (D) Exposed sulphur bonds
27. Which of the following structures is not found in a prokaryotic cell ?
- (A) Cell wall (B) Plasma membrane
 (C) Nuclear envelope (D) Ribosome

28. When a lysosome fuses with a phagosome, it results in the formation of :
- (A) Autophagic vacuole (B) Residual body
(C) Primary lysosome (D) Secondary lysosome
29. Out of a population of 1600 F_2 individuals of a cross between yellow round and green wrinkled pea plants, the number of yellow wrinkled seeds would be :
- (A) 300 (B) 400
(C) 800 (D) 1600
30. When Mendelian idea is depicted by a cross in which F_1 generation resembles both the parents, it is ?
- (A) Dominance (B) Codominance
(C) Incomplete dominance (D) Polygenic inheritance
31. Experimental confirmation of the "Chromosomal Theory of Inheritance" was done by :
- (A) Theodor Schwann (B) M. J. Schleiden
(C) Morgan (D) Mendel
32. Crossing over occurs when genetic information is exchanged between two :
- (A) Chromatids of a chromosome
(B) Long arms of a chromosome
(C) Chromatids of two homologous chromosomes
(D) Chromatids of two non-homologous chromosomes
33. Which of the following chromosomal changes is usually most damaging when it is in homozygous condition ?
- (A) Deletion (B) Duplication
(C) Translocation (D) Inversion

34. When a mutation is limited to the substitution of one nucleotide pair for another, it is called :
- (A) Translocation (B) Point mutation
(C) Sugar-Phosphate deletion (D) Base inversion
35. The experiment in which it was shown that DNA is the genetic material in Bacteriophages is the :
- (A) Meselson-Stahl Experiment (B) Franklin-Wilkins Experiment
(C) Hershey-Chase Experiment (D) Delbruck-Luria Experiment
36. If the sequence of base along one side of a DNA molecule is AAGCT, then the complementary sequence of base on the other side of the DNA molecule is :
- (A) AAGCT (B) GGUAC
(C) UUCGA (D) TTCGA
37. In DNA replication, the helix is unwound by which type of enzyme ?
- (A) Topoisomerase (B) Primase
(C) DNA-Polymerase (D) Helicase
38. The first event in Translation is the binding of mRNA leader to the :
- (A) Smaller ribosomal subunits (B) Larger ribosomal subunits
(C) Polysomal core (D) tRNA
39. Of the 64 codons how many codes for amino acids ?
- (A) 20 (B) 61
(C) 63 (D) 43

40. If a cell were treated with a chemical that block nucleic acid synthesis, which of the following process would most likely be affected first ?
- (A) DNA Replication (B) tRNA Synthesis
(C) mRNA Synthesis (D) Protein Synthesis
41. The most stable ecosystem is :
- (A) Forest (B) Mountain
(C) Desert (D) Ocean
42. Soil particles arranged in order of increasing size are :
- (A) sand-silt-clay (B) clay-sand-silt
(C) silt-clay-sand (D) clay-silt-sand
43. Study of inter-relationship between environment and a community is known as :
- (A) Synecology (B) Autecology
(C) Phytoecology (D) Ecosystem
44. Pneumatophores are found in :
- (A) Halophytes (B) Xerophytes
(C) Mesophytes (D) Hydrophytes
45. The pyramid of energy in a pond ecosystem is always :
- (A) Inverted (B) Upright
(C) Irregular (D) Linear
46. Which of the following statements is not true ?
- (A) In a taxonomic key, two consecutive couplets should not begin with the same word
(B) Overlapping ranges should be avoided
(C) The first word of each lead of the couplet should not be identical
(D) In a key couplet may be numbered or lettered

47. When one specimen is designated by the author as the nomenclatural type, it is known as :
- (A) Holotype (B) Isotype
(C) Syntype (D) Neotype
48. Which of the following structures are not present in the florets of the plants belonging to the family Poaceae ?
- (A) Palaea (B) Lemma
(C) Lodicules (D) Scutellum
49. The system of classification followed by most of the herbaria of the world is that of :
- (A) Hutchinson (B) Bentham and Hooker
(C) Linnaeus (D) Takhtajan
50. Considering the most commonly seen ploidy level of endosperm, if the Endosperm cell of an angiosperm has 24 chromosomes, the no of chromosomes in its megaspore shall be :
- (A) 8 (B) 36
(C) 16 (D) 12
51. The entry of pollen tube through the micropyle is known as :
- (A) Porogamy (B) Mesogamy
(C) Chalazogamy (D) Allogamy
52. Apomixis in plants means development of a plant :
- (A) from fusion of gametes (B) without fusion of gametes
(C) from stem cutting (D) from root cutting

53. Transfer of the pollen grain from one flower to another flower of the same plant is called :

- (A) Geitonogamy
- (B) Autogamy
- (C) Allogamy
- (D) Xenogamy

54. Which of the following statement is correct ?

- (A) Endothecium produces the microspore.
- (B) Tapetum nourishes the developing pollen.
- (C) Hard outer layer of the pollen is called Intine.
- (D) Sporogenous tissue is haploid.

55. The metal ion involved in stomatal regulation is :

- (A) Iron
- (B) Magnesium
- (C) Zinc
- (D) Potassium

56. Spraying of phenyl mercuric acetate on leaves :

- (A) Increases the rate of transpiration
- (B) Decreases the rate of transpiration
- (C) Increases the rate of guttation
- (D) Increases the rate of water absorption

57. A plant requires magnesium for :

- (A) Protein synthesis
- (B) Chlorophyll synthesis
- (C) Cell wall development
- (D) Holding cells together

58. Apical dominance is caused by :

- (A) Auxin
- (B) Gibberellin
- (C) Kinetin
- (D) ABA

59. Which of the following hormones plays an important role in ripening of fruits ?
- (A) Auxin (B) Gibberellin
(C) ABA (D) Ethylene
60. By which of the following processes the seed absorbs ample of water and dormancy is overcome ?
- (A) Vernalisation (B) Scarification
(C) Stratification (D) Devernalisation
61. Induction of flowering by low temperature is called :
- (A) Vernalisation (B) Photoperiodism
(C) Pruning (D) Cryobiology
62. The organelles involved in photorespiration are :
- (A) Mitochondria, Chloroplast and Ribosome
(B) Mitochondria, Chloroplast and Peroxisomes
(C) Mitochondria, Peroxisomes and Glyoxysomes
(D) Mitochondria, Nucleus and Ribosome
63. Non-cyclic Photophosphorylation results in the production of :
- (A) ATP (B) ADP
(C) NADPH (D) ATP and NADPH
64. Kranz Anatomy is usually associated with :
- (A) C_3 Plants (B) C_4 Plants
(C) CAM Plants (D) C_3-C_4 Intermediate Plants

65. Krebs' Cycle occurs in :

- (A) Inner membrane of mitochondria
- (B) Outer membrane of mitochondria
- (C) Matrix of mitochondria
- (D) Perimitochondrial space of mitochondrion

66. The root nodule formed by leguminous plants have a red pigment called :

- (A) Haemoglobin
- (B) Phycoerythrin
- (C) Leghaemoglobin
- (D) Anthocyanin

67. In feedback inhibition, as metabolic pathway is switched off by :

- (A) A rise in temperature
- (B) Lack of substrate
- (C) Accumulation of end products
- (D) Competitive inhibition

68. T_i Plasmid used in genetic engineering is obtained from :

- (A) *Bacillus thuringiensis*
- (B) *Agrobacterium tumefaciens*
- (C) *Agrobacterium rhizogenes*
- (D) *Pseudomonas syringae*

69. Ability of a plant cell to regenerate into complete plant is known as :

- (A) Pleuropotency
- (B) Totipotency
- (C) Tissue culture
- (D) Cell cloning

70. Gel electrophoresis is used for the :

- (A) Separation and isolation of DNA fragments
- (B) Construction of recombinant DNA by joining with cloning vectors
- (C) Culturing the host cells in a medium at large scale
- (D) Replication of DNA for many times

71. Restriction enzymes *Eco RI* cuts the DNA between G and A only when the sequence in DNA is :
- (A) GATATC (B) GAATTC
(C) GGATCC (D) GAACCT
72. Which of the following is not a measure of central tendency ?
- (A) Mean (B) Median
(C) Mode (D) Standard Deviation
73. Which of the following is an example of *in situ* conservation of biodiversity ?
- (A) Botanical Garden (B) Zoological Garden
(C) Gene Bank (D) Biosphere Reserve
74. The chemical potential of pure water is :
- (A) 18 (B) 3
(C) 0 (D) 1
75. Which of the following is an asexual reproductive structure in bacteria ?
- (A) Akinete (B) Autospore
(C) Exospore (D) Endospore
76. When a sporangium develops from a single initial cell it is called :
- (A) Leptosporangiate (B) Eusporangiate
(C) Heterosporangiate (D) Homosporangiate
77. Enzymes having different molecular forms but same specificity are :
- (A) Isoenzymes (B) Allosteric Enzymes
(C) Coenzymes (D) Holoenzymes

78. Synapsis is the pairing of :

- (A) Analogous chromosomes
- (B) Homologous chromosomes
- (C) Non-homologous chromosomes
- (D) Acentric chromosomes

79. The term "Curing" is associated with the processing of :

- (A) Tea
- (B) Saffron
- (C) Coffee
- (D) Tobacco

80. *Shorea robusta* belongs to the family :

- (A) Verbenaceae
- (B) Dipterocarpaceae
- (C) Fabaceae
- (D) Magnoliaceae



SPACE FOR ROUGH WORK

SEAL

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