

**D-101**  
**Domain Knowledge Test-2022**  
**Botany**

OMR Sr. No. \_\_\_\_\_

Booklet Sr. No. \_\_\_\_\_

Time: **60 Minutes**

Total Questions: **50**

Max Marks: **100**

Roll No. (In figure) \_\_\_\_\_ (in words) \_\_\_\_\_

Signature of Candidate

Signature of Invigilator

**IMPORTANT**  
**DO NOT OPEN THE BOOKLET UNLESS YOU ARE ASKED TO DO SO**  
**FIRST READ FOLLOWING INSTRUCTIONS CAREFULLY**

1. The candidate will fill up required particulars including his/her roll no. and signature on the OMR sheet with ball point pen (Black/Blue) in the appropriate boxes.
2. Question booklet and OMR sheet will be distributed to the candidates ten minutes before the commencement of the test.
3. Immediately on opening the question-booklet, the candidate should check the booklet and ensure that it contains 50 multiple choice objective type questions (Sr. No. 1 to 50) and the OMR Sheet (Answer-Sheet) for answers and that none question is missing. Discrepancy, if any, should be reported by the candidate to the invigilator within 5 (five) minutes of the opening of the question booklet. If deem fit, a correct question booklet/OMR sheet shall be supplied.
4. **For each question, four suggested answers a, b, c, d are given. The candidate has to choose only one answer which he/she considers the correct or the most appropriate one. If candidate darkens more than one circle or cutting/overwriting/erasing putting of white fluid or any other chemicals on OMR Sheet, then such answer(s) shall not be evaluated.**
5. The answer should be marked by darkening appropriate circle provided in front of the concerned serial number, with **black/blue ball point pen only. Use of pencil is not allowed.** For instance, while answering the Question No. 26 of the question booklet, the correct answer a or b or c or d at Serial No. 26 of OMR sheet should only be darkened.
6. **Each correct answer will be awarded 02 marks. There will be NEGATIVE marking of 0.25% marks for each wrong answer in the Test.**
7. The candidate should be careful in handling the question-paper and in darkening the responses on the OMR Sheet. **The second question booklet/OMR sheet will not be supplied in any case.**
8. Bringing of in-criminal materials, electronic gadgets/devices including cell phone and calculators in the premises of the examination centre is strictly prohibited. Possessing of in-criminal materials, electronic gadgets/devices and any other aiding material in the examination hall will be a serious offence and will attract the cancellation of your candidature.
9. The candidate will not be permitted to leave the examination hall before the conclusion of the test. The candidate should make sure that question-booklet (including OMR sheet) is handed over to the invigilator before leaving the examination hall at the end of the test, failing which a case of use of unfair-means/misbehaviour will be registered against him/her, in addition to lodging of an FIR with the police. Further, OMR-sheet of such a candidate will not be evaluated.
10. The candidate can do rough-work on the back of the title cover of question booklet. **Rough-work on OMR sheet is strictly prohibited.**

1. In paracrine signaling, the signaling molecules affects only:

- a) Target cells close to the cell from which it was secreted
- b) Target cells distant from its site of synthesis in cells of an endocrine organ
- c) Both (a) and (b)
- d) None of the above

2. HMG CoA is formed in the metabolism of:

- a) Cholesterol, ketones and leucine
- b) Cholesterol, fatty acid and Leucine
- c) Lysine, Lecuine and Isoleucine
- d) Ketones, Leucine and Lysine

3. The number of base pairs in each turn of Z-DNA and B-DNA helices respectively is?

- a) 9 and 11
- b) 12 and 10
- c) 10 and 13
- d) 12 and 11

4. If there are 250 base pairs in DNA, then its length is?

- a) 850 nm
- b) 3400nm
- c) 85000 nm
- d) 340000 nm

5. In a cross between two heterozygous parents (Aa), results will be?

- a) In the ratio 1:3 homozygous to heterozygous
- b) In the ratio 1 :3 heterozygous to homozygous
- c) In the ratio 1:1 homozygous to heterozygous
- d) All heterozygous

6. SH2 domains specifically bind to which of the following?

- a) Phosphorylated serine residues
- b) Phosphorylated tyrosine residues
- c) GDP
- d) Ca<sup>2+</sup>

7. How many ATP equivalents per mole of glucose input are required for gluconeogenesis?

- a) 2
- b) 6
- c) 8
- d) 4

8. Bentham's and Hooker's classification is based on:

- (a) Phylogenetic Characters
- (b) Available natural characters and natural affinities
- (c) Evolutionary Characters
- (d) Biochemical Characters

9. Cellulose fibers resemble with the protein structure in which form ?

- a)  $\beta$ -sheets
- b)  $\alpha$ -helices
- c)  $\beta$ -turns
- d) None of these

10. Under aerobic condition pyruvate is converted by pyruvate dehydrogenase to?

- a) Phosphoenol pyruvate
- b) Acetyl CoA
- c) Lactate
- d) Glyceraldehyde 3 phosphate

11. Which of the following is not a disaccharide?

- a) Amylose
- b) Cellobiose
- c) Lactose
- d) None of these

12. The 5' Cap of RNA is required for which of the following?

- a) Stability of RNA only.
- b) Stability and transport of RNA.
- c) Transport of RNA only.
- d) Methylation of RNA.

13. The important active ingredients of ergot causing ergotism are constituted by:

- a) Alkaloids
- b) Phenols
- c) Nucleic acids
- d) Antibiotics

14. Which of the following is the innermost nutritive layer of pollen chamber?
- (a) Tapetum (c) Endothecium  
(b) Endothelium (d) Perisperm
15. Which of the following are NOT transcribed by RNA polymerase II?
- a) miRNA and some snRNA c) mRNA and snoRNA  
b) miRNA and snoRNA d) tRNA and 5S rRNA
16. Which one of the following pairs is correctly matched?
- (a) Rhizobium- Parasite in the roots of leguminous plants (c) Yeast- Production of biogas  
(b) Mycorrhizae- Mineral uptake from soil (d) Myxomycetes- The disease ringworm
17. Which of the following restriction site is absent in E.coli cloning vector pBR322?
- a) Eco RI, c) Bam HI,  
b) Hind III, d) Hind II
18. The tertiary structure of protein is detected by:
- a) X-ray crystallography c) Electrophoresis  
b) spectrophotometer d) Chromatography
19. Which of the following does not contribute to the stability of tRNA?
- a) Hydrogen bonding c) Base and sugar-phosphate backbone interaction  
b) Hydrophobic interactions d) Base pairing
20. The usual source of restriction endonucleases used in gene cloning is taken from?
- a) Fungi c) Algae  
b) Bacteria d) Virus
21. Which of the following is NOT a function of plasma membrane?
- a) Structural barrier and cell communication c) Mass flow regulation, active transport, diffusion, endocytosis and exocytosis  
b) Metabolic activities and cell adhesion d) Formation of antibodies

22. In CAM plants, CO<sub>2</sub> acceptor during the night is:

- a) RUBP
- b) PEP
- c) OAA
- d) PGA

23. Satellite DNA is :

- a) Extra chromosomal DNA
- b) Short repetitive nucleotide sequences
- c) Ribosomal RNA genes
- d) Single gene regions

24. 'Kozak' is associated with:

- a) Transcription
- b) DNA replication
- c) DNA repair
- d) Translation

25. Chaperone proteins help in:

- a) Protein folding and assembly
- b) Protein degradation
- c) Both of the above
- d) None of the above

26. In *Escherichia coli*, which of the following repair systems is most error-prone?

- a) Photoactivation
- b) Excision repair
- c) Recombinational repair
- d) SOS repair

27. Infectious single stranded RNAs in plants that are not associated with any protein are :

- a) Viruses
- b) Viroids
- c) Prions
- d) Satellite viruses

28. Genes whose products are constantly needed for cellular activity are :

- a) Regulator genes
- b) Structural genes
- c) House keeping genes
- d) Smart genes

29. Which DNA binding protein initiates the transcription of bacterial genes ?

- a) Operator
- b) Promoter
- c) Repressor
- d) Sigma factor



30. Diacylglycerol activates :

- a) Protein kinase A
- b) Protein kinase C
- c) MAP Kinase
- d) Tyrosine Kinase

31. Currently bacterial phylogeny is based on:

- a) GC content analysis
- b) DNA-DNA hybridization analysis
- c) 16s rRNA analysis
- d) DNA melting temperature analysis

32. The source of energy for transport of water through xylem is:

- a) ATP produced by photosynthesis
- b) ATP generated by respiration
- c) The sun
- d) Transpiration

33. Which of the following is not an antibacterial antibiotic?

- a) Tetracycline
- b) Streptomycine
- c) Nalidixic acid
- d) Nystatin

34. Which of the following disease is not an autoimmune disease?

- a) Rheumatoid arthritis
- b) Lupus erythematosus
- c) Bovine spongiform encephalitis
- d) Grave's disease

35. The vascular supply given from the main stele for leaf is called:

- (a) Leaf gap
- (b) Leaf trace
- (c) Branch trace
- (d) Haplostele

36. Which pigment plays a key role in photomorphogenesis ?

- a) Chlorophyll
- b) Phytochrome
- c) Cytochrome
- d) Anthocyanin

37. Which pigment will have higher absorbance in red region?

- a) Chl a
- b) Chl b
- c) Both have same absorbance
- d) Carotene

38. Which one of the following is not useful in introducing genes into crop plants ?
- a) Ti plasmid
  - b) Partical gun
  - c) Breeding
  - d) Auxin
39. Which of the following family provides food rich in protein?
- a) Leguminosae
  - b) Cruciferae
  - c) Solanaceae
  - d) Liliaceae
40. The name "Gulf weed" is used for:
- a) *Batrachospermum*
  - b) *Fucus*
  - c) *Sargassum*
  - d) *Polysiphonia*
41. Which of the following structures helps in respiration of lichens?
- a) Soredia
  - b) Cyphella
  - c) Isidia
  - d) Cephalodia
42. Which is called 'weed of laboratory'?
- a) *Rhizopos*
  - b) *Penicillium*
  - c) *Aspergillus*
  - d) *Albugo*
43. Life cycle pattern of *Saccharomyces cerevisiae* is:
- a) Haplobiontic
  - b) Diplobiontic
  - c) Haplodiplobiontic
  - d) Triploid
44. Which is regarded as 'Age of Pteridophytes'?
- a) Mesozoic
  - b) Proterozoic
  - c) Palaeozoic
  - d) Coenozoic
45. According to available fossil records which or the following are the first land vascular plants?
- a) Cycads
  - b) Lycopsids
  - c) Psilophytales
  - d) Horsetails

46. Heterospory and Ligulate leaves are feature of:

- a) *Selaginella*
- b) *Adiantum*
- c) *Isoetes*
- d) *Ophioglossum*

47. Which type of ovule is found in gymnosperms?

- a) Anatropous and Bitegmic
- b) Orthotropous and Bitegmic
- c) Orthotropous and unitegmic
- d) Anatropous and unitegmic

48. Nucleocytoplasmic traffic through the nuclear pores is facilitated by :

- a) Protein nucleoplasmin
- b) Protein rhodopsin
- c) Nuclear lamina
- d) Lipid bilayers

49. Which type of transposable element is found only in eukaryotes ?

- a) Transposable elements that move by simple transposition
- b) Transposable elements that move by replicative transposition
- c) Retrotransposons, which move via an RNA intermediate
- d) All of these

50. In ATP synthase,  $F_0$  acts as :

- a)  $H^+$  channel
- b)  $Cl^-$  channel
- c) Electron carrier
- d) ATPase