



Ph.D. COMMON ENTRANCE TEST
SUBJECT: BOTANY

Roll No:

PART B

Duration: 60 minutes

Maximum Marks: 50

Instructions:

1. This entrance test question paper is not to be taken out of the examination hall
2. Part B Question paper consists of Section A and Section B
3. Section A consists of 30 MCQs carrying 1 Mark each. Put a tick (✓) mark against the correct answer in the box given.
4. Section B consists of Descriptive questions carrying 5 marks each. Restrict your answer to 500 words. Additional plain sheets have been attached to the question paper to answer Section B

SECTION – A

Answer the following by ticking (✓) against the correct answer in the box given:

1. Sugar moves in Phloem vessels as

30 X 1 = 30

- | | |
|--------------|--------------------------|
| a. Cellulose | <input type="checkbox"/> |
| b. Glucose | <input type="checkbox"/> |
| c. Starch | <input type="checkbox"/> |
| d. Sucrose | <input type="checkbox"/> |

2. What is the site of the light-dependent reactions?

- | | |
|-----------------|--------------------------|
| a. Stroma | <input type="checkbox"/> |
| b. Thylakoids | <input type="checkbox"/> |
| c. Chemiosmosis | <input type="checkbox"/> |
| d. Chloroplast | <input type="checkbox"/> |

3. ATP synthesis during light reaction is

- | | |
|------------------------------|--------------------------|
| a. Photophosphorylation | <input type="checkbox"/> |
| b. Photolysis | <input type="checkbox"/> |
| c. Oxidative Phosphorylation | <input type="checkbox"/> |
| d. Phosphorylation | <input type="checkbox"/> |

4. Which of the Phytohormones play a role in seed dormancy?

- a. Gibberellins ☐
- b. ABA ☐
- c. Cytokinin ☐
- d. Auxins ☐

5. Both Chloroplast and Mitochondria

- a. are found within the nucleus ☐
- b. have linear DNA ☐
- c. carry extranuclear genes ☐
- d. display a Mendelian pattern of inheritance ☐

6. Bamboo and grasses elongate by activity of

- a. Secondary meristems ☐
- b. Lateral meristems ☐
- c. Apical meristem ☐
- d. Intercalary meristem ☐

7. In a cross section of a tree or log, one of the ribbons of tissue extending radially from the pith form

- a. Cortical rays ☐
- b. Necrotic rays ☐
- c. Medullary rays ☐
- d. All of these ☐

8. Restriction endonuclease are often called as

- a. Cosmids ☐
- b. Vector ☐
- c. Molecular scissors ☐
- d. DNA insert ☐

9. Southern Hybridization is

- a. Used to identify a specific DNA ☐
- b. Used to Identify both DNA and RNA ☐
- c. Used to identify a specific protein ☐
- d. Used to identify a specific RNA ☐

10. Who is known as father of tissue culture?

- a. Bonner ☐
- b. Haberlandt ☐
- c. Laibach ☐
- d. Gautheret ☐

11. Which of the following occurs during Meiosis but not during Mitosis

- a. Chromosomes align at the metaphase plate ☐
- b. Chromosomes condense ☐
- c. Chromosomes migrate to opposite poles ☐
- d. Synapsis ☐

12. The source of CO₂ during Calvin cycle in C₄ plants is

- a. Malic acid ☐
- b. OAA ☐
- c. PEP ☐
- d. RuDP ☐

13. Which part of a plant cell is thought to aid plants in sensing gravity in their roots?

- a. Amyloplasts ☐
- b. Chloroplasts ☐
- c. Nucleus ☐
- d. Mitochondria ☐

14. Instead of a Phylum, in plants we use which category?

- a. Division ☐
- b. Sub-species ☐
- c. Sub-Kingdom ☐
- d. Class ☐

15. According to current code of Botanical Nomenclature, the names of Class must end with

- a. opsida ☐
- b. idae ☐
- c. ales ☐
- d. aceae ☐

16. A group of freely inter-breeding organisms constitutes a

- a. Species ☐
- b. Genera ☐
- c. Family ☐
- d. Class ☐

17. The ovary is half inferior in flowers of

- a. Guava ☐
- b. Peach ☐
- c. Cucumber ☐
- d. Cotton ☐

18. Ginger multiplies vegetatively by

- a. bud ☐
- b. stem ☐
- c. tuber ☐
- d. rhizome ☐

19. The national herbarium in our country is located in

- a. Mumbai ☐
- b. Kolkata ☐
- c. Chennai ☐
- d. Delhi ☐

20. Which of the following is dominated by plants that drop their leaves yearly to conserve water?

- a. Desert ☐
- b. Coniferous forest ☐
- c. Tropical rain forest ☐
- d. Deciduous forest ☐

21. The number of individuals per unit area determines the population's

- a. Survivorship ☐
- b. Mortality ☐
- c. Age distribution ☐
- d. Density ☐

22. Geometric growth produces what type of population growth curve?

- a. S-shaped ☐
- b. J-shaped ☐
- c. L-shaped ☐
- d. K-shaped ☐

23. Which of the following is a pioneer tree species coming up first after a land slide canopy opening?

- a. *Mangifera indica* ☐
- b. *Macaranga peltata* ☐
- c. *Myristica fragrans* ☐
- d. *Vateria indica* ☐

24. Important family character of Rubiaceae for identification in field is

- a. Lateral stipules ☐
- b. Interpetiolar stipules ☐
- c. Terminal stipules ☐
- d. None of the above ☐

25. Ecological succession on sand is

- a. Psammosere ☐
- b. Xerosere ☐
- c. Halosere ☐
- d. Hydrosere ☐

26. Exotic species

- a. are often endangered ☐
- b. usually increase biodiversity ☐
- c. often enhance the habitat for native species ☐
- d. Usually reduce biodiversity ☐

27. Evolutionary change and relationships of related organisms are represented in

- a. Linkage trees ☐
- b. Phylogenetic trees ☐
- c. Lineage trees ☐
- d. Relationship trees ☐

28. Which technique is used to introduce genes into dicots?

- a. Electroporation ☐
- b. Particle acceleration ☐
- c. Microinjection ☐
- d. Ti plasmid infection ☐

29. Endemic species are those that:

- a. are native to certain area ☐
- b. Were native earlier, now no longer occur there ☐
- c. Restricted to certain locality and nowhere else found ☐
- d. Introduced to certain area from elsewhere ☐

30. Which acronym indicates a multilateral treaty signed in 1773 that establishes an international system of import and export permits to regulate international commerce in species designated for protection?

- a. IUCN ☐
- b. MEA ☐
- c. CITES ☐
- d. SLOSS ☐

SECTION – B

Answer any **four** of the following:

4 X 5 = 20

1. Explain the different stages of Meiotic cell division.
2. Write notes on different steps involved in Calvin cycle.
3. Write critical notes on physiological effects of Absciscic acid (ABA) on plants.
4. Discuss various herbarium techniques and its importance.
5. Give an account of phytogeographical vegetation zones of India.
6. Explain different types of *in-situ* and *ex-situ* conservation of plants.
