

M.Phil./Ph. D. Entrance Test – 2015**Subject: Botany****Paper – I**

Important: Please consult your Admit Card/Roll No. slip before filling your Roll Number on the Test Booklet and Answer Sheet.

Roll No.

*In Figure**In Words*

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O.M.R. Answer Sheet Serial No.

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Signature of Candidate: _____

Signature of Invigilator: _____

Time: 60 Minutes**Number of Questions: 50****Maximum Marks: 50****DO NOT OPEN THE SEAL ON THE BOOKLET UNTIL ASKED TO DO SO.****INSTRUCTIONS:**

1. Write your Roll No. on the Questions Booklet and also on the OMR Answer Sheet in the space provided and nowhere else.
2. Enter the Question Booklet Serial No. on the OMR Answer Sheet. Darken the corresponding bubbles with **Black Ball Point/Black Gel Pen**.
3. Do not make any identification mark on the Answer Sheet or Question Booklet.
4. Please check that this Question Booklet contains **50** Questions. In case of any discrepancy, inform the Assistant Superintendent within 10 minutes of the start of Test.
5. Each question has four alternative answer (A,B,C,D) of which only one is correct. For each question, darken only one bubble (A or B or C or D), whichever you think is the correct answer, on the Answer Sheet with **Black Ball Point/Black Gel Pen**. **There shall be no negative marking for wrong answers.**
6. If you do not want to answer a question, leave all the bubbles corresponding to that question blank in the Answer Booklet. No marks will be deducted in such cases.
7. Darken the bubbles in the OMR Answer Sheet according to the Serial No. of the question given in the Question Booklet.
8. If you want to change an already marked answer, erase the shade in the darkened bubble completely.
9. For rough work only the blank sheet at the end of the Question Booklet be used.
10. The Answer Sheet is designed for computer evaluation. Therefore, if you do not follow the instructions given on the Answer Sheet, it may make evaluation by the computer difficult. **Any resultant loss to the candidate on the above account, i.e. not following the instructions completely, shall be of the candidate only.**
11. After the test, hand over the Question Booklet and the Answer Sheet to the Assistant Superintendent on duty.
12. In no case the Answer Sheet, the Question Booklet, or its part or any material copied/noted from this Booklet is to be taken out of the examination hall. Any candidate found doing so would be expelled from the examination.
13. A candidate who creates disturbance of any kind or changes his/her seat or is found in possession of any paper possibly of any assistant or found giving or receiving assistance or found using any other unfair means during the examination will be expelled from the examination by the Centre Superintendent/Observer whose decision shall be final.
14. **Communication equipment such as mobile phones, pager, wireless set, scanner, camera or any electronic/digital gadget etc., is not permitted inside the examination hall. Use of calculators is not allowed.**
15. The candidates will not be allowed to leave the Examination Hall/Room before the expiry of the allotted time.

1. Who introduced the term protoplast?

- A. Cocking, 1960
- B. Hanstein, 1880
- C. Klercker, 1892
- D. Melson, 1885

2. Belladonna which is used to relieve pain contains the chief alkaloid

- A. Reserpine
- B. Quinine
- C. Atropine
- D. Cinchonine

3. Coconut milk is

- A. Milk present in the fruit
- B. Liquid produced by the dissolution of mesocarp
- C. Liquid endosperm
- D. Liquid produced in the juicy unicellular hairs

4. In algae, cell wall is made up of

- A. Chitin
- B. Suberin
- C. Cellulose
- D. Cutin

5. Microscopic and non-endospermic seeds are present in

- A. Gramineae
- B. Asteraceae
- C. Orchidaceae
- D. Fabaceae

6. Ferns, both eusporangiate and leptosporangiate and fern allies like Lycopodiales, Isoetales, etc., have been shown to possess many common features with

- A. Gymnosperms
- B. Pteridosperms
- C. Dicotyledons
- D. Monocotyledons

7. Cocoa and Chocolate are prepared from seeds of *Theobroma cacao* belonging to the family

- A. Tiliaceae
- B. Malvaceae
- C. Sterculiaceae
- D. Bombaceae

8. Fern stele is a

- A. Protostele
- B. Siphonostele
- C. Dictyostele
- D. None of the above

9. The term Biotechnology was coined by

- A. Gottlieb Haberlandt (1920)
- B. Gilbert (1931)
- C. Cocking (1934)
- D. Karl Ereky (1919)

10. Process by which an embryo develops from a fertilized egg cell or asexually from a group of cells is called

- A. Organogenesis
- B. Rhizogenesis
- C. Embryogenesis
- D. Caulogenesis

11. In many ferns, spore dissemination is affected by

- A. Indusium
- B. Tapetum
- C. Annulus
- D. Sorus

12. Erosion taking place on the bank of a fast flowing river is

- A. Gully erosion
- B. Riparian erosion
- C. Sheet erosion
- D. Rill erosion

13. Megasporophyll of *Selaginella* is comparable to which of the following structure of angiosperms?

- A. Carpel
- B. Ovule
- C. Stamen
- D. Leaf

14. The female gametophyte, also called embryo sac is mostly a

- A. 7-celled structure
- B. 8-celled structure
- C. 5-celled structure
- D. 6-celled structure

15. Special types of roots inhabited by microbes in *Cycas* is called

- A. Adventitious roots
- B. Microbial roots
- C. N_2 fixing Roots
- D. Coralloid roots

16. Which one of following is a hotspot in India?

- A. Western Ghats
- B. Simlipal
- C. Sundarban
- D. Nanda Devi

17. Citrus canker is caused by

- A. *Xanthomonas citri*
- B. *Xanthomonas oryzae*
- C. *Phytophthora infestans*
- D. *Fusarium* sp.

18. Ergot is obtained from

- A. *Rhizopus*
- B. *Claviceps*
- C. *Albugo*
- D. *Phytomonas*

19. Which of the following is antiauxin?

- A. 2,4,5-T
- B. NOAA
- C. TIBA
- D. ABA

20. The pyramid of energy in an ecosystem is

- A. Always upright
- B. May be upright or inverted
- C. Always inverted
- D. None of the above

21. Lichen and algae form

- A. Climax community
- B. Pioneer community
- C. Initiator community
- D. Seral community

22. Morphactins are
- Auxins
 - Natural Growth Regulators
 - Synthetic growth regulators
 - Metabolic inhibitors
23. Largest sperms are found in
- Pinus*
 - Cedrus*
 - Cycas*
 - Gnetum*
24. Zinc finger proteins and helix-turn-helix proteins are
- Types of DNA binding proteins
 - Involved in control of translation
 - Components of ribosomes
 - Bound to tRNA during replication
25. The sum total of the populations of the same kind of organisms constitute
- Colony
 - Species
 - Genus
 - Community
26. Hydrosere is
- Secondary succession starting in a pond
 - Primary succession starting in a pond
 - Primary succession starting on a dry soil
 - All of these
27. If a short day plant is given 8 hours light and 16 hours dark period and the dark period is interrupted by a flash of 730nm wavelength in the middle
- the plant remains vegetative
 - the plant produces flowers normally
 - the plant produces very few flowers (1-2 flowers only)
 - the floral apex dies
28. Agar-Agar is obtained from
- Gelidium*
 - Polysiphonia*
 - Fucus*
 - Laminaria*

29. Liverworts are closely related to
- Algae
 - Fungi
 - Lichen
 - Mosses
30. RFLP analysis is a technique that
- Uses hybridization to detect specific DNA restriction fragments in genomic DNA
 - Determine whether a gene is transcribed in specific cells
 - Measures the transfer frequency of genes during conjugation
 - Used to detect genetic variation at the protein level
31. Which is the most primitive group of algae
- Blue green algae
 - Red algae
 - Brown algae
 - Green algae
32. Whiptail of cauliflower" is caused due to the deficiency of
- Iron
 - Molybdenum
 - Chlorine
 - Boron
33. Poisons like cyanide inhibit Na^+ efflux and K^+ influx. The effect is reversed by injection of ATP. It shows that
- $\text{Na}^+ - \text{K}^+$ pump operates fully in cells
 - ATP is hydrolyzed by ATPase to release energy
 - Energy for $\text{Na}^+ - \text{K}^+$ pump comes from ATP hydrolysis
 - ATP is a carrier protein
34. Pseudoelaters help in the dispersal of spores in
- Anthoceros*
 - Riccia*
 - Pellia*
 - Marchantia*
35. Plants which are not differentiated into roots, stem and leaves are grouped under
- Gymnosperms
 - Pteridophytes
 - Thallophyta
 - Spermatophyta

36. A mutation in a codon leads to the substitution of one amino acid with another. What is the name for this type of mutation?
- Nonsense mutation
 - Missense mutation
 - Frameshift mutation
 - Promoter mutation
37. Apospory, is the most common mechanism of apomixis in higher plants was first reported in *Hieracium* sp. by
- Rosenberg (1907)
 - Khush *et al.* (1994)
 - Gustafsson (1946)
 - Leblanc and Savidan (1994)
38. Which of the following have been suggested to be associated with the motility of the sperms?
- Microtubules
 - Tubulin
 - Actin
 - None of the above
39. Microspores are united into either pollinia or massulae in
- Orchidaceae
 - Asclepiadaceae
 - Mimosaceae
 - All of the above
40. Cellulase R10 generally used for wall degradation has been partially purified from the molds of
- Trichoderma reesei*
 - Trichoderma viride*
 - Rhizopus stolonifer*
 - Both A and B
41. If plant cells produce metabolites *in vivo* or *in vitro*, which are not directly needed by the plant itself, then these are termed as
- Primary products
 - Secondary metabolites
 - Primary metabolites
 - None of the above
42. The red colour of the red sea is due to the following blue green alga
- Trichodesmium erythraeum*
 - Oscillatoria chalybia*
 - Anabaena circinalis*
 - Nostoc punctiforme*

43. *Rafflesia* is a
- A. Root parasite found in forests of Malaya
 - B. Stem parasite found in Africa
 - C. Flower parasite in Malaya
 - D. Fruit parasite
44. Lianas are more common in
- A. Temperate forests
 - B. Tropical Rain Forests
 - C. Alpine Forests
 - D. None of the above
45. Intine layer of pollen grain is
- A. Pecto-cellulosic in nature
 - B. Cellulosic in nature
 - C. Microfibrillar in nature
 - D. All of the above.
46. Nitrosomonas and Nitrobacter are the bacteria of
- A. Deamination
 - B. Nitrification
 - C. Decomposition
 - D. Denitrification
47. The most characteristic anatomical feature of the guard cells, not possessed by adjacent epidermal cells is
- A. absence of mitochondria
 - B. presence of functional nucleus
 - C. radial micellation
 - D. absence of chloroplast
48. Out of the following types of forests, which is the richest one in diversity and density?
- A. Sub-tropical Forests
 - B. Alpine Forests
 - C. Tropical Rain Forests
 - D. Mangrove Forests
49. Ubisch bodies are observed only in
- A. Glandular tapetum
 - B. Secretory tapetum
 - C. Amoeboid tapetum
 - D. Both A and B
50. The term ecosystem was first coined by
- A. A.G. Tansley
 - B. C. Mohl
 - C. R.S. Ambast
 - D. E.P. Odum

Panjab University, Chandigarh

M.Phil./PHD - 2015

ANSWERS / KEY

Subject: Botany(Ph.D. & M.Phil.)

1	2	3	4	5	6	7	8	9	10
B	C	C	C	C	D	X	X	D	C
11	12	13	14	15	16	17	18	19	20
C	B	A	A	D	A	A	B	C	A
21	22	23	24	25	26	27	28	29	30
B	C	C	A	B	B	B	A	D	A
31	32	33	34	35	36	37	38	39	40
A	B	C	A	C	B	A	A	D	D
41	42	43	44	45	46	47	48	49	50
B	A	A	B	A	B	C	C	D	A

Note: An 'X' in the key indicates that either the question is ambiguous or it has printing mistake. All candidates will be given credit for this question