

Code No.

**N – 3570**

**Entrance Examination for Admission to the P.G. Courses in the Teaching Departments, 2022**

**CSS**

**BOTANY (BIODIVERSITY CONSERVATION)**

**General Instructions**

1. The Question Paper is having two Parts — Part 'A' Objective type (60%) & Part 'B' Descriptive type (40%).
2. Objective type questions which carry 1 mark each are to be (✓) 'tick marked' in the response sheets against the appropriate answers provided.
3. 8 questions are to be answered out of 12 questions carrying 5 marks each in Part 'B'.
4. **Negative marking** : 0.25 marks will be deducted for each wrong answer in Part 'A'.

**Time : 2 Hours****Max. Marks : 100**

To be filled in by the Candidate									
Register Number	in Figures								
	in words								

**PART – A**  
(Objective Type)

Choose appropriate answer from the options in the questions. **One mark each.**  
**(60 × 1 = 60 marks)**

1. The process of respiration in green plants occurs:
  - a) only when stomata are open
  - b) only when photosynthesis ceases
  - c) only when photosynthesis is in progress
  - d) At all times

DO NOT WRITE HERE

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2. Nitrogen fixing bacteria are normally associated with which family of plants?

- |                 |                |
|-----------------|----------------|
| a) Leguminaceae | b) Crucifereae |
| c) Gramineae    | d) Malvaceae   |

3. Which of the following amino acids is a precursor of niacin (Vitamin)?

- |               |                  |
|---------------|------------------|
| a) Tyrosine   | b) Threonine     |
| c) Tryptophan | d) Phenylalanine |

4. Fungi that generally produces eight spores in a sac like structure, belong to the class?
- a) Phycomycetes
  - b) Basidiomycetes
  - c) Ascomycetes
  - d) Deuteromycetes
5. A class of enzymes that are able to unwind double-stranded DNA into single stranded ones by the use of energy dependent ATP during DNA replication is:
- a) DNA Polymerase
  - b) DNA Ligase
  - c) DNA Helicase
  - d) DNA Primase
6. Which of the following situations causes Lac Operon to turn on?
- a) Lactose is less than glucose
  - b) Glucose is more in the medium
  - c) Lactose is less in the medium
  - d) Lactose is more than glucose
7. Which of the following is not a stop codon?
- a) UAG
  - b) UGA
  - c) CAG
  - d) UAA
8. At increased rate of transpiration, absorption of water through roots can be:
- a) increased
  - b) Decreased
  - c) remains same
  - d) Truncated
9. Which of the following family mostly represents Diacytic type of stomata?
- a) Malvaceae
  - b) Caryophyllaceae
  - c) Ranunculaceae
  - d) Rubiaceae
10. Wood without vessels is:
- a) Non porous wood
  - b) Sapwood
  - c) Heart Wood
  - d) Porous wood

11. Which one of the following monocot plants shows anomalous secondary growth?
- a) Rice
  - b) Maize
  - c) Dracaena
  - d) Zephyranthes
12. Tapetum is made up of:
- a) Lamellae
  - b) Pectins
  - c) Cellulose
  - d) Sporopollenin
13. Which of the following is an example of monosporic embryo sac?
- a) Adoxa
  - b) Allium
  - c) Polygonum
  - d) None of the above
14. In column adsorption chromatography, which of the following is employed as an adsorbent?
- a) Alumina
  - b) Carbon
  - c) Silica gel
  - d) Both (a) and (c)
15. Allosteric inhibitor of phosphofructokinase-1 is:
- a) ATP
  - b) ADP
  - c) AMP
  - d) NADP
16. Which of the following chemical is mostly used for polyploidy breeding?
- a) NAA
  - b) Subtilin
  - c) Zeatin
  - d) Colchicine
17. Type of experimental design, where the experimental units are randomly assigned to the different treatments is called:
- a) Randomized block design
  - b) Latin square design
  - c) Completely randomized design
  - d) Matched pair design

18. Haematoxylin is a:
- a) Basic stain
  - b) Acidic stain
  - c) Neutral stain
  - d) Fluorescent stain
19. Citrus canker is caused by:
- a) *Xanthomonas oryzae*
  - b) *Xanthomonas citri*
  - c) *Phytophthora palmivora*
  - d) *Pythium aphanidermatum*
20. *Ricinus communis* belongs to the family:
- a) Euphorbiaceae
  - b) Rubiaceae
  - c) Lamiaceae
  - d) Asteraceae
21. Histone not involved in the nucleosome octamer is:
- a) H1
  - b) H2A
  - c) H2B
  - d) H4
22. Verticillaster type of inflorescence is found in which of the following family?
- a) Euphorbiaceae
  - b) Rubiaceae
  - c) Lamiaceae
  - d) Asteraceae
23. Cycas is:
- a) Homosporous and dioecious
  - b) Heterosporous and dioecious
  - c) Homosporous and monoecious
  - d) Heterosporous and monoecious
24. Smallest living cells without a definite cell wall and can live without oxygen is:
- a) Spirochaete
  - b) Yersinia
  - c) Mycoplasma
  - d) Legionella
25. Manas National park is situated in the state of:
- a) Assam
  - b) Punjab
  - c) Haryana
  - d) Karnataka

26. Whiptail disease of cauliflower plants is caused by deficiency of:
- a) Mo
  - b) Fe
  - c) Ca
  - d) Ni
27. The transition zone between two ecosystems is called:
- a) Ecotone
  - b) Ecotype
  - c) Ecophene
  - d) Ecological amplitude
28. Chargaff's rule states that DNA from any species of any organism should have:
- a) Nitrogen bases  $1/10^{\text{th}}$  of cellular weight
  - b) More nitrogen bases in the G2 phase
  - c) 1:1 ratio of purine and pyrimidine
  - d) More purine synthesis in G1 phase
29. Among the following, which is a monoamino dicarboxylic acid:
- a) Aspartate
  - b) Arginine
  - c) Asparagine
  - d) Alanine
30. Absciscic acid is also called as:
- a) Stress hormone
  - b) Ripening hormone
  - c) Growth hormone
  - d) None of these
31. Polyploidy refers to
- a) A state of having extra copies of a gene adjacent to each other on a chromosome
  - b) An organism with complete extra sets of chromosomes
  - c) A chromosome which has replicated but not divided
  - d) A condition having multiples sets of polytene chromosomes

32. Quiescent centre is:
- a) A site of stress protein synthesis
  - b) A site of leaf senescence
  - c) A meristematic region in the shoot tip
  - d) A group of cells in the root tip
33. Chlorosis of leaves due to sulphur deficiency usually begins first in:
- a) Younger leaves
  - b) Spatulate leaves
  - c) Older leaves
  - d) Decussate leaves
34. Triple responses in plants is caused by:
- a) Auxin
  - b) Zeatin
  - c) Kinetin
  - d) Ethylene
35. Non parental characters which Mendel obtained from his experiment is due to:
- a) Complete linkage
  - b) Incomplete linkage
  - c) Crossing over
  - d) independent assortment
36. During exponential growth, a population always:
- a) Grows at its minimum per capita rate
  - b) Grows at its maximum per capita rate
  - c) Approaches the lag phase, within lesser time limit
  - d) Undulates in accordance with the type of organism
37. Which one of the following is a nucleotide sequence database?
- a) BLAST
  - b) SWISS PROT
  - c) EMBL
  - d) PROSITE
38. Acid rain is mainly a mixture of:
- a) Sulphuric acid and nitric acid
  - b) Nitric acid and citric acid
  - c) Acetic acid and nitric acid
  - d) Nitric acid and Carbonic acid

39. An 'indeterminate inflorescence' is also known as:
- a) Cymose
  - b) Racemose
  - c) Hypanthodium
  - d) Verticillaster
40. INFLIBNET is
- a) Information and Library Network
  - b) Information and Library Network of Biblical
  - c) International Federation for Biblical Network
  - d) International Federation for Library Network
41. Which tool can be used for molecular graphics visualization?
- a) RASMOL
  - b) UNIPORT
  - c) DDBJ
  - d) PIR
42. Process of changes in the species structure of an ecological community over time is called:
- a) Ecological succession
  - b) Ecological adaptation
  - c) Ecological invasion
  - d) Ecological resilience
43. RNA which carry amino acids to the ribosome during protein synthesis is:
- a) mRNA
  - b) rRNA
  - c) tRNA
  - d) snRNA
44. A statement that introduces a research question and proposes an expected result is:
- a) Relevation
  - b) Hypothesis
  - c) Review
  - d) Synopsis
45. An asexual propagation method in which the parts of two different plants are joined to continue their growth as one plant is:
- a) Grafting
  - b) Layering
  - c) Gootee
  - d) Topiary

46. Which among the following is not a phylogenetic software?
- a) TREE PUZZLE
  - b) GenBank
  - c) SEMPHY
  - d) PHYLIP
47. Laboratory work involving chemicals, drugs and other liquids are undertaken in a:
- a) Dry lab
  - b) Wet lab
  - c) Insilico labs
  - d) In vitro labs
48. Hybridization involving the crossing of two species from the same genus is called:
- a) Inter-varietal
  - b) Inter-generic
  - c) Inter-specific
  - d) Synthetic variety
49. An art of clipping trees and shrubs into sculptural or geometric shapes is called:
- a) Trophy
  - b) Bonsai
  - c) Rockery
  - d) Topiary
50. Which one of the following is a non-renewable resource?
- a) Coal
  - b) Geothermal
  - c) Solar
  - d) Tidal
51. The plant with epidermis specialized to absorb moisture from the air is:
- a) Vanda
  - b) Avicennia
  - c) Pinus
  - d) Casuarina
52. A software intentionally designed to create disruption to a computer, server, client, or computer network is:
- a) Malware
  - b) Adware
  - c) Antivirus
  - d) Cookies
53. Iron is an important component of:
- a) Cytochrome
  - b) Haemoglobin
  - c) Ferredoxin
  - d) All of these

54. An r-strategist is generally:
- a) has a low biotic potential
  - b) gives much parental care to its offspring
  - c) is small and short-lived
  - d) reproduces late in life
55. Anabaena, a nitrogen fixer is symbiotically associated with:
- a) Azolla
  - b) Salvinia
  - c) Marselia
  - d) Pistia
56. A cross with the phenotype of each sex with reversed as compared with the original cross is:
- a) Reciprocal cross
  - b) Back cross
  - c) Test cross
  - d) Dihybrid cross
57. Technique used for the separation of nucleic acids is:
- a) Thin layer chromatography
  - b) Paper chromatography
  - c) Gel electrophoresis
  - d) Isoelectric focussing
58. A new type specimen designated when all materials of the original type description is missing is:
- a) Neotype
  - b) Holotype
  - c) Syntype
  - d) Lectotype
59. B-Chromosomes are found in:
- a) Salivary glands
  - b) Oocytes
  - c) Nucleus
  - d) Cancer cells
60. An example for a liverwort is:
- a) Selaginella
  - b) Riccia
  - c) Pteris
  - d) Marselia

# ANSWER SHEET — PART – A

1	A	B	C	D	E
2	A	B	C	D	E
3	A	B	C	D	E
4	A	B	C	D	E
5	A	B	C	D	E
6	A	B	C	D	E
7	A	B	C	D	E
8	A	B	C	D	E
9	A	B	C	D	E
10	A	B	C	D	E
11	A	B	C	D	E
12	A	B	C	D	E
13	A	B	C	D	E
14	A	B	C	D	E
15	A	B	C	D	E
16	A	B	C	D	E
17	A	B	C	D	E
18	A	B	C	D	E
19	A	B	C	D	E
20	A	B	C	D	E

21	A	B	C	D	E
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25	A	B	C	D	E
26	A	B	C	D	E
27	A	B	C	D	E
28	A	B	C	D	E
29	A	B	C	D	E
30	A	B	C	D	E
31	A	B	C	D	E
32	A	B	C	D	E
33	A	B	C	D	E
34	A	B	C	D	E
35	A	B	C	D	E
36	A	B	C	D	E
37	A	B	C	D	E
38	A	B	C	D	E
39	A	B	C	D	E
40	A	B	C	D	E

41	A	B	C	D	E
42	A	B	C	D	E
43	A	B	C	D	E
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45	A	B	C	D	E
46	A	B	C	D	E
47	A	B	C	D	E
48	A	B	C	D	E
49	A	B	C	D	E
50	A	B	C	D	E
51	A	B	C	D	E
52	A	B	C	D	E
53	A	B	C	D	E
54	A	B	C	D	E
55	A	B	C	D	E
56	A	B	C	D	E
57	A	B	C	D	E
58	A	B	C	D	E
59	A	B	C	D	E
60	A	B	C	D	E



## BIODIVERSITY CONSERVATION

### PART – B

(Descriptive Type)

Answer **any eight** questions.

**(8 × 5 = 40 Marks)**

1. Write a note on Mutation breeding.
2. Explain Anomalous secondary growth, citing two examples.
3. Explain inductive and deductive reasoning with examples.
4. Give a comparative account of the alternation of generation in Bryophytes, Pteridophytes and Gymnosperms.
5. Explain the pattern of development of monosporic and bisporic embryo sac.
6. Write a note on the phytogeographic zones of India.
7. Briefly explain the etiology of Citrus canker. Comment on the disease cycle and control measures.
8. What are the different types of genes?
9. Write a note on soil microbiology.
10. What is phylogenetic system of classification? Comment on its advantages and disadvantages.
11. Describe special types of chromosomes.
12. Compare C<sub>3</sub>, C<sub>4</sub> and CAM plants.





















