

Rekha V.V.I. Questions for 2023 Examination

*Answer of below mentioned V.V.I. questions are present in your
Rekha Examination Guide and Guess Part-I Botany-I*

1. **Explain the following–**
 - (a) Koch's postulates **V.V.I.** 7
 - (b) Infection 7
 - (c) Coenocytic condition **V.V.I.** 8
 - (d) Heterocyst and its role **V.V.I.** 8
 - (e) Inoculum **V.V.I.** 8
 - (f) Diplobiontic life cycle in algae 9
 - (g) Cystocarp of Polysiphonia 9
 - (h) Distinguish between parasite and saprophytes 10
 - (i) Well labelled diagram of a Nostoc cell 11
 - (j) Role of bacteria in industry 11
 - (k) Economic importance of Fungi 12
 - (l) Early blight of Potato **V.V.I.** 13
 - (m) Development of Oogonium in Fucus **V.V.I.** 14
 - (n) Globule of Chara 14
 - (o) Characteristic features of Chlorophyceae 15
 - (p) Range of thallus structure in algae 16
 - (q) Teleutospores of Puccinia **V.V.I.** 16
 - (r) Conjugation in bacteria 17
 - (s) Diseases caused by bacteria 17
 - (t) Symbiotic algae 18
 - (u) T. M. V. (Tobacco Mosaic Virus) **V.V.I.** 18
 - (v) Heteroecious fungi 18
 - (w) Algae bloom (water bloom) 19
 - (x) Parasexuality 19

GROUP–A (Algae)

1. Write an account of classification of Algae given by F.E. Fritsch.
Or, Outline the classification of Algae put forward by Fritsch and comment briefly. 20
2. Give a brief and illustrated account of the range of structure of the thallus in Chlorophyceae.
Or, Give an account the range of thallus structure in Algae with suitable examples. **V.V.I.** 22
3. Give an account of the habit, structure of thallus and mode of reproduction in Fucus.
Or, Give a comprehensive account of the modes of reproduction in Fucus. **V.V.I.** 24

4. Describe in brief occurrence, structure and reproduction of Algae. 28
5. Give an account of the structure and life history of Oedogonium.
Or, Describe the sexual reproduction in Oedogonium. **V.V.I.** 29
6. Describe briefly the structure and life cycle of Chara. **V.V.I.** 33
7. Describe the structure and life-history of Polysiphonia. 37
8. Discuss briefly the general characteristic features and classification of Rhodophyceae. 41
9. Discuss briefly the general features and classification of Chlorophyceae. 44
10. Give an illustrated account of the structure and life history of Vaucheria. **V.V.I.**
Or, Describe the life history of Vaucheria and discuss its systematic position.
Or, Give a brief account of sexual reproduction in Vaucheria. 47
11. Describe with neat labelled diagram of carposporophyte of Polysiphonia. 51
12. Write short notes on the following :
 - (i) Reproduction in Chara 54
 - (ii) Economic Importance of Algae 54
 - (iii) Algal pigments **V.V.I.** 55
 - (iv) Reproduction in Nostoc **V.V.I.** 56
 - (v) Dwarf male of Oedogonium 56
 - (vi) Alternation of generation in Fucus **V.V.I.** 57
 - (vii) Sex organs of Chara **V.V.I.** 57
 - (viii) Sporangia of Fucus 58
 - (ix) Methods of reproduction in Anabaena 58
 - (x) Reproduction in Cyanophyceae (Myxophyceae) 59
 - (xi) Vegetative reproduction in Chara 59
 - (xii) Cell structure of Oedogonium 60
 - (xiii) Salient features of Phaeophyceae 61
 - (xiv) Synzoospore (Zoospores) 62
 - (xv) Gonimoblast filament 62
 - (xvi) Conjugation in Spirogyra 63

GROUP-B (Mycology and Phytopathology)

13. Write an essay on 'Economic importance of Fungi.' 64
14. Write a short essay on the symptom, transmission and control of plant diseases caused by Puccinia.
Or, Describe briefly the different types of spore forms and spore-fruits in Puccinia graminis. Name the respective hosts on which they occur. **V.V.I.** 67

15. Give an illustrated account of life-cycle of the fungus which causes Black wart disease of potato.
Or, Describe the causal organism, symptoms and methods of control of the Black wart disease of potato (Synchytrium). 71
16. Give a brief account of the various systems that have been suggested to classify fungi. **V.V.I.** 73
17. Describe the life history of Cystopus (Albugo).
Or, Write a descriptive account of the structure and reproduction of Cystopus. **V.V.I.** 77
18. Discuss briefly the life cycle of Fungi Alternaria.
Or, Write the name of fungi causing early blight disease in potato. Classify it and describe the method of reproduction in it. 81
19. Give symptoms, etiology and control of Citrus Canker. **V.V.I.** 82
20. Give symptoms, etiology and control of Tobacco mosaic virus.
Or, Give an account of life cycle of any viral disease you have studied. 84
21. Describe the life-cycle of the fungus which causes late blight of potato and their control. **V.V.I.** 86
22. How will you distinguish the following ?
 (i) Teleutospore and Uredospore 88
 (ii) Rust and Smut diseases 88
 (iii) Ascospore and Basidiospore 89
 (iv) Apothecium and cleistothecium 89
 (v) Conidiophore and Sporangiphore 89
23. Write short notes on the following :
 (i) General control measures of plant diseases **V.V.I.** 90
 (ii) Mycorrhiza 90
 (iii) Mycotoxin **V.V.I.** 91
 (iv) Various Modes of infection **V.V.I.** 91
 (v) Salient features of Fungi 92
 (vi) Asexual reproduction in Cystopus (Albugo) **V.V.I.** 92
 (vii) Various types of spores of Puccinia 93
 (viii) Disease Cycle 94
 (ix) Disease control by chemical method 94

GROUP-C (Microbiology)

24. Draw a neat labelled diagram of a typical bacterial cell to show the detailed structure and describe the function of important organelles.
Or, Describe ultrastructure of bacterial cell. **V.V.I.** 96
25. Describe in brief the role of microbes in Nitrogen fixation. 98
26. Write a note on Fermentation. 102

27. Describe the various methods of reproduction in Bacteria.
Or, Describe the methods of multiplication in Bacteria. **V.V.I.** 103
28. What is Cyanobacteria ? Give the characteristic features of it. 106
29. Describe the structure, reproduction and nature of bacteriophage (virus). 107
30. Write an essay on the industrial importance of Bacteria.
Or, Point out the role of bacteria in industries. **V.V.I.** 109
31. Describe the role of microbes (bacteria) in Agriculture. **V.V.I.** 111
32. Describe the structure and properties of TMV (Tobacco Mosaic Virus). How does it differ from bacteriophage? 113
33. Discuss genetic recombination in bacteria. 115
34. Write an essay on the role of bacteria in human health. 118
35. Write short notes on the following :
- (i) Cyanobacteria 119
- (ii) N₂ fixation by bacteria 120

BOTANY - 1 (Hons.) (2022)

Answer any five questions, Selecting at least one from each groups in which
Question Number 1 is compulsory.

1. Write a brief account on the followings :
 - (a) Conjugation in Bacteria. 17
 - (b) Differences between Smut and rust. 88
 - (c) Characteristic features of chlorophyceae. 15
 - (d) Teleospore of Puccinia. 16
 - (e) Cystocarp of Polysiphonia. 9

Group–A

2. Describe life-history of Vaucheria and discuss its systematic position. 47
3. Give an account of range of thallus structure in Algae. 22
4. Write short notes on any two of the followings :
 - (a) Cell structure of Oedogonium 60
 - (b) Anabaena 58
 - (c) Economic importance of algae 54

Group–B

5. What is wart ? Give an illustrated account of life-cycle of the fungus which causes "Black wart disease of potato". 71
6. Describe the life-cycle of Phytophthora.
7. Write short notes on any two of the followings :
 - (a) Disease cycle 94
 - (b) Symptoms of the diseases 67
 - (c) Disease control by chemical method 94

Group–C

8. Discuss the genetic recombination of Bacteria. 115
9. What do you mean by bacteriophage ? Write down its nature and structure with well labelled diagram. 107
10. Write short notes on any two of the followings :
 - (a) Types of nutrition in Bacteria.
 - (b) Cyanobacteria 119
 - (c) Ultrastructure of Bacterial cell. (no need of description) 96

BOTANY - 1 (Hons.) (2021)

Answer five questions.

Selecting at least one from each group in which Q. No.1 is compulsory.

1. Write short notes on followings?
 - (a) Heterocyst 8
 - (b) Koch's Postulates 7
 - (c) TMV 18
 - (d) Inoculum and infection 8
 - (e) Pigments in red algae

Group-A

2. Describe the classification of algae as proposed by Fritsch. 20
3. Describe the sex organs in Chara. 33
4. Describe in brief the life cycle of Fucus. 24

Group-B

5. Describe the life cycle of Puccinia graminis tritici. 67
6. What is the causal organism of "White rust of Crucifers"? Discuss its life cycle. 77
7. Write short notes on any two of the following :
 (a) Chemical control of disease..... 94 (b) Citrus Canker 82
 (c) Early blight of potato. 13

Group-C

8. What is Gram Staining? Describe the differences between Gram +ve and Gram -ve Bacteria.
9. Describe the industrial importance of Bacteria. 109
10. "Viruses are Biological Enigma". Explain giving nature and properties of viruses. 107

BOTANY - 1 (Hons.) (2020)

1. Explain the following :
 (a) Structure of Anabaena 58
 (b) Economic Importance of Algae 54
 (c) Teleutospore of Puccinia 16
 (d) Mycotoxin 91
 (e) Cyanobacteria (ultra structure) 119

Group-A

2. Describe the range of thallus organisation in algae. 22
3. Describe the life history of Vaucheria. 47
4. Discuss the life cycle of Oedogonium. 29

Group - B

5. Describe the life cycle and its economic importance of Synchronium. 71
6. Outline the classification of fungi put toward by G. C. Ainsworth. 73
7. Write a short notes on any two of the following :
 (a) Disease cycle 94
 (b) Symptoms 67
 (c) Economic importance of Fungi 64

Group - C

8. Describe the ultrastructure of Bacteria and give its economic importance. 96
9. Describe the structure and reproduction of bacteriophage. 107
10. Give in detail about the Genetic recombination in Bacteria. 115



Rekha V.V.I. Questions for 2023 Examination

*Answer of below mentioned V.V.I. questions are present in your
Rekha Examination Guide and Guess Part-I Botany-2*

1. Give an account of the following :
 - (i) Antheridiophore of Marchantia 7
 - (ii) Equisetum Strobilus 7
 - (iii) Spike of Ophioglossum 8
 - (iv) Sporophyte of Polytrichum 8
 - (v) Salient features of Archegoniophore of Marchantia 9
 - (vi) Prothallus of Psilotum **V.V.I.** 10
 - (vii) Elaters of Bryophytes 11
 - (viii) Gemma cup of Marchantia **V.V.I.** 11
 - (ix) Thallus of Anthoceros **V.V.I.** 12
 - (x) Rhizome of Ophioglossum **V.V.I.** 13
 - (xi) Heterospory 14
 - (xii) Protostele **V.V.I.** 15
 - (xiii) Types of Siphonostele or Medullated Protostele 16
 - (xiv) Stem anatomy of Lycopodium **V.V.I.** 17
 - (xv) Sporangia of Rhynia 18
 - (xvi) L. S. Capsule of Sphagnum 18
 - (xvii) Economic importance of Sphagnum **V.V.I.** 19
 - (xviii) Cone of Calamites 20
 - (xix) Protocorm 21
 - (xx) Sporangia of Selaginella 21

GROUP-A (Bryophyta)

1. Give a brief account of the general characters of Bryophytes. 23
2. Write an essay on the vegetative propagation in Bryophytes.
Or, Describe the various methods of vegetative reproduction in Bryophytes. 24
3. Write an illustrated account of the progressive sterilization of sporogenous tissue among the bryophytes studied by you. 26
4. Give an illustrated account of the evolution of gametophytes in Bryophytes.
Or, Describe the progressive evolution of gametophytes thalli in Bryophytes with suitable examples. **V.V.I.** 28
5. Describe briefly the structure and development of the sporophyte of Marchantia, and add a brief note that how the young gametophyte develops from the sporophyte. **V.V.I.**
Or, Describe the post fertilization stages in Marchantia. 31
6. Give a comparative account of thallus structure of Marchantia and Anthoceros. **V.V.I.** 34

7. With the help of labelled diagrams explain the structure of sporophyte of Anthoceros. 35
8. Describe the salient features of Anthoceros. Mention the biological significance of the sporophyte of the same. 37
9. Give an account of the salient features of Sphagnum and its affinities. **V.V.I.** 40
10. Describe the structure of sporophyte of Polytrichum. **V.V.I.** 43
11. Describe the structural organisation of Polytrichum capsule and its mechanism of spore dispersal. 45
12. Write short notes on the following :
 - (i) Conducting tissue in Bryophytes 47
 - (ii) Alternation of generations in Bryophytes 47
 - (iii) Peristome in Bryophytes **V.V.I.** 48
 - (iv) Thallus of Marchantia 48
 - (v) Salient features of Polytrichum **V.V.I.** 49
 - (vi) Economic importance of Bryophytes 50
 - (vii) Leaf of Sphagnum **V.V.I.** 50
 - (viii) Anatomical features of the thallus of Marchantia. 51

GROUP–B (Pteridophytes)

1. Define the term 'stele'. Give an illustrated account of various types of steles met within pteridophyte in an evolutionary sequence.
Or, Describe the structure of different types of steles in Lycopodium. 52
2. Describe the modes of alternation of generation in Pteridophyte. 54
3. What do you mean by 'Telome theory'? Illustrate the concept with appropriate diagrams.
Or, Write an essay on the Telome theory in Pteridophytes. 56
4. What is heterospory? What role it has played in the evolution of seed habit. 59
5. Describe the life cycle of Psilotum.
Or, Describe briefly the life cycle of any homosporous pteridophyte studied by you. **V.V.I.** 62
6. Give an account of the salient features of Psilotum, emphasising its primitive features. 66
7. Describe briefly the systematic position and salient features of morphology and anatomy of Lycopodium. Add a brief note on its distribution. 67
8. Give an illustrated account of the life history of Equisetum.
Or, Give the structure and development of gametophyte of Equisetum. 70

9. Draw a well labelled diagram of internal structure of Equisetum stem and mention its salient features. **V.V.I.** 74
10. Give a brief and illustrated account of the systematic position, habit, morphology and anatomy of Equisetum. 77
11. Describe briefly the systematic position and salient features of morphology and anatomy of Ophioglossum. **V.V.I.** 80
12. Describe the morphological nature of the spike of Ophioglossum. 84
13. Describe briefly the systematic position and salient features of morphology and anatomy (reproductive part) of Rhynia. **V.V.I.** 85
14. Describe the stem structure and reproduction of Rhynia. 88
15. Give an account of different types of strobili found in Calamites.
Or, Give a comprehensive account of common cone general of Calamites. V.V.I. 90
16. Write critical notes on the following :
 - (i) Sporangiphore of Equisetum **V.V.I.** 93
 - (ii) Strobilus of Selaginella **V.V.I.** 93
 - (iii) Telome Theory 94
 - (iv) Sporangia of Rhynia 94
 - (v) Difference between Eusporangiate and Leptosporangiate 95
 - (vi) Types of Protostele **V.V.I.** 95
 - (vii) Homologous Theory **V.V.I.** 96

BOTANY - 2 (Hons.) (2022)

Answer any five questions, selecting at least one from each group in which Q. No.1 is compulsory.

1. Give an account of any three of the followings :
 - (a) Archeganiophore of Marchantia. 9
 - (b) Types of Siphonostele 16
 - (c) Elaters and Pseudo elaters in Bryophytes. 11
 - (d) Synangium of Psilotum. 62
 - (e) Structure of sporophyte of Rhynia. 18

Group–A

2. Explain various modes of vegetative propagation and modes of perennation in Bryophytes. 24
3. Write an illustrated account of the progressive sterilization of sporogenous tissue among the Bryophytes studied by you. 26
4. Describe the salient features of Anthoceros. Mention the biological significance of the sporophyte of the same. 37

Group–B

5. Write short notes on any two of the followings.
 - (a) Conducting tissues in bryophytes. 47
 - (b) Alternation of generation in Bryophytes. 47
 - (c) Anatomical features of the thallus of Marchantia. 51
 - (d) Mechanism of dehiscence of capsule in Polytrichum. 45
6. What is heterospory ? What role it has played in the evolution of seed habit. 59
7. Define the term stele. Give an illustrated account of various types of stele met within pteridophytes in an evolutionary sequence. 52
8. Describe the structure of different types of mature gametophytes of Lycopodium. 77
9. What do you mean by Telome theory ? Illustrate the concept with appropriate diagram. 56
10. Write short notes on any two of the followings.
 - (a) T.S. of Equisetum stem. 74
 - (b) Important features of Psilotum 66
 - (c) Difference between eusporangiate and Leptosporangiate mode of sporangial development. 95
 - (d) Spike of Ophioglossum 8

BOTANY - 2 (Hons.) (2021)

Answer any five questions, selecting at least one from each group in which Q. No.1 is compulsory.

1. Give an account of any three of the following :
 - (a) Protostale 15
 - (b) Economic importance of Sphagnum 19
 - (c) Mature sporophyte of Marchantia
 - (d) Calamites stem 90
 - (e) Peristome 48

Group-A

2. Describe the progressive evolution of gametophyte in bryophytes with suitable examples and diagrams. 28
3. Describe the structure of sporophyte of Polytrichum. What is the mechanism of dehiscence of its capsule? 43,45
4. What do you understand by alternation of generation? Illustrate it with the life history of sphagnum.
5. Give a comparative account of thallus structure of Marchantia and Anthoceros. 34

Group-B

6. Describe the salient features in the life-history of Psilotum. 62
7. Describe the structure and development of spore producing organs of Ophioglossum.
8. What is a Telome? Explain the steps involved in the origin of Megaphyllous leaves through Telome theory. 56
9. Describe the morphological and anatomical characters of stem of Equisetum. 74
10. Write short notes on any two of the following :
 - (a) Merit and demerit of Telome theory 56
 - (b) Strobilus of Selaginella 93
 - (c) Different types of mature gametophyte of Lycopodium 17
 - (d) T .S. of Selaginella stem .

BOTANY - 2 (Hons.) (2020)

Answer five questions selecting at least one from each
Group in which Q. No.1 is compulsory.

- | | | |
|----|---|---------|
| 1. | Give an account of any three of the following : | 50 |
| | (a) Leaf of Sphagnum | |
| | (b) Sporogonium of Anthoceros | 11 |
| | (c) Elaters and Pseudoelaters | 17 |
| | (d) Gametophyte of Lycopodium | 18 |
| | (e) Structure of Sporophyte of Rhynia | |

Group-A

- | | | |
|----|--|---------|
| 2. | "There has been gradual sterilization of sporogenous tissue in the sporogonium of Bryophytes." Justify with suitable diagrams. | 26 |
| 3. | Give an account of the salient features of Anthoceros and discuss its affinities. | 37 |
| 4. | Describe the structure and development of sporogonium of Marchantia. | 31 |
| 5. | Describe the various methods of vegetative propagation and modes of perennation in Bryophytes. | 24 |

Group-B

- | | | |
|-----|---|------------|
| 6. | Discuss, in detail, the evolution of stele in pteridophyta giving suitable diagrams. | 52 |
| 7. | Give an illustrated account of sporophyte of lycopodium. | |
| 8. | "Heterospory leads to seeds habit." Comment upon the statement critically. | 59 |
| 9. | Draw a labelled diagrams of spore-bearing organs of homosporous and heterosporous pteridophyta studied by you giving their basic differences. | 59,62 |
| 10. | Write critical notes on any two of the following : | 74 |
| | (a) T. S. of Equisetum Stem | 62 |
| | (b) Synangium of Ptilium | 11 |
| | (c) Gemma Cup of Marchantia | |

