Unit :- I

Chapter-3. Classification of Plant Kingdom

IMPORTANT POINTS

Five kingdom classification system was given by Whittaker on the basis of following four criteria :

(i) Cell structure

(ii) Body Structure

(iii) Mode of nutrition - Autotrophic and Heterotrophic

(iv) Major ecological role.

The five kingdoms are Monera, Protista, Fungi, Plantae and Animalia.

The three-domain system is closely based on five-kingdom system.

The Eukarya are then divided into 4 kingdoms :

Protistsa, Fungi, plantae and anamalia.

Viroids were discovered by Diener from infectious agents which are even smaller than viruses. It consists of a very simple structure and short RNA strand viroids lack protective protein coat known as capsid.

Viruses are self reproducing and obligate parasite in living cells : They Viroids remain inactive and behave as non-living things. When they enter inside of the living cells, they are active and behave as living organisms Because of this they are intermediate between living and non-living things. They are also called as living chemical.

Algae, Fungi and **Lichens** are included under thallophyta. The gametophytic plant body is thalloid, without differentiation in to true root, stem and leaves. Zygote does not develop into embryo. Algae have Chlorophylls and they synthesize their one own food so it is Autotrophs, while Fungi are non chlorophylls and they do not Synthesize their own food so it own is called heterotrophs. The lichens, show symbiotic relationship between algae and fungi components.

Bryophytes are non vascular plants. After fertilization Zygote undergoes divisions to form embryo.

The life cycle of bryophytes has two distinct phases.

(1) Gametophytic phases - Haploid, main, autotrophic and gametes formative

(2) Sporophytic phase - Diploid, Subsidiary, heterotrophic, spores formative.

Pteridophytes have vascular tissues, and develop the embryo. The life cycle of pteridophytes shows alternation of generation. Gemetophytic phase is haploid, subsidiary, short lived and Gametes producing while sporophytic phase is diploid, main long lived and spores producing.

Gymnosperm is sporophytic. It is differntiated into root, stem and leaves. Ovules are naked and not enclosed by the ovary therefore recognized as a gymnosperm. The sporophytic and gametophytic phases alternate with each other to complete the life cycle. Gametophytic phase is haploid, subsidiary, short lived and under ground and sporophytic phase is diploid, Main, long and as a whole plant.

Endosperm develops before fertilization, ovules are orthotropous and true fruits are lacking because, of the absence of ovary.

In **angiosperms,** sporophytic plant body is in the form of herbs, shrubs, trees, climbers or lianas. Ovules are enclosed in the ovary therefore, recognized as angiosperms. Endosperm is developed after fertilization. Members of this group show double fertilization. After fertilization ovules are transformed into seeds and ovary into fruit. The plant life cycle shows alternation of generation.

Bentham and Hooker classified the angiosperms into two classes. (1) Dicotyledon and (2) Monocotyledon.

From the given options, select the correct option (a, b, c, d) Each carries one mark.

1. Which of the following is included in five kingdom classification.
   (A) Monera, Protista, Animalia, Plantae, Algae
   (B) Monera, Protista, Fungi, Plantae, Animalia
   (C) Virus, Prokaryota, Fungi, Plantae, Animalia
   (D) Algae, Fungi, Bryophyta, Pteridophyta, Gymnosperm
2. Who is the "Father of Taxonomy" among the following ?
   (A) Linnaeus (B) Aristotle (C) Maheshwari (D) Birbal Sahani
3. Helophiles is also called....
   (A) Eubacteria (B) Actinomycetes (C) Cynobacteria
   (D) Archae bacteria
4. According to Whittaker's classification, prokaryotes are placed in _____
   (A) Monera (B) Plantae (C) Protista (D) Animalia
5. Example of blue green algae is in _____ .
   (A) Fungi (B) Monera (C) Protista (C) Plantae
6. By how many criteria, living organisms have been classified into five kingdom.
   (A) Two (B) Four (C) Five (D) Three
7. In which of the following kingdoms, bacteria and blue-green algae are included ?
   (A) Monera (B) Plantae (C) Animalia (D) Protista
8. Prokaryotes are included in the kingdom _____ .
   (A) Monera (B) Protista (C) Protozoa (D) Basidiomycetes
9. Which one of the following is also called halophiles ?
   (A) Eubacteria (B) Actinomyces (C) Cyanobacteria (D) Archaebacteria
10. Match the following.

A	B
(p) Archaea	(i) Cell wall is made up of either cellulose or Fungal-cellulose
(q) Bacteria	(ii) Cell wall does not contain peptidoglycan
(r) Eukarya	(iii) Cell wall is made up of peptidoglycan.

   (A) p - (iii), q - (i), r - (ii) (B) p - (i), q - (ii), r - (iii)
   (C) p - (ii), q - (i), r - (iii) (D) p - (ii), q - (iii), r - (i)

11. Viroids were discovered by .....
(A) Diener (B) Woese (C) Pasteur (D) Iyengar

12. Viroid consists of.....
(A) DNA (B) RNA (C) Protein (D) none of above

13. Which of the following diseases is caused by viroid ?
(A) Polio (B) Diphtheria (C) Alzheimers (D) Typhoid

14. The name virus was given by _____ .
(A) Ivanowsky (B) Pasteur (C) Diener (D) Hershey

15. Virus have ....
(A) DNA core, Lipid coat (B) DNA or RNA core, Protein coat
(C) DNA or RNA core, plasma membrane (D) DNA containing nucleus, lipid envelope

16. A virus contains _____ .
(A) DNA (B) RNA (C) DNA or RNA (D) DNA and RNA

17. TMV virus was discovered by _____ .
(A) Pasteur (B) S. L. Miller (C) Ivanowsky (D) W. M. Stanley

18. The main structural component of virus is _____ .
(A) nucleic acid (B) Protein
(C) nucleic acid and protein (D) nucleic acid or protein

19. The first existing group of plant is _____ .
(A) Fungi (B) Alage (C) Lichens (D) Pteridophytes

20. Match the following :

A	B
(p) Chlamydomonas	(i) Colonial Forms
(q) Volvox	(ii) Unicellular
(r) Ulothrix	(iii) Filamentous forms
(s) Nostoc	(iv) Cyanophyceae

(A) p - (i), q - (ii), r - (iii), s-(iv) (B) p - (ii), q - (iii), r - (i), s-(iv)
(C) p - (iii), q - (i), r - (iv), s-(ii) (D) p - (ii), q - (i), r - (iii), s-(iv)

21. The study of algae is called _____ .
(A) Mycology (B) Algology (C) Taxonomy (D) Lichenology

22. Unicellular eukaryotic microorganisms comprise _____ .
(A) Fungi (B) Monera (C) Plants (D) Protista

23. Protista include :
(A) Paramecium, Euglena, Dinoflagellates (B) Hydra, Amoeba, Paramoecium
(C) Yeast, Euglena, Dinoflagellates (D) Mushroom, Paramoecium, Euglena.

24. The study of fungi is _____ .
(A) Cytology (B) Mycology (D) Virology (D) Algology

25. Fungus cell wall is made up of _____ .
(A) Cellulose (B) Protein (C) Chitin (D) Carbohydrates

26. In Fungi reserved food materials are _____ .
(A) Glycogen and Lipid droplets (B) Starch
(C) Protein (D) Lipid

27. Match the following :

A	B
(p) Yeast	(i) Bread mould
(q) Mucor	(ii) Mushroom
(r) Agaricus	(iii) Unicelluar

(A) p - (ii), q - (i), r - (iii) (B) p - (i), q - (ii), r - (iii)
(C) p - (iii), q - (i), r - (ii) (D) p - (iii), q - (ii), r - (i)

28. Study of lichens is called _____ .
(A) Algology (B) Mycology (C) Lichenology (D) Cytology

29. Lichens were first discovered by _____ .
(A) Iyengar (B) Tulsane (C) Pasteur (D) Shiv Ram Kashyap

30. In lichens Algal component is known as _____ .
(A) mycobiont (B) Phycobiont (C) A & B (D) none of these

31. In lichens fungal component is known as _____ .
(A) mycobiont (B) phycobiont (C) A & B (D) none of these

32. The plant cell without chloroplast is _____ .
(A) Algue (B) Fungi (C) Bryophytes (D) pteridophytes

33. The shape of Fruting body of lichens is _____ .
(A) apothecium - flask shaped (B) perithecium - cup shaped
(C) perithecium - flask shaped (D) apothecium - Disc chaped

34. On the basis of external form lichen are _____ .
(A) Crustose (B) Foliose (C) Fruticose (D) All of the three

35. "Fruting body" is characteristic of _____ .
(A) Algae (B) Lichens (C) Bryophytes (D) Pteridophytes

36. Symbiotic relationship is found in _____ .
(A) Algae (B) Fungi (C) Bryophytes (D) Lichens

37. Plant of this group possess naked seed
(A) Pteridophytes (B) Angiosperms (C) Gymnosperms (D) Bryophytes

38. The father of Indian Bryology is _____ .
(A) Tulsane (B) Professor Iyengar
(C) Ivanowsky (D) Pro. Shiv Ram Kashyap

39. Rothmelur has diveded the Bryophytes into _____ .
(A) 3 classes (B) 4 classes (C) 5 classes (D) 6 classes

40. Which sentence is true for Bryophytes ?
(A) They are autotropic
(B) Vascular tissues are absent
(C) Fertilization takes plasce in the presence of water
(D) All of the three

41. In which plant, gametophytic phase is main and sporophytic phase is subsidiary.
(A) Bryophytes (B) Pteridophytes (C) Gymnosperms (D) Angiosperms

42. The first land plant on earth was _____ .
(A) Bryophytes (B) Pteridophytes (C) Gymnosperms (D) Angiosperms

43. Match the following :

A	B
(p) Nephrolepis	(i) heterosporous
(q) Equisetum	(ii) Fossil
(r) Selaginella	(iii) homosporous
(s) Rhynia	(iv) Common

(A) p - (iv), q - (iii), r - (i), s -(ii) (B) p - (iv), q - (iii), r - (ii), s - (i)
(C) p - (iv), q - (ii), r - (iii), s - (i) (D) p - (iv), q - (i), r - (ii), s - (iii)

44. In which plant, the gametophytic phase is main and sporophytic phase is subsidiary.
(A) Nephrolepis (B) Selaginella (C) Anthoceros (D) Equisetum

45. The tallest living tree in the world is _____ .
(A) Zamia sp. (B) Eucalyptus sp. (C) Wolffia sp. (D) Sequoia sp.

46. The smallest gymnosperm is _____ .
(A) Zamia sp. (B) Eucalyptus (C) Wolfia sp. (D) Sequoia sp.

47. Xerophytic Characters are present in _____ .
(A) Bryophytes (B) Pteridophytes (C) Gymnosperms (D) Angiosperms

48. Microsporophyll : Stamen then Megasporophyll : _____ .
(A) anther (B) gynoecium (C) Pollen grains (D) ovule

49. Match the following :

A	B
(p) Microsporophyll	(i) Pollen grain
(q) Microsporangium	(ii) Stemen
(r) microspores	(iii) anther
(s) megasporophyll	(iv) gynoecium

(A) p - (iv), q - (iii), r - (i), s - (ii) (B) p - (ii), q - (i), r - (iii), s - (iv)
(C) p - (iii), q - (ii), r - (i), s - (iv) (D) p - (ii), q - (iii), r - (i), s - (iv)

50. Which is the Fossil member ?
(A) Cycas (B) Bennettites (C) Thuja (D) Pinus

51. The biggest and dominant group is _____ .
(A) Bryophytes (B) Pteridophytes (C) Gymnosperms (D) Angiosperms

52. Match the following :

A	B
(p) Wolffia globosa	(i) largest plant
(q) Eucalyptus sp	(ii) largest flower
(r) Rafflesia arnoldii	(iii) smallest plant
(s) Agave sp.	(iv) largest infloresence

(A) p - (i), q - (ii), r - (iii), s - (iv) (B) p - (iii), q - (ii), r - (i), s - (iv)
(C) p - (iii), q - (i), r - (iv), s - (ii) (D) p - (iii), q - (i), r - (ii), s - (iv)

53. Pre-fertilized endosperm is characteristic of _____ .
(A) Pteridophytes (B) Angiosperms (C) Gymnosperms (D) Bryophytes

54. Class dicotyledon is dived into _____ .
(A) 7 sub classes (B) 5 sub classes (C) 3 sub classes (D) 2 sub classes.

55. Who classified the Angiosperms into two classes ?
(A) Theophratus (B) Bentham and Hooker
(C) Aristotle (D) Linnaeus

56. Presence of rigid cell wall is characterized by kingdom _____ .
(A) Protista (B) Plantae (C) Monera (D) Animalia

57. The tallest living tree of a Angioperm is _____ .
(A) Wolffia sp. (B) Zamia sp. (C) Eucalyptus sp. (D) Sequoia sp.

58. If the seeds are formed from the megasporophylls and not enclosed in a fruits the plant belongs to _____ .
(A) Pteridophytes (B) Bryophytes (C) Angiosperms (D) Gymnosperms

59. Embryo is not formed in _____ .
(A) Bryophytes (B) Algae (C) Gymnosperms (D) Pteriodophytes

60. Which classification system had been given by Whittaker ?
(A) Three domain classification (B) Binomial classification
(C) Five kingdom classification (D) Artificial classification

61. A = Lichens show symbiotic relationship between algae and fungi.
R = Algae absorb water and mineral nutrients from environment and provides to fungi. While fungi synthesize food by the process of photo synthesis and provide to algae.
(A) Both (A) and (R) true and (R) is the correct explanation of (A)
(B) Both (A) and (R) are true but (R) is not the correct explanation of (A)
(C) (A) is true statement but (R) is false
(D) A is false and R is true.

ANSWER KEY

1. (B)	2. (A)	3. (D)	4. (A)
5. (B)	6. (B)	7. (A)	8. (A)
9. (D)	10. (D)	11. (A)	12. (B)
13. (C)	14. (B)	15. (B)	16. (C)
17. (C)	18. (C)	19. (B)	20. (D)
21. (B)	22. (C)	23. (A)	24. (B)
25. (C)	26. (A)	27. (C)	28. (C)
29. (B)	30. (B)	31. (A)	32. (B)
33. (C)	34. (D)	35. (B)	36. (D)
37. (C)	38. (D)	39. (A)	40. (D)
41. (A)	42. (B)	43. (A)	44. (C)
45. (D)	46. (A)	47. (C)	48. (B)
49. (D)	50. (B)	51. (D)	52. (D)
53. (C)	54. (C)	55. (B)	56. (C)
57. (D)	58. (D)	59. (B)	60. (C)
61. (C)			

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