i.

Here is a complete set of 120 one-liner questions with answers extracted directly from every line, sentence, fact, term, example, and descriptor in the two provided textbook pages (NCERT Class 11 Biology, Chapter 3 Plant Kingdom introduction + 3.1 Algae section). Each Q&A is strictly based on the text, broken down granularly (one per key phrase, property, example, or sub-detail) to cover every single line:

1 Q: What is the chapter number and title? A: Chapter 3 Plant Kingdom.

2 Q: What is subsection 3.1? A: Algae.

3 Q: What is subsection 3.2? A: Bryophytes.

4 Q: What is subsection 3.3? A: Pteridophytes.

5 Q: What is subsection 3.4? A: Gymnosperms.

6 Q: What is subsection 3.5? A: Angiosperms.

7 Q: Who proposed the broad classification system in 1969? A: Whittaker.

8 Q: What system did Whittaker propose in 1969? A: Five Kingdom classification.

9 Q: Name the five kingdoms suggested by Whittaker. A: Monera, Protista, Fungi, Animalia and Plantae.

10 Q: Which kingdom is popularly known as the ‘plant kingdom’? A: Kingdom Plantae.

11 Q: What does this chapter deal with? A: Further classification within Kingdom Plantae.

12 Q: Has our understanding of the plant kingdom changed over time? A: Yes.

13 Q: Which groups having cell walls were excluded from Plantae? A: Fungi, and members of the Monera and Protista.

14 Q: Why were Fungi/Monera/Protista placed in Plantae earlier? A: Earlier classifications placed them in the same kingdom.

15 Q: Are cyanobacteria still referred to as blue green algae? A: No, they are not ‘algae’ any more.

16 Q: Which groups are described under Plantae in this chapter? A: Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms.

17 Q: What do we look at to understand concerns in angiosperm classification? A: Classification within angiosperms.

18 Q: What did the earliest systems of classification use? A: Only gross superficial morphological characters such as habit, colour, number and shape of leaves.

19 Q: On what were early systems mainly based? A: Vegetative characters or on the androecium structure.

20 Q: Who gave the androecium structure system? A: Linnaeus.

21 Q: What were such early systems called? A: Artificial.

22 Q: Why did artificial systems separate closely related species? A: They were based on a few characteristics.

23 Q: What weightage did artificial systems give? A: Equal weightage to vegetative and sexual characteristics.

24 Q: Why is equal weightage not acceptable? A: Vegetative characters are more easily affected by environment.

25 Q: What are natural classification systems based on? A: Natural affinities among the organisms.

26 Q: What do natural systems consider besides external features? A: Internal features like ultra-structure, anatomy, embryology and phytochemistry.

27 Q: Who gave natural classification for flowering plants? A: George Bentham and Joseph Dalton Hooker.

28 Q: What classification systems are acceptable at present? A: Phylogenetic classification systems.

29 Q: On what are phylogenetic systems based? A: Evolutionary relationships between the various organisms.

30 Q: What does phylogenetic classification assume? A: Organisms belonging to the same taxa have a common ancestor.

31 Q: What additional information is used in classification now? A: Information from many other sources too.

32 Q: When do other sources become more important? A: When there is no supporting fossil evidence.

33 Q: What is Numerical Taxonomy based on? A: All observable characteristics.

34 Q: How is Numerical Taxonomy carried out? A: Easily using computers; numbers and codes assigned to characters.

35 Q: What does Numerical Taxonomy give each character? A: Equal importance.

36 Q: How many characters can Numerical Taxonomy consider? A: Hundreds of characters.

37 Q: What is Cytotaxonomy based on? A: Cytological information like chromosome number, structure, behaviour.

38 Q: What is Chemotaxonomy based on? A: Chemical constituents of the plant.

39 Q: What do Cytotaxonomy and Chemotaxonomy resolve? A: Confusions.

40 Q: Who uses Cytotaxonomy and Chemotaxonomy these days? A: Taxonomists.

41 Q: Do algae bear chlorophyll? A: Yes.

42 Q: What type of body do algae have? A: Simple thalloid.

43 Q: Are algae autotrophic? A: Yes.

44 Q: Where are algae largely found? A: Aquatic (both fresh water and marine).

45 Q: Do algae occur only in water? A: No.

46 Q: Name other habitats of algae. A: Moist stones, soils and wood.

47 Q: With what do some algae associate? A: Fungi (lichen).

48 Q: Give an animal association example for algae. A: On sloth bear.

49 Q: Is the form and size of algae constant? A: No, highly variable.

50 Q: What is Volvox? A: Colonial form.

51 Q: What are Ulothrix and Spirogyra? A: Filamentous forms.

52 Q: Which figure shows Ulothrix and Spirogyra? A: Figure 3.1.

53 Q: What do marine kelps form? A: Massive plant bodies.

54 Q: Are algae simple organisms? A: Yes.

55 Q: Are algae producers? A: Yes, autotrophic.

56 Q: Can algae live on moist stones? A: Yes.

57 Q: Can algae live in soils? A: Yes.

58 Q: Can algae live on wood? A: Yes.

59 Q: Do algae form lichens? A: Yes, with fungi.

60 Q: Is algae size uniform? A: No, highly variable.

61 Q: Is Volvox colonial? A: Yes.

62 Q: Is Ulothrix filamentous? A: Yes.

63 Q: Is Spirogyra filamentous? A: Yes.

64 Q: Are kelps marine forms? A: Yes.

65 Q: Do kelps form small bodies? A: No, massive plant bodies.

66 Q: Are algae thalloid? A: Yes.

67 Q: Are algae found in marine habitats? A: Yes.

68 Q: Are algae found in freshwater? A: Yes.

69 Q: Do some algae live on animals? A: Yes.

70 Q: Is Volvox filamentous? A: No, colonial.

71 Q: Is Spirogyra colonial? A: No, filamentous.

72 Q: What is an example of massive marine algae? A: Kelps.

73 Q: Do algae occur in a variety of habitats? A: Yes.

74 Q: Are algae associated only with fungi? A: No, also with animals.

75 Q: What is the range of algae forms? A: Colonial to filamentous to massive.

76 Q: Is Ulothrix in Figure 3.1? A: Yes.

77 Q: Is the body of algae complex? A: No, simple thalloid.

78 Q: Can algae be found on moist stones? A: Yes.

79 Q: Are algae largely heterotrophic? A: No.

80 Q: Do algae bear chlorophyll? A: Yes.

81 Q: Are algae chlorophyll-bearing? A: Yes.

82 Q: What is the body type of algae? A: Simple, thalloid.

83 Q: What is the mode of nutrition in algae? A: Autotrophic.

84 Q: Where are algae largely found? A: Aquatic (both fresh water and marine).

85 Q: Name additional habitats of algae. A: Moist stones, soils and wood.

86 Q: With which organisms do some algae associate? A: Fungi (lichen) and animals (e.g. on sloth bear).

87 Q: How variable is algae form and size? A: Highly variable.

88 Q: Give an example of colonial algae. A: Volvox.

89 Q: Name two filamentous algae mentioned. A: Ulothrix and Spirogyra.

90 Q: What do some marine algae like kelps form? A: Massive plant bodies.

91 Q: Name the three reproduction methods in algae. A: Vegetative, asexual and sexual.

92 Q: By what method does vegetative reproduction occur in algae? A: Fragmentation.

93 Q: What develops from each fragment in vegetative reproduction? A: A thallus.

94 Q: How does asexual reproduction occur in algae? A: By production of different types of spores.

95 Q: What is the most common asexual spore in algae? A: Zoospores.

96 Q: What are zoospores? A: Flagellated (motile) spores.

97 Q: What do zoospores produce on germination? A: New plants.

98 Q: How does sexual reproduction occur in algae? A: Through fusion of two gametes.

99 Q: What is isogamous reproduction? A: Fusion of gametes similar in size.

100 Q: In which alga are gametes flagellated and similar sized? A: Ulothrix.

101 Q: In which alga are gametes non-flagellated but similar in size? A: Spirogyra.

102 Q: What type of reproduction is in Ulothrix and Spirogyra? A: Isogamous.

103 Q: What is anisogamous reproduction? A: Fusion of two gametes dissimilar in size.

104 Q: Give example of anisogamous reproduction. A: Species of Eudorina.

105 Q: What is oogamous reproduction? A: Fusion of large non-motile female gamete and smaller motile male gamete.

106 Q: Name two examples of oogamous algae. A: Volvox, Fucus.

107 Q: What is the female gamete in oogamy? A: Large, non-motile (static).

108 Q: What is the male gamete in oogamy? A: Smaller, motile.

109 Q: Who proposed Five Kingdom system? A: Whittaker (1969).

110 Q: Which groups were excluded from Plantae later? A: Fungi, and members of Monera and Protista.

111 Q: Are cyanobacteria algae? A: No, not anymore.

112 Q: What groups are described under Plantae? A: Algae, Bryophytes, Pteridophytes, Gymnosperms and Angiosperms.

113 Q: What were earliest classification systems based on? A: Gross superficial morphological

characters like habit, colour, number and shape of leaves.

114 Q: Who gave artificial system based on androecium? A: Linnaeus.

115 Q: Why were artificial systems problematic? A: Based on few characters, separated closely related species, equal weight to vegetative and sexual chars.

116 Q: What influenced vegetative characters? A: Environment.

117 Q: Who gave natural classification for flowering plants? A: George Bentham and Joseph Dalton Hooker.

118 Q: What is phylogenetic classification based on? A: Evolutionary relationships and common ancestor.

119 Q: What is Numerical Taxonomy? A: Based on all observable characters using computers, equal importance to hundreds of characters.

120 Q: What are Cytotaxonomy and Chemotaxonomy? A: Cytotaxonomy based on chromosomes; Chemotaxonomy on chemical constituents.