BOTANY

11 BIOLOGY

11th Standard

Biology

100 x 1 = 100

1) Which one of the following statement about virus is correct?

(a) Possess their own metabolic system (b) They are facultative parasites

(c) They contain DNA or RNA (d) Enzymes are present

2) Identify the incorrect statement about the Gram positive bacteria _____

(a) Teichoic acid absent (b) High percentage of peptidoglycan is found in cell wall

(c) Cell wall is single layered (d) Lipopolysaccharide is present in cell wall

3) Identify the Archaebacterium _____

(a) Acetobacter (b) Erwinia (c) Treponema (d) Methanobacterium

4) The correct statement regarding Blue green algae is _____

(a) lack of motile structures (b) presence of cellulose in cell wall

(c) absence of mucilage around the thallus (d) presence of floridean starch

5) Identify the correctly matched pair

(a) Actinomycete - Late blight (b) Mycoplasma - Lumpy jaw (c) Bacteria - Crown gall

(d) Fungi - Sandal spike

6) Which of the plant group has gametophyte as a dominant phase?

(a) Pteridophytes (b) Bryophytes (c) Gymnosperm (d) Angiosperm

7) Which of following represents gametophytic generation in pteridophytes?

(a) Prothallus (b) Thallus (c) Cone (d) Rhizophore

8) The haploid number of chromosome for an Angiosperm is 14, the number of chromosome in its endosperm would be _____

(a) 7 (b) 14 (c) 42 (d) 28

9) Endosperm in Gymnosperm is formed _____

(a) At the time of fertilization (b) Before fertilization (c) After fertilization

(d) Along with the development of embryo

10) Roots are

(a) Descending, negatively geotrophic, positively phototropic

(b) Descending, positively geotrophic, negatively phototrophic

(c) Ascending, positively geotrophic, negatively phototrophic

(d) Ascending, negatively geotrophic, positively phototrophic

11) Bryophyllum & Dioscorea are example for

(a) Foliar bud, apical bud (b) Foliar bud, cauline bud (c) Cauline bud, apical bud

(d) Cauline bud, foliar bud

12) Which of the following is polycarpic plant?

(a) Mangifera (b) Bambusa (c) Musa (d) Agave

13) Which of the following is correct statement?

(a) In Pisum sativum leaflets modified into tendrils

(b) In Atalantia terminal bud is modified into thorns

(c) In Nepenthes midrib is modified into lid

(d) In Smilax inflorescene axis is modified into tendrils

14) Select the mismatch pair

(a) Musa - Unicostate (b) Lablab - Trifoliolate (c) Acalypha - Leaf mosaic

(d) Allamanda - Ternate phyllotaxy

15) Vexillary aestivation is characteristic of the family

(a) Fabaceae (b) Asteraceae (c) Solanaceae (d) Brassicaceae

16) Gynoecium with united carpels is termed as

(a) Apocarpous (b) Multicarpellary (c) Syncarpous (d) None of the above

17) Aggregate fruit develops from

(a) Multicarpellary, apocarpous ovary (b) Multicarpellary, syncarpous ovary

(c) Multicarpellary ovary (d) Whole inflorescence

18) In an inflorescence where flowers are borne laterally in an acropetal succession the position of the youngest floral bud shall be

(a) Proximal (b) Distal (c) Intercalary (d) Anywhere

19) A true fruit is the one where

(a) Only ovary of the flower develops into fruit

(b) Ovary and calyx of the flower develops into flower

(c) Ovary, calyx and thalamus of the flower develops into fruit

(d) All floral whorls of the flower develops into fruit

20) Phylogenetic classification is the most favoured classification because it reflects

(a) Comparative Anatomy (b) Number of flowers produced (c) Comparative cytology

(d) Evolutionary relationships

21) The taxonomy which involves the similarities & dissimilarities among the immune system of different taxa is termed as

(a) Chemotaxonomy (b) Molecular systematics (c) Serotaxonomy

(d) Numerical taxonomy

22) Which of the following is a flowering plant with nodules containing filamentous nitrogen fixing micro - organisms?

(a) Crotalaria juncea (b) Cycas revoluta (c) Cicer arietinum

(d) Casuarina equisetifolia

23) Flowers are zygomorphic in

(a) Ceropegia (b) Thevetia (c) Datura (d) Solanum

24) The two subunit of ribosomes remain united at critical ion level of

(a) Magnesium (b) Calcium (c) Sodium (d) Ferrous

25) Sequences of which of the following is used to know the phylogeny.

(a) mRNA (b) rRNA (c) tRNA (d) HnRNA

26) Many cells function properly and divide mitotically even though they do not have.

(a) plasma membrane (b) cytoskeleton (c) mitochondria (d) plastids

27) Keeping in view the fluid mosaic model for the structure of cell membrane which one of the following statements is correct with respect to the movement of lipids and proteins from one lipid monolayer to the other?

(a) Neither lipid nor proteins can flip-flop (b) Both lipid and proteins can flip flop

(c) While lipids can rarely flip-flop proteins cannot

(d) While proteins can flip-flop lipids cannot

28) Match the columns and identify the correct option:

	Column I		**Column II**
A	Thylakoids	1.	Disc-shaped sacs in Golgi apparatus
B.	Cristae	2.	Condensed structure of DNA
C.	Cisternae	3.	Flat membranous sacs in stroma
D	Chromatin	4.	Infoldings in mitochondria

(a)

A	B	C	D
3	4	2	1

(b)

A	B	C	D
4	3	1	2

(c)

A	B	C	D
3	4	1	2

(d)

A	B	C	D
3	1	4	2

29) The correct sequence in cell cycle is

(a) S-M-G1-G2 (b) S-G1-G2-M (c) G1-S-G2-M (d) M-G-G2-S

30) If mitotic division is restricted in G_1 phase of the cell cycle then the condition is known as

(a) S Phase (b) G_2 Phase (c) M Phase (d) G_o Phase

31) Anaphase promoting complex (APC) is a protein degradation machinery necessary for proper mitosis of animal cells. If APC is defective in human cell, which of the following is expected to occur?

(a) Chromosomes will be fragmented (b) Chromosomes will not condense

(c) Chromosomes will not segregate (d) Recombination of Chromosomes will occur

32) In S phase of the cell cycle

(a) Amount of DNA doubles in each cell (b) Amount of DNA remain same in each cell

(c) Chromosome number is increased

(d) Amount of DNA is reduced to half in each cell

33) Centromere is required for

(a) transcription (b) crossing over (c) cytoplasmic cleavage

(d) movement of chromosome towards pole

34) Synapsis occur between

(a) mRNA and ribososmes (b) spindle fibres and centromeres

(c) two homologous Chromosomes (d) a male and a female gamete

35) In meiosis crossing over is initiated at

(a) Zygotene (b) Diplotene (c) Pachytene (d) Leptotene

36) Colchicine prevents the mitosis of the cells at which of the following stage

(a) Anaphase (b) Metaphase (c) Prophase (d) Interphase

37) The paring of homologous Chromosomes in meiosis is known as

(a) Bivalent (b) Synapsis (c) Disjunction (d) Synergids

38) The most basic amino acid is

(a) Arginine (b) Histidine (c) Glycine (d) Glutamine

39) An example of feedback inhibition is

(a) Cyanide action on cytochrome (b) Sulpha drug on folic acid synthesiser bacteria

(c) Allosteric inhibition of hexokinase by glucose-6-phosphate

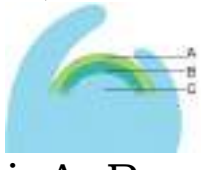
(d) The inhibition of succinic dehydrogenase by malonate

40) Proteins perform many physiological functions. For example some functions as enzymes. One of the following represents an additional function that some proteins discharge:

(a) Antibiotics (b) Pigment conferring colour to skin

(c) Pigments making colours of flowers (d) Hormones

41) Refer to the given figure and select the correct statement.



i. A, B, and C are histogen of shoot apex
ii. A Gives rise to medullary rays.
iii. B Gives rise to cortex
iv. C Gives rise to epidermis

(a) i and ii only (b) ii and iii only (c) i and iii only (d) iii and iv only

42) Read the following sentences and identify the correctly matched sentences.
i. In exarch condition, the protoxylem lies outside of metaxylem.
ii. In endarch condition, the protoxylem lies towords the centre.
iii. In centarch condition, metaxylem lies in the middle of the protoxylem.
iv. In mesarch condition, protoxylem lies in the middle of the metaxylem.

(a) i, ii and iii only (b) ii, iii and iv only (c) i, ii and iv only (d) All of these

43) In Gymnosperms, the activity of sieve cells are controlled by

(a) Nearby sieve tube members (b) Phloem parenchyma cells

(c) Nucleus of companion cells (d) Nucleus of albuminous cells

44) When a leaf trace extends from a vascular bundle in a dicot stem, what would be the arrangement of vascular tissues in the veins of the leaf?

(a) Xylem would be on top and the phloem on the bottom

(b) Phloem would be on top and the xylem on the bottom

(c) Xylem would encircle the phloem (d) Phloem would encircle the xylem

45) Grafting is successful in dicots but not in monocots because the dicots have

(a) Vascular bundles arranged in a ring (b) Cambium for secondary growth

(c) Vessels with elements arranged end to end (d) Cork cambium

46) Consider the following statements:
In spring season vascular cambium
i. Is less active
ii. Produces a large number of xylary elements
iii. Forms vessels with wide cavities of these,

(a) (i) is correct but (ii) and (iii) are not correct

(b) (i) is not correct but (ii) and (iii) are correct

(c) (i) and (ii) are correct but (iii) is not correct

(d) (i) and (ii) are not correct but (iii) is correct.

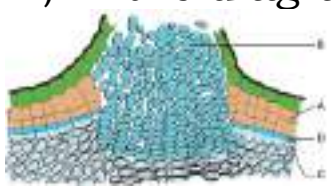
47) Usually, the monocotyledons do not increase their girth, because

(a) They possess actively dividing cambium

(b) They do not possess actively dividing cambium (c) Ceases activity of cambium

(d) All are correct

48) In the diagram of lenticel identify the parts marked as A, B, C, D



(a) A. phellem, B. Complementary tissue, C. Phelloderm, D. Phellogen.
(b) A. Complementary tissue, B. Phellem, C. Phellogen,D. Phelloderm.
(c) A. Phellogen, B. Phellem, C. Phelloderm, D. complementary tissue
(d) A. Phelloderm, B. Phellem, C. Complementary tissue, D. Phellogen

49) The common bottle cork is a product of

(a) Phellem (b) Phellogen (c) Xylem (d) Vascular cambium

50) What is the fate of primary xylem in a dicot stem showing extensive secondary growth?

(a) It is retained in the centre of the axis (b) It gets crushed
(c) May or may not get crushed (d) It gets surrounded by primary phloem

51) In a fully turgid cell

(a) DPD = 10 atm; OP = 5 atm; TP = 10 atm
(b) DPD = 0 atm; OP = 10 atm; TP = 10 atm
(c) DPD = 0 atm; OP = 5 atm; TP = 10 atm
(d) DPD = 20 atm; OP = 20 atm; TP = 10 atm

52) Which among the following is correct?
i. Apoplast is fastest and operate in nonliving part.
ii. Transmembrane route includes vacuole.
iii. Symplast interconnect the nearby cell through plasmadesmata.
iv. Symplast and transmembrane route are in living part of the cell

(a) i and ii (b) ii and iii (c) iii and iv (d) i, ii, iii, iv

53) What type of transpiration is possible in the xerophyte Opuntia?

(a) Stomatal (b) Lenticular (c) Cuticular (d) All the above

54) Stomata of a plant open due to

(a) Influx of K^+ (b) Efflux of K^+ (c) Influx of Cl^- (d) Influx of OH^-

55) Munch hypothesis is based on

(a) Translocation of food due to TP gradient and imbibition force
(b) Translocation of food due to TP (c) Translocation of food due to imbibition force
(d) None of the above

56) Identify correct match.

1. Die back disease of citrus	(i) Mo
2. Whip tail disease	(ii) Zn
3. Brown heart of turnip	(iii) Cu
4. Little leaf	(iv) B

(a) 1(iii) 2 (ii) 3 (iv) 4 (i) (b) 1 (iii) 2 (i) 3 (iv) 4 (ii) (c) 1 (i) 2 (iii) 3 (ii) 4 (iv)
(d) 1 (iii) 2 (iv) 3 (ii) 4 (i)

57) If a plant is provided with all mineral nutrients but, Mn concentration is increased, what will be the deficiency?

(a) Mn prevent the uptake of Fe, Mg but not Ca
(b) Mn increase the uptake of Fe, Mg and Ca (c) Only increase the uptake of Ca
(d) Prevent the uptake Fe, Mg, and Ca

58) The element which is not remobilized?

(a) Phosphorous (b) Potassium (c) Calcium (d) Nitrogen

59) Match the correct combination.

	Minerals		Role
A	Molybdenum	1	Chlorophyll
B	Zinc	2	Methionine
C	Magnesium	3	Auxin
D	Sulphur	4	Nitrogenase

(a)

A	B	C	D
1	3	4	2

(b)

A	B	C	D
2	1	3	4

(c)

A	B	C	D
4	3	1	2

(d)

A	B	C	D
4	2	1	3

60) Identify the correct statement

i. Sulphur is essential for amino acids Cystine and Methionine
ii. Low level of N, K, S and Mo affect the cell division
iii. Non-leguminous plant Alnus which contain bacterium Frankia
iv. Denitrification carried out by nitrosomonas and nitrobacter.

(a) I, II are correct (b) I, II, III are correct (c) I only correct (d) all are correct

61) **Assertion (A):** Increase in proton gradient inside lumen responsible for ATP synthesis
Reason (R): Oxygen evolving complex of PS I located on thylakoid membrane facing Stroma, releases H^+ ions

(a) Both Assertion and Reason are True. (b) Assertion is True and Reason is False.
(c) Reason is True and Assertion is False. (d) Both Assertion and Reason are False.

62) Which chlorophyll molecule does not have a phytol tail?

(a) Chl - a (b) Chl - b (c) Chl - c (d) Chl - d

63) The correct sequence of flow of electrons in the light reaction is

(a) PS II, plastoquinone, cytochrome, PS I, ferredoxin.
(b) PS I, plastoquinone, cytochrome, PS II ferredoxin.
(c) PS II, ferredoxin, plastoquinone, cytochrome, PS I.
(d) PS II, plastoquinone, cytochrome, PS II, ferredoxin.

64) For every CO_2 molecule entering the C_3 cycle, the number of ATP & NADPH required

(a) 2ATP + 2NADPH (b) 2ATP + 3NADPH (c) 3ATP + 2NADPH (d) 3ATP + 3NADPH

65) Identify true statement regarding light reaction of photosynthesis.

(a) Splitting of water molecule is associate with PS I.
(b) PS I and PS II involved in the formation of NADPH + H^+
(c) The reaction center of PS I is Chlorophyll a with absorption peak at 680 nm.
(d) The reaction center of PS II is Chlorophyll a with absorption peak at 700 nm.

66) The number of ATP molecules formed by complete oxidation of one molecule of pyruvic acid is

(a) 12 (b) 13 (c) 14 (d) 15

67) During oxidation of two molecules of cytosolic NADH + H^+, number of ATP molecules produced in plants are

(a) 3 (b) 4 (c) 6 (d) 8

68) The compound which links glycolysis and Krebs cycle is

(a) Succinic acid (b) Pyruvic acid (c) Acetyl CoA (d) Citric acid

69) **Assertion (A):** Oxidative phosphorylation takes place during the electron transport chain in mitochondria.
Reason (R): Succinyl CoA is phosphorylated into succinic acid by substrate phosphorylation.

(a) A and R is correct. R is correct explanation of A

(b) A and R is correct but R is not the correct explanation of A

(c) A is correct but R is wrong (d) A and R is wrong.

70) Which of the following reaction is not involved in Kreb's cycle.

(a) Shifting of phosphate from 3C to 2C

(b) Splitting of Fructose 1,6 bisphosphate of into two molecules 3C compounds

(c) Dephosphorylation from the substrates (d) All of these

71) Select the wrong statement from the following:

(a) Formative phase of the cells retain the capability of cell division.

(b) In elongation phase development of central vacuole takes place.

(c) In maturation phase thickening and differentiation takes place.

(d) In maturation phase, the cells grow further.

72) If the diameter of the pulley is 6 inches, length of pointer is 10 inches and distance travelled by pointer is 5 inches. Calculate the actual growth in length of plant.

(a) 1.5 inches (b) 6 inches (c) 12 inches (d) 30 inches

73) _____ is the powerful growth inhibitor

(a) Ethanol (b) Cytokinins (c) ABA (d) Auxin

74) Select the correctly matched one

A) Human urine	i) Auxin – B
B) Corn gram oil	ii) GA_3
C) Fungus	iii) Abscisic acid II
D) Herring fish sperm	iv) Kinitin
E) Unripe maize grains	v) Auxin A
F) Young cotton bolls	vi) Zeatin

(a)

A	B	C	D	E	F
iii	iv	v	vi	i	ii

(b)

A	B	C	D	E	F
v	i	ii	iv	vi	iii

(c)

A	B	C	D	E	F
iii	v	vi	i	ii	iv

(d)

A	B	C	D	E	F
ii	iii	v	vi	iv	i

75) Seed dormancy allows the plants to

(a) overcome unfavourable climatic conditions (b) develop healthy seeds

(c) reduce viability (d) prevent deterioration of seeds

76) Which one of the following method are used to break the seed dormancy?

(a) Scarification (b) Impaction (c) Stratification (d) All the above

77) Sum total of constructive reactions is called as _____

(a) Anabolism (b) Catabolism (c) Metabolism (d) Embolism

78) Growth in plant is _____

(a) Diffusable (b) Unlocalized (c) Limited (d) Life long

79) 1 nanometer = _____

(a) 10^{9} meter (b) 10^{-9} meters (c) 10^{8} meters (d) 10^{-6} meters

80) Griffith demonstrated Transformation in _____

(a) 1928 (b) 1930 (c) 1975 (d) 1900

81) Which of the following is called 'true bacteria'?

(a) Archaebacteria (b) Eubacteria (c) Methanobacterium (d) Halobacterium

82) _____is considered as founder of mycology.

(a) G.C. Anisworth (b) JohnWebster (c) P.A. Micheli (d) K.C. Mehta

83) A sexual reproduction in living organism occurs by the production of :

(a) conidia formation (b) budding (c) binnary fission (d) all the above

84) Nostoc and Anabaena are the examples of:

(a) Biofertilizer (b) Biological fuel (c) Biotic factor (d) Pro - Biotic

85) The symbiotic association between fungal mycellium and roots of higher plants is called:

(a) Lichen (b) Symbiotic (c) Monotropa (d) Mycorrhizac

86) Transfer of DNA from one bacterium to another is called

(a) Conjugation (b) Transduction (c) Transformation (d) Endospores

87) Property of self - regulation and tendency to maintain a steady state within an external environment which is liable to change is called _____.

(a) Heam (b) Homeostasis (c) Heamoregulation (d) Metabolism

88) Give an example for cuboid symmetry.

(a) Adeno virus (b) Influenza virus (c) TMV (d) Bacteriophage.

89) In TMV the protein coat called _____

(a) Nucleic acid (b) Capsid (c) Nucleolus (d) Capsomere

90) The genetic material ofT4 Bacteriophages is

(a) ds DNA (b) ss DNA (c) ds RNA (d) ss RNA

91) Who is called as "Father of Botany"?

(a) Copeland (b) Theophrastus (c) Aristotle (d) Carl Linnaeus

92) Three Kingdom System of classification was given by _____.

(a) Ernst Hackel (b) Copeland (c) Copeland (d) R.H.Whittaker

93) Plasmids occur in _____.

(a) Bacteria (b) Viruses (c) Chloroplast (d) Chromosome

94) The special type of pili helps in conjugation called _____.

(a) Flagella (b) Sexpili (c) Mesosomes (d) Plasmid

95) Probiotic yoghurt is prepared by the help of _____.

(a) Bifido bacterium (b) Salmonella (c) Bacillus (d) Vibrio

96) _____ bacteria live in extreme hot, salinity, low pH.

(a) Archaebacteria (b) Eubacteria (c) Cyanobacteria (d) Myxophyceae

97) _____is also called as "Ray Fungi".

(a) Basidiomycetes (b) Deutromycetes (c) Actinornycetes (d) Oomycetes

98) Penicillin was discovered _____ in the year 1928.

(a) Alexander Flemming (b) Pasteur (c) Robert Gallo (d) Ivanowsky

99) _____is called as "Club fungi".

(a) Actinomycetes (b) Deutromycetes (c) Basidiomycetes (d) Phagomycetes

100) Dairy industry is based on a single celled fungus called _____ .

(a) Yeast (b) Mucor (c) Penicillin (d) Rhizopus

25 x 2 = 50

101) Differentiate Homoiomerous and Heteromerous lichens.

102) What is plectostele? Give example.

103) What do you infer from the term pycnoxylic?

104) Mention two characters shared by gymnosperms and angiosperms.

105) How root climbers differ from stem climbers?

106) Draw and label the parts of regions of root.

107) Find out the floral formula for a bisexual flower with bract, regular, pentamerous, distinct calyx and corolla, superior ovary without bracteole.

108) Give the technical terms for the following.

(a) A sterile stamen

(b) Stamens are united in one bunch

(c) Stamens are attached to the petals

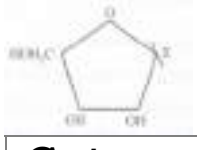
109) Where will you place the plants which contains two cotyledons with cup shaped thalamus?

110) Bring out the signification of Transmission Electron Microscope.

111) State the protoplasm theory.

112) Write any three significance of mitosis.

113) Given below is the diagrammatic representation of one of the categories of small molecular weight organic compounds in the living tissues. Identify the category shown & one blank component " X" in it.



Category	Compound
Cholesterol	Guanine
Amino acid	NH_2
Nucleotide	Adenine
Nucleoside	Uracil

114) Distinguish between nitrogenous base and a base found in inorganic chemistry.

115) Why the cells of sclerenchyma and tracheids become dead?

116) In a forest, if the bark of a tree is damaged by the horn of a deer, How will the plant overcome the damage?

117) In which season the vessels of angiosperms are larger in size, why?

118) List out the non-photosynthetic parts of a plant that need a supply of sucrose.

119) What are the parameters which control water potential?

120) The nitrogen is present in the atmosphere in huge amount but higher plants fail to utilize it. Why?

121) Why is that in certain plants deficiency symptoms appear first in younger parts of the plants while in others, they do so in mature organs?

122) Plant A in a nutrient medium shows whiptail disease. Plant B in a nutrient medium shows a little leaf disease. Identify mineral deficiency of plant A and B.

123) Two groups (A & B) of bean plants of similar size and same leaf area were placed in identical conditions. Group A was exposed to light of wavelength 400-450nm & Group B to light of wavelength of 500-550nm. Compare the photosynthetic rate of the 2 groups giving reasons.

124) A tree is believed to be releasing oxygen during night time. Do you believe the truthfulness of this statement? Justify your answer by giving reasons?

125) What are enzymes involved in phosphorylation and dephosphorylation reactions in EMP pathways?

23 x 3 = 69

126) Write the distinguishing features of Monera.
127) Why do farmers plant leguminous crops in crop rotations/mixed cropping?
128) Describe the functions of adrenalin
129) What does pace maker do?
130) List out the names of silkmoth
131) Do you think shape of chloroplast is unique for algae? Justify your answer.
132) Do you agree with the statement 'Bryophytes need water for fertilization'? Justify your answer.
133) Differentiate between aggregate fruit with multiple fruit.
134) Explain the different types of placentation with example.
135) Distinguish between prokaryotes and eukaryotes.
136) Differentiate between mitosis and meiosis.
137) Given an account of G_0 phase.
138) Explain the structure and function of different types of RNA.
139) What are Sieve tubes ? Explain.
140) A timber merchant bought 2 logs of wood from a forest and named them A and B, The log A was 50 year old and B was 20 years old. Which log of wood will last longer for the merchant? Why?
141) If the concentration of salt in the soil is too high and the plants may wilt even if the field is thoroughly irrigated. Explain
142) How phosphorylase enzyme open the stomata in starch sugar interconversion theory?

143) Write the role of nitrogenase enzyme in nitrogen fixation?
144) In Botany class, teacher explains, Synthesis of one glucose requires 30 ATPs in C_4 plants and only 18 ATPs in C_3 plants. The same teacher explains C_4 plants are more advantageous than C_3 plants. Can you identify the reason for this contradiction?
145) When there is plenty of light and higher concentration of O_2, what kind of pathway does the plant undergo? Analyse the reasons.
146) Respiratory quotient is zero in succulent plants. Why?
147) How will you calculate net products of one sucrose molecule upon complete oxidation during aerobic respiration as per recent view?
148) Write the physiological effects of Cytokinins.

27 x 5 = 135

149) Briefly discuss on five kingdom classification. Add a note on merits and demerits.
150) Give a general account on lichens.
151) Differentiate haplontic & diplontic life cycle.
152) Write the similarities and difference between
1. Avicennia and Trapa
2. Radical buds and foliar buds
3. Phylloclade and cladode

153) Compare sympodial branching with monopodial branching.
154) Differentiate pinnate (unicostate) with palmate (multicostate) venation.
155) Explain the different types of fleshy fruit with suitable example.
156) What is the role of national gardens in conserving biodiversity - Discuss.
157) Give the floral characters of Clitoria ternatea.
158) How will you distinguish Solanaceae members from Liliaceae members?

159) Difference between plant cell and animal cell.
160) Draw the ultra structure of plant cell.
161) Differentiate cytokinesis in plant cells and animal cells.
162) Write about Pachytene and Diplotene of Prophase I.
163) Write the characteristic features of DNA.
164) Explain sclereids with their types.
165) Distinguish the anatomy of dicot root from monocot root.
166) Distinguish the anatomy of dicot stem from monocot stem.
167) Continuous state of dividing tissue is called meristem. In connection to this, what is the role of lateral meristem?
168) A transverse section of the trunk of a tree shows concentric rings which are known as growth rings. How are these rings formed? What are the significance of these rings?
169) An artificial cell made of selectively permeable membrane immersed in a beaker (in the figure). Read the values and answer the following questions?

a. Draw an arrow to indicate the direction of water movement
b. Is the solution outside the cell isotonic, hypotonic or hypertonic?
c. Is the cell isotonic, hypotonic or hypertonic?
d. Will the cell become more flaccid, more turgid or stay in original size?
e. With reference to artificial cell state, the process is endosmosis or exosmosis? Give reasons.

170) Explain the insectivorous mode of nutrition in angiosperms?
171) Grasses have an adaptive mechanism to compensate photorespiratory losses. Name and describe the mechanism.
172) Explain the reactions taking place in mitochondrial inner membrane.
173) What is the name of alternate way of glucose breakdown? Explain the process involved in it?
174) Describe the mechanism of photoperiodic induction of flowering.
175) Give a brief account on Programmed Cell Death (PCD)

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