(a) *Podophyllum hexandrum*
(b) *Atropa belladonna*
(c) *Arnebia benthamii*
(d) *Viola odorata*

70. Which of the following is essential for germplasm exchange ?
(a) Plant introduction
(b) Plant assessment
(c) Plant quarantine
(d) Plant adaptability

BOTANY 2007

1. "Little leaf' disease of brinjal is caused by:
(a) viruses
(b) mycoplasma
(c) bacteria
(d) phytophthora

2. Adenoviruses are:
(a) DNA containing plant viruses, spheroidal in shape with projecting fibres
(b) RNA containing plant viruses, spheroidal in shape and enveloped
(c) DNA containing animal viruses, spheroidal in shape with projecting fibers
(d) RNA containing animal viruses, spheroidal in shape and enveloped

3. Cell walls of Deuteromycetes contain
(a) chitin-glucan
(b) mannan-glucan
(c) cellulose-glucan
(d) pectin-glucan

4. Morchella is a:
(a) Parasitic hymenomycete
(b) Mycorrhizal gasteromycete
(c) Symbiotic plectomycete
(d) Saprobic discomycete

5. In some plants of *Oedogonium,* the androsporangia are produced on filaments which do not bear oogonia. Such plants are said to be :
(a) Gynandrosporous

(b) Idioandrosporous
(c) Androsporous
(d) Gynosporous

6. Select the odd one out in respect of the nature of sexual reproduction
(a) *Chlamydomonas debaryana*
(b) *Chlamydomonas media*
(c) *Chlamydomonas coccifera*
(d) *Chlamydomonas eugametos*

7. In which of the following species of *Anthoceros* the whole plant is covered with hair like outgrowths forming water-holding chambers?
(a) *A. arachnoides*
(bl *A. giganteus*
(c) *A. fusiformis*
(d) *A. laevis*

8. In the stem of Polytrichum one or two layers of cells consist of dark brown suberized walls and contain copious starchy contents. This tissue is called:
(a) Hydrom mantle
(b). Hydrom sheath
(c) Leptom mantle
(d) Piliferous layer

9. Rhynia belongs to :
(a) upper Silurian
(b) lower Devonian
(c) middle Devonian
(d} upper Devonian

10. Steles in which leaf gaps occur less frequently and are distantly placed are called:
(a) dictyosteles
(b) medullated steles
(c) perforated steles
(d). solenosteles

11. Which of the following is a single pass, single helix transmembrane protein?
(a) Glycophorin
(b) Spectrin
(c) Band 3 protein
(d) Integrin

12. Which of the following ions facilitates assemblage of subunits into a complete ribosome?
(a) Na+
(b) Ca++
(c}, . Mg++
(d) Mn+

13. A plant carrying a duplicated chromosome segment is said to be
(a) Hemizygous
(b) Hyperploid
(c) Disomic haploid
(d), Addition haploid

14. Select the odd one out in terms of the genome constitution
(a) *Gossypium hirsutum*
(b) *Nicotiana tabacum*
(c) *Musa esculentum*
(d). *Brassica juncea*

15. The F2 progeny of "green-round" and "white-wrinkled" seeded parents contains 4 types of plants: *(i)* green-round seeded 10; *(ii)* "green-wrinkled" seeded *69; (iii)* "white-round" seeded 85 and *(iv) "white*-wrinkled" seeded 15. This suggests:
(a) duplicate gene inheritance
(b) linkage in repulsion phase
(c)· independent assortment
(d) linkage in coupling phase

16. Which of the following enzymes has both exonuclease 3' ---+ 5' and exonuclease 5' ---+ 3' activities?
(a) cannot reeognise codons GCU, GCC and GCA
(b) can reeognise only codon GCU
(c) can reeognise only codon GCA
(d) can recogmse all the three codons

17. The anticodon IGC :
(a) Prokayotic DNA polymerase I
(b} Prokaryotic DNA polymerase II
(c) Prokaryotic DNA polymerase **III**
(d) Eukaryotic DNA polymerase p

18. Which of the following mutations are likely to occur if DNA is exposed to proflavin dyes ?
(a) Suppressor mutations
(b) Frame shift mutations
(c) Transition mutations
(d) Transversions

19; Isopropyl thiogalactoside is
(a) an inducer
(b) a repressor
(c) a gratuitous inducer
(d) a co-repressor

20. When shed from the sporangium, the microspores have :

(a) one prothallial cell in *Cycas* and two in *Ephedra*
(b) two prothallial cells in *Cycas* and one in *Ephedra*
(c) one prothallial cell in both
(d) two prothallial cells in both

2. Select the odd one out
a) coralloid roots
b) loosely arranged megasporophylis
c) absence of neck canal cells .
(d) gametophytic endosperm.

22. Paleontological evidences reveal that the flowering plants had attained high degree of morphological specialisation during:
(a)J Triassic
(b) Jurassic
(c) Cretaceous
(d) Palaeocene

23. On the basis of carpel and stamen morphology and structure of wood which of the following plants seems to be primitive?
(a) *Cucurbita* spp.
(b) *Solanum* spp.
(c) *Convolvulus* spp.
(d) *Degeneria s*pp.

24. +ffi, 1\5' C 5~~5 G(2) is the floral formula of :
(a)' *Helianthus annuus*
(b) *Brassica campestris*
(c) *Lathyrus odoratus*
(d) ₭ *Solanum nigrum*

25. A small cup shaped inflorescence con i ting of a single pistillate flower in the centre surrounded by numerous staminate flowers is called
(a) Glomerule
(b) Cyathium
(c). Hypanthodium
(d) Verticillaster

26. Which one of the following is considered equivalent to perianth ?
(a)' Glumes
(b) Lodicules
(c) Superior palea
(d) Inferior palea

27. The process of grouping of organisms into taxa on the basis of overall similarities is called
(a) phenetics
(b)- cladistics
(c) alpha taxonomy

(d) beta taxonomy

28. "Systema Naturae" was written by:
(a) Charles Robert Darwin
(b) George Bentham
(c) Jean Baptiste Lamarck
(d) Carolus Linnaeus

29. According to Bentham and Hooker's classification system the order Rosales falls in which of the following series?
(a) Thalamiflorae
(b)Bicarpillatae
(c) Calyciflorae
(d) Inferae

30. Which of the following plants is perennial and monocarpic ?
(a) *Agave americana*
(b) . *Cocos nucifera*
(c) *Phoenix dactylifera*
(d) ,; *Hevea brasiliensis*
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31. Which one of the following is different from others in respect of the nature of its roots?
(a) *Sonneratia* sp.
(b) *Avicinnia* sp.
(c) *Heritiera* sp.
(d) *Pandanus* sp.

32. In some plants the leaves occur along a straight vertical line. This condition is called:
(a) Distichous
(b) Parastichous
(c) Orthostichous
(d)- Unistichous

33. Alburnum and Duramen respectively are alternate names of : .
(a) heartwood and sapwood
(b) sapwood and heartwood
(c) -porous wood and ring-porous wood
(d) ring-porous wood and diffuse-porous wood

34. The sclerenchyma of cortex originates from:
(a) Ra initials
(b) Fusiform initials
(c) Protoderm
(d) Periblem

35. The first lower most leaves of a plant's side branch are called
(a) cataphylls
(b) prophylls
(c) hypsophylls
(d) platyclades

36. The book entitled "Plant Embryology" was written by
(a) Karl Schnarf
(b) P. Maheshwari
(c) D.A. Johansen
(d) G. Davis

37. In respect of chromosome number which one of the following is different?
(a) Embryo sac
(b) Archesporium
'(c) Sporogenous tissue
(d). Spore mother cells

38. In *Dianthus* the style is much longer than the stamens. This condition is called:
(a) Dichogamy
(b) Herkogamy
(c)." Heterostyly
(d) None of the above

39. \If W of a living plant cell is the sum of :
(a) wall pressure and pressure potential
(b) wall pressure and matric potential
(c) osmotic potential and pressure potential
(d).. osmotic potential and solute potential

40. Which of the following diseases is caused in plants due to deficiency of Zn ?
(a) Heart rot of beats
(b) Whiptail of cauliflower
(c). Grey speck of oats
(d) Little leaf of apples

41. Which of the following compounds is a prosthetic group?
(a) FAD
(b) Biotin
(c) LDH
(d) NAD

42. A substrate fails to join the enzyme because its active site is deformed by an analogue of the substrate. This process is called
(a) Allosteric inhibition
(b). Competitive inhibition
(c), E.nd product inhibition
(d) Feedback inhibition

43. Which of the following compounds serves as the electron donor during biological nitrogen fixation ?
(a) 6-Phosphogluconic acid
(b) Acetyl phosphate
(c) Dinitrogeri reductase
(d).Pyruvic acid

44. For carbon fixation during "dark reaction" the three carbon atoms of each
PGA molecules are derived from:
(a) RuBP
(b) CO_2
(c) RuBP + CO_2
(d), RuBP + CO_2 + PEP

45. Which one of the following facts explains "Warburg Effect" ?
(a)" Rate of photosynthesis decreases at low 02 concentration
(b) Rate of photosynthesis increases at low 02 concentration
(c) Rate of photosynthesis decreases at high 02 concentration
(d) Rate of photosynthesis increases at high 02 concentration

46"" The seeds of lettuce are
(a) non-photoblastic
(b) positively photoblastic
(c) negatively photoblastic
(d) ABA induced

47. Plant leaves are:
(a) . Plageotropic
(b) "Diageotropic
(c) Ageotropic
(d) Negatively geotropic

48. Which one of the following compounds shows "Richmond-Lang" effect?
(a) IAA
(b) ABA
(c) GA_3
(d) Kinetin

49. The correct sequence of electron acceptors in ATP synthesis" is :
(a) Cytochrome *a, a3' b,* c
(b) Cytochrome *b,* c, *a, a3*
(c) Cytochrome *b,* c, *a3' a*
(d)." Cytochrome c, *b, a, a3*

50. Who amongst the following has contributed extensively to the study of Indian grass-land ecology?
(a) R Misra
(b) G.S. Puri
(c) J.S. Singh
(d) RR. Das

51. Which of the following statements is *true?*
(a) The ecological pyramid of numbers is inverted in a tree ecosystem
(b) The ecological pyramid of numbers is upright in a tree ecosystem
(c) The ecological pyramid of numbers is inverted in herbaceous ecosystem
(d) The ecological pyramid of biomass is upright in an aquatic ecosystem

52. The plant species that thrive well in narrow salinity and narrow temperature ranges are called respectively as :
(a) Euryhaline and Eurythermal
(b) Stenohaline and Stenothermal
(c) Steno1'r'aJ/ne and Eurythermal
(d) Euryhaline and Stenothermal

53. Acacia senegal and *Rhizophora* sp. respectively are
(a) Psammophyte-Lithophyte
(b) Lithophyte-Psychrophyte
(c) Psychrophyte-Halophyte
(d) Psammophyte-Halophyte

54. Morphologically different populations when grown in an identical habitat become uniform and the variations disappear. Such populations are called:
(a)' Ecotones
(b) Ecoclines
(c) Ecads
(d) Ecotypes

55. A climax community represented by a single dominant species is called
(a)" Society
(b) Lociation
(C) Consociation

(d) Association

56. Which of the following plants produces a caryopsis ?
(a) *Triticum aestivum*
(b) *Artemisia annua*
(c).. *Solanum tuberosum*
(d) *Lathyrus odoratus*

57. The famous timber "Saguan" is obtained from
(a)*Eucalyptus globosus*
(b) *Tectona grandis*
(c)*Shorea robusta*
(d) *Dalbergia sissoo*

58. The common gunny bag fibre is obtained from
(a) *Crotolaria juncea*
(b) *Cocos nucifera* .
(c) *Corchorus capsularis*
(d) *Quercus superba*

59. pBR327 is :
(a) yeast plasmid vector
(b) phagemid pBluescript vector
(c) pUC vector
(d) *E. coli* plasmid vector

60. Which of the following properties of Ti plasmids of*Agrobacterium* made them a suitable choice for use as vectors ?
(a) Large size
(b) Absence of unique restriction sites
(c) Tumour induction properties
(d) Presence of *vir* gene.

BOTANY 2008

1. Bacteria cannot survive in a highly salted pickle because
(A) Salt inhibits reproduction
(B) Pickle, does not contain nutrients necessary for bacterial growth
(C) Bacteria do not get enough light for photosynthesis
(D) Bacterial cells become plasmolysed and consequently killed

2. In which of the following conditions transpiration would be the most rapid?
(A) High humidity