

# BOTANY 2006

1. Exploitation and analysis of variability of genetic resources for improvement of existing crops under cultivation is referred to as :

- (a) Primary introduction
- (b) secondary introduction
- (c) Domestication
- (d) Acclimatization cum introduction

2. Compilation of the historical "*De Materia Medica*" was carried out by:

- (a) Bentham
- (b) Bentham and Hooker
- (c) Theophrastus
- (d) Theophrastus and Aristotle

3. Aplanogamic type of sexual reproduction occurs in

- (a) *Oedogonium*
- (b) *Chara*
- (c) *Volvox*
- (d) *Zygnema*

4. The zoospores of *Vaucheria* are

- (a) Aflagellate
- (b) Uniflagellate
- (c) Multiflagellate
- (d) Biflagellate

5. The most primitive type of life cycle in algae is

- (a) Haplontic
- (b) Diplontic
- (c) Haplobiontic
- (d) Diplobiontic

6. Cleistothecia of which of the following fungus contains coiled appendages on the periderm:

- (a) *Uncinula*
- (b) *Erysiphe*
- (c) *Colletotrichum*
- (d) *Venturia*

7. Key membrane sterol in most of the fungi is

- (a) Cholesterol
- (b) Ergosterol
- (c) Mannitol
- (d) None of the above

8. Nutrition in slime fungi is

- (a) Absorptive
- (b) Phagotrophic
- (c) Necrotrophic
- (d) Autotrophic

9. Which among the following is used as a biocontrol agent?

- (a) *Trichoderma viridae*
- (b) *Pythium debaryanum*
- (c) *Phytophthora infestans*
- (d) *Erysiphe polygoni*

10. Phialidic type of conidia are found in

- (a) *Asperigillus*
- (b) *Albugo*
- (c) *Phytophthora*
- (d) *Pythium*

11. When the tissue close to vein turns yellow and the remaining surface stays green; the condition is known as

- (a) Vein bending
- (b) Vein clearing
- (c) Variegation
- (d) Vennation

12. When archegonia are borne at the apex of main axis or its branches, the condition is known as

- (a) Acrocarpous
- (b) Pleurocarpous
- (c) Stigmatocarpous
- (d) Cleistocarpous

13. Conducting tissue in mosses is made up of:

- (a) Xylem
- (b) Collenchyma
- (c) Phloem
- (d) Parenchyma

14. Green plastids are present in the cells of young antheridium of:

- (a) *Riccia*
- (b) *Funaria*
- (c) *Pellia*
- (d) *Anthoceros*

15. A group of fused sporangia with distinct partition walls is known as

- (a) Sorus
- (b) Synangium

- (c) Both (a) and (b)
- (d) None of the above

16. Which of the following can induce apogamy in fern gametophytes?

- (a) Low concentration of sucrose'
- (b) Medium concentration of sucrose
- (c) High concentration of sucrose
- (d) All of the above

17. Which of the following is richly found in functional megasporophyte of *Selaginella* ?

- (a) Vacuoles
- (b) Starch
- (c) Cytoplasm
- (d) Cytoplasmic RNA

18. Which of the following genera lacks a female cone?

- (a) *Cycas*
- (b) *Cedrus*
- (c) *Ephedra*
- (d) None of the above

19. The form genus *Caytonia* was first discovered by

- (a) H. H. Thomas
- (b) T. M. Harris
- (c) K. R. Sporne
- (d) B. Sahni

20. In which geological period flowering plants first appeared?

- (a) Ordovician
- (b) Cambrian
- (c) Devonian
- (d) Cretaceous

21. Girdling leaf-traces are the characteristic feature of the stem of:

- (a) *Ephedra*
- (b) *Cycas*
- (c) *Cedrus*
- (d) *Pinus*

22. Which of the following living pteridophytic order shows more resemblances with Rhyniaceae?

- (a) Psilotales
- (b) Lycopodiales
- (c) Ophioglossales
- (d) Equisetales

23. The International Code for Botanical Nomenclature (ICBN) governs the nomenclature of:

- (a) Plants alone
- (b) Plants and fungi
- (c) Plants and bacteria
- (d) Plan and viruses

24. The most primitive group in dicots as per Engler and Prantl is

- (a) Ranales
- (b) Asteraceae
- (c) Amentiferae
- (d) Magnoliaceae

25. An inventory of the plants of a defined geographical region is known as

- (a) Conspectus
- (b) Revision
- (c) Monograph
- (d) Flora

26. Which of the following families have the stamens syngamous?

- (a) Apiaceae
- (b) Asteraceae
- (c) Ranunculaceae
- (d) Rosaceae

27. When the guard cells are surrounded by unspecialised epidermal cells, the type of stomata is

- (a) Anomocytic
- (b) Anisocytic
- (c) Diacytic
- (d) Paracytic

28. Root endodermis is generally regarded as

- (a) Outer most layer of cortex
- (b) Inner most layer of cortex
- (c) Both of the above
- (d) Either (a) or (b)

29. Cambium and cork cambium are examples of:

- (a) Apical meristem
- (b) Intercalary meristem
- (c) Lateral meristem
- (d) Primary meristem

30. Pollination occurring between two flowers on the same plant is termed as:

- (a) Autogamy
- (b) Xenogamy
- (c) Chasmogamy
- (d) Geitonogamy

31. The first division of the zygote in Piper type of the embryogeny

- (a) Vertical
- (b) Transverse

- (c) Oblique
- (d) Either (b) or (c)

32. Synthetic seeds are:

- (a) Encapsulated zygotic embryos
- (b) Encapsulated somatic embryos
- (c) Genetically engineered seeds
- (d) None of the above

33. When the aperture is on the proximal face, the pollen grains are designated as:

- (a) Zonotreme
- (b) Anatreme
- (c) Pantotreme
- (d) Catatreme

34. When the exposed pollen wall shows rod-like elements with swollen tips, the sculpturing is called as

- (a) Psilate
- (b) Fossulate
- (c) Pilate
- (d) Baculate

35. The fluidity of biomembranes is ascribed mainly to

- (a) The protein component
- (b) The lipid component
- (c) Both protein and lipid components
- (d) Neither protein nor lipid component

36. Which one of the following is the acyl group carrier in the  $\beta$  oxidation of fatty acids?

- (a) Coenzyme A
- (b) Acyl carrier protein
- (c) Both (a) and (b)
- (d) Neither (a) nor (b)

37. During photorespiration which of the following reactions takes place in the mitochondrion:

- (a) Conversion of glycine to serine
- (b) Conversion of serine to  $\text{CO}_2$  and  $\text{NH}_3$
- (c) Both (a) and (b)
- (d) None of the above

38. The receptor in plants that perceives the photoperiodic signal is a

- (a) Conjugated protein
- (b) Hormone
- (c) Non-protein pigment
- (d) None of the above

39. Gibberellins produced in the apical portions of both stems and roots cause:

- (a) Stem elongation
- (b) Growth of lateral branches
- (c) Abscission of leaves and fruits
- (d) Stem thickening

40. The sterol: phospholipid ratio of membranes is high in

- (a) Glycophytes
- (b) Halophytes
- (c) Psamophytes
- (d) Hydrophytes

41. Percentage of phanerophytes in the normal biological spectrum Raunkiaer (1934) is ?

- (a) 13
- (b) 26
- (c) 46
- (d) 62

42. Most of the energy in a temperate coniferous forest flows through:

- (a) Detritus food chain
- (b) Grazing food chain
- (c) Auxiliary food chain
- (d) All of the above

43. Maximum number of trophic levels in most food webs is about:

- (a) or 9
- (b) 2 or 3
- (c) 1 or 2
- (d) 4 or 5

44. Which among the following accounts for much of the biome differences in Net Primary Productivity (NPP)?

- a) Length of growing season
- b) Leaf area
- c) Soil fertility
- d) None of the above

45. Pyramid of number of a parasitic food chain would be always

- a) Upright
- b) Inverted
- c) Either upright or inverted
- d) Neither upright nor inverted

46. Bacteria that use light as energy source and organic substances as carbon source are called as:

- (a) Photoautotrophs
- (b) Chemoautotrophs
- (c) Photoheterotrophs
- (d) Chemoheterotrophs

47. Archaeobacteria differ from both eubacteria and eukaryotes in

- (a) Nature of membrane lipids
- (b) RNA polymerase structure
- (c) Composition of their cell walls
- (d) All of the above

48. Genetic material in plant viruses is mostly:

- (a) DNA
- (b) RNA
- (c) Both DNA and RNA
- (d) None of the above

49. Which one of the following is true for spontaneous reactions?

- (a)  $\Delta S$  and  $-\Delta H$
- (b)  $-\Delta S$  and  $+\Delta H$
- (c) Both (a) and (b)
- (d) Neither (a) nor (b)

50. The most abundant non-reducing soluble sugar in plants is

- (a) Lactose
- (b) Maltose
- (c) Sucrose
- (d) Cellobiose

51. The true substrate in most enzymatic reactions that involve ATP is

- (a)  $MgATP^{2-}$
- (b)  $Mg^{2+}$
- (c)  $MgADP^-$
- (d) None of the above

52. Which of the following is not formed when yeast is producing wine?

- (a) Pyruvic acid
- (b) Ethanol
- (c)  $CO_2$
- (d) Acetyl Co A

53. In feedback inhibition, a metabolic pathway is switched off by:

- (a) A rise in temperature
- (b) Lack of substrate
- (c) Accumulation of end product
- (d) Competitive inhibition

54. Covalently bound non-protein component of an enzyme is its

- (a) Coenzyme
- (b) Cofactor
- (c) Apoenzyme
- (d) Prosthetic group

55. The rainfall in a district for four (04) months was 50, 40, 15 and 15 millimeters. The mean deviation of rainfall about mean for the given four months is

- (a) 30
- (b) 15
- (c)  $\frac{1}{2}$
- (d) 0

The extent of correlation between two related variables decreases, the value of correlation coefficient ( $r$ ) approaches

- (a) +1
- (b) -1
- (c) Zero
- (d) None of the above

57. The arithmetic mean of a distribution, in which there are some extremely high or low values, will either over estimate or under estimate the average position and hence is not a best representative value. The measure of **Central**

Tendency in such a situation is

- (a) Median
- (b) Mode
- (c) Standard deviation
- (d) None of the above

58. How many progeny genotypes are expected after selfing of the parent having the genotype 'AABbCC' :

- (a) Two
- (b) Three
- (c) Four
- (d) Five

59. The epistatic gene differs from dominant gene in that the

- (a) Epistatic gene is non-allelic
- (b) Epistatic and dominant genes are present at different loci
- (c) Both (a) and (b) are false
- (d) Both (a) and (b) are true

60. Dominant genes 'A' and 'B' are required for normal hearing. A deaf couple has all children with normal hearing. The probable genotype of the couple is :

- (a) AAbb x aaBB
- (b) AaBB x AABb
- (c) AaBb x AaBb
- (d) aabb x aabb

61. An allele 'A' after segregation from 'Aa' genotype produces a mutant type; the condition is called

- (a) Point mutation



- (b) Paramutation
- (c) Frameshift mutation
- (d) None of the above

62. A larkspur plant has 16 chromosomes. How many linkage groups does it have?

- (a) 4
- (b) 8
- (c) 16
- (d) 20

63. In a DNA molecule the percentage of adenine is 18%; the percentage of cytosine is expected to be

- (a) 18%
- (b) 36%
- (c) 27%
- (d) 54%

64. The products of one gene required to activate another gene are called

- (a) Repressor elements
- (b) Co-enzymes
- (c) Transcription factors
- (d) None of the above

65. Restriction endonucleases cut DNA at :

- (a) Palindromic sequences
- (b) Methylated sequences
- (c) exons
- (d) Any site

66. The sum total of deleterious genes in a population at a particular time is

- (a) Gene pool
- (b) Genetic drift
- (c) Genetic load
- (d) Genetic imbalance

67. The chain initiation and termination codons during protein synthesis respectively are :

- (a) AUG and UGA
- (b) GUG and UAA
- (c) Neither (a) nor (b)
- (d) Both (a) and (b)

68. Which of the following commonly known medicinal herb is used for the treatment of hair fall?

- (a) Bunafsha
- (b) Kahzaban
- (c) Van Wangun
- (d) Burza

69. The commercially important active principal "Quercetin" is obtained from:

- (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

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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