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TEST BOOKLET

Sl. No. 2623

Subject Code : 03

Subject : Botany

LECTURERS FOR NON-GOVT. AIDED COLLEGES OF ODISHA

Time Allowed : 2 Hours

Maximum Marks : 150

: INSTRUCTIONS TO CANDIDATES :

1. **IMMEDIATELY AFTER THE COMMENCEMENT OF THE EXAMINATION, YOU SHOULD CHECK THAT THIS TEST BOOKLET CONTAINS 16 PAGES AND DOES NOT HAVE ANY UNPRINTED OR TORN OR MISSING PAGES OR ITEMS ETC. IF SO, GET IT REPLACED BY A COMPLETE TEST BOOKLET.**

2. You have to enter your **Roll No.** on the Test Booklet in the Box provided alongside. **DO NOT** write anything else on the Test Booklet.

3. The Test Booklet contains **100** questions. Each question comprises four answers. You have to select the correct answer which you want to mark (darken) on the **Answer Sheet (OMR Sheet)**. In any case choose ONLY ONE answer for each question. If more than one answer is darkened, it will be considered as wrong.

4. You have to mark (darken) all your answers only on the **OMR Answer Sheet using BLACK BALL POINT PEN** provided by the State Selection Board. You have to do rough work only in the space provided at the end of the Test Booklet. See instructions in the Answer Sheet.

5. All questions carry equal marks i.e. of one and half mark for each correct answer and each wrong answer will result in negative marking of **0.50** mark.

6. Before you proceed to mark (darken) the answers in the **OMR Answer Sheet** to the questions in the Test Booklet, you have to fill in some particulars in the Answer Sheet as per the instructions in your Admit Card.

7. On completion of the examination, you should hand over the **original Answer Sheet (OMR Sheet)** issued to you to the Invigilator before leaving the Examination Hall. You are allowed to take with you the candidate's copy (carbon copy) of the **OMR Answer Sheet** along with the Test Booklet for your reference.

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IW – 2/13

(Turn over)

2021

1. F. F. Fritsch classified algae into :

(A) 7 Divisions

(B) 11 Classes

(C) 9 Phyla

(D) 4 Groups

2. Which is an algal disease ?

(A) Rust of coffee

(B) Red rust of tea

(C) Rust of wheat

(D) White rust of mustard

3. In case of **Oedogonium**, dwarf males are borne on which form ?

(A) Macrandrous

(B) Nanandrous

(C) Male

(D) Female

4. Fucoxanthin occurs in :

(A) Chlorophyceae

(B) Cyanophyceae

(C) Phaeophyceae

(D) Rhodophyceae

5. The female sex organ in **Polysiphonia** is called :

(A) Archegonium

(B) Oogonium

(C) Nucule

(D) Carpogonium

6. Aseptate mycelium is the characteristic feature of class :

(A) Phycomycetes

(B) Ascomycetes

(C) Basidiomycetes

(D) Fungi Imperfecti

7. Gametangial copulation is common in :

(A) Phycomycetes

(B) Zygomycetes

(C) Ascomycetes

(D) Myxomycetes

8. Typical black colour of bread mold is due to its :

(A) Mycelium

(B) Sporangium

(C) Rhizoids

(D) Gametangia

9. All species of **Penicillium** bearing ascocarps are :

(A) Homothallic

(B) Secondary homothallic

(C) Bipolar heterothallic

(D) Tetrapolar heterothallic

10. Which type of rust **Puccinia graminis tritici** is ?

(A) Homoecious and microcyclic

(B) Homoecious and macrocyclic

(C) Heteroecious and microcyclic

(D) Heteroecious and macrocyclic

11. Which one of the following comes under hypoplastic disease symptoms of plants ?

(A) Blight

(B) Rot

(C) Chlorosis

(D) Canker

12. The famous Irish famine in 1845 was caused due to :

(A) Late blight of potato

(B) Smut of sugarcane

(C) Rust of wheat

(D) Loose smut of wheat

13. Bordeaux mixture, the most commonly used fungicide, is a :

(A) Silver compound

(B) Mercury compound

(C) Copper compound

(D) Arsenic compound

14. All viruses are :

(A) Facultative intracellular parasites

(B) Facultative intercellular parasites

(C) Obligate intracellular parasites

(D) Obligate intercellular parasites

15. The capsid of TMV is composed of :

(A) 2130 identical capsomeres

(B) 2130 non-identical capsomeres

(C) 21300 identical capsomeres

(D) 21300 non-identical capsomeres

16. Bacteriophages which show lysogenic cycle are called :

(A) Vegetative phages

(B) Temperate phages

(C) Virulent phages

(D) Avirulent phages

17. Nitrifying bacteria are :

(A) Photoautotrophs

(B) Chemoautotrophs

(C) Saprophytes

(D) Parasites

18. Teichoic acid is found in which group ?

(A) Gram +ve bacteria

(B) Gram –ve bacteria

(C) Cyanobacteria

(D) Mycoplasma

19. The photosynthetic pigments in Cyanobacterial cells are located in :

(A) Chromatophore

(B) Chromoplasm

(C) Centroplasm

(D) Chloroplast

20. Mesosomes of bacteria are analogous to _____ of eukaryotic cells.

(A) Mitochondria

(B) Chloroplast

(C) Endoplasmic reticulum

(D) Lysosome

21. Which is NOT true about bryophytes ?

(A) Presence of a distinct heteromorphic alternation of generation

(B) Plant body represents gametophyte

(C) Sexual reproduction is Oogamous type

(D) Archegonium possesses 7-8 neck canal cells, 2-3 ventral canal cells and an egg cell

22. **Riccia** thallus possesses :

(A) Unicellular scales and unicellular rhizoids

(B) Multicellular scales and unicellular rhizoids

(C) Unicellular scales and multicellular rhizoids

(D) Multicellular scales and multicellular rhizoids

23. In case of **Marchantia**, each group of archegonia covered with a protective structure is called :

(A) Perigynium

(B) Perichaetium

(C) Peristome

(D) Perisperm

24. Which of the statements is true regarding **Anthoceros** ?

(A) Elaters develop from amphithecium

(B) Elaters develop from endothecium

(C) Pseudo-elaters develop from amphithecium

(D) Pseudo-elaters develop from endothecium

25. Which part of moss capsule is haploid in nature ?

(A) Operculum

(B) Calyptra

(C) Annulus

(D) Columella

26. Dense surface covering by **Sphagnum** over water bodies gives the appearance of soil. This is called :

(A) Quacking bog

(B) Peat bog

(C) Bog roll

(D) Bog moss

27. Meristele is a part of :

(A) Protostele

(B) Solenostele

(C) Dictyostele

(D) Siphonostele

28. In the stele of pteridophytes :

(A) Vessels are absent but companion cells are present

(B) Vessels are present but companion cells are absent

(C) Both vessels and companion cells are present

(D) Both vessels and companion cells are absent

29. Trabeculae of **Selaginella** are the modification of :

(A) Epidermis

(B) Endodermis

(C) Pericycle

(D) Cortex

30. Antherozoids of **Equisetum** are :

(A) Linear and biflagellate

(B) Spiral and biflagellate

(C) Linear and multiflagellate

(D) Spiral and multiflagellate

31. In case of rhizome of **Marsilea**, the stele is :

(A) Haplostele

(B) Ectophloic siphonostele

(C) Amphiphloic siphonostele

(D) Actinostele

32. Which structure of fern is called frond ?

(A) Young plant

(B) Gametophyte

(C) Rachis

(D) Spore bearing leaf

33. What is true about **Lycopodium** gametophyte ?

(A) It is heterothallic in all species

(B) It is small and inconspicuous in **L. clavatum**

(C) It is large and subterranian in **L. cernuum**

(D) It is saprophytic and colourless in **L. phlegmaria**

34. Turpentine oil used in paint industries is obtained from :

(A) **Cycas** sp.

(B) **Pinus** sp.

(C) **Juniperus** sp.

(D) **Gnetum** sp.

35. Ovule of **Cycas** is :

(A) Anatropous and unitegmic

(B) Anatropous and bitegmic

(C) Orthotropous and unitegmic

(D) Orthotropous and bitegmic

36. The wood of **Pinus** is :

(A) Pycnoxylic with vessels

(B) Pycnoxylic without vessels

(C) Monoxylic with vessels

(D) Monoxylic without vessels

37. Dwarf shoot of **Pinus** possesses :

(A) Scale leaves only

(B) Foliage leaves only

(C) Both scale and foliage leaves

(D) No leaves

38. The embryo sac of **Gnetum** is _____ type.

(A) Tetrasporic

(B) Trisporic

(C) Bisporic

(D) Monosporic

39. The stele of **Lyginopteris** was :

(A) Monostelic haplostele

(B) Monostelic siphonostele

(C) Polystelic haplostele

(D) Polystelic siphonostele

40. Each flower of **Cycadeoidea** is equivalent to :

(A) Megasporophyll

(B) Microsporophyll

(C) Ovule

(D) Strobilus

41. Edible part of sweet potato is :

(A) Tap root tuber

(B) Adventitious root tuber

(C) Stem tuber

(D) Corm

42. A dicotyledonous plant with parallel venation is found in :

(A) **Callophyllum**

(B) **Bryophyllum**

(C) **Myriophyllum**

(D) **Epiphyllum**

43. In case of **Calotropis**, phyllotaxy is :

(A) Spiral

(B) Opposite superposed

(C) Opposite decussate

(D) Whorled

44. Opening of the flowers in a cymose inflorescence is :

(A) Random

(B) Acropetal

(C) Centripetal

(D) Centrifugal

45. The characteristic fruit of family Poaceae is :

(A) Cypsela

(B) Caryopsis

(C) Siliqua

(D) Lomentum

46. An aspect of flowers shown in floral formula but not in floral diagram is :

(A) Floral symmetry

(B) Bracts and bracteoles

(C) Cohesion of floral parts

(D) Position of ovary

47. Didynamous androecium is found in family :

(A) Brassicaceae

(B) Fabaceae

(C) Asteraceae

(D) Lamiaceae

48. According to Hutchinson's system of classification, which group is more advanced in any one genus or family ?

(A) Climbers

(B) Shrubs

(C) Trees

(D) Perennials

49. Primary meristem is derived from :

(A) Promeristem

(B) Apical meristem

(C) Lateral meristem

(D) Inter-calary meristem

50. Which of the followings is an internal gland ?

(A) Nectary

(B) Digestive gland

(C) Oil gland

(D) Hydathode

51. Periderm is composed of :

(A) Periblem, plerome, phellem

(B) Phellem, phellogen, periblem

(C) Plerome, phellogen, phelloderm

(D) Phellem, phellogen, phelloderm

52. The cells functionally associated with sieve tubes are :

(A) Passage cells

(B) Companion cells

(C) Phloem parenchyma

(D) Phloem fibres

53. Anomalous secondary growth in the stem of **Boerhaavia** is due to the formation of :

(A) Successive rings of cambium

(B) Phloem pockets

(C) Interxylary phloem

(D) Interxylary cork

54. In case of diarch roots, the lateral roots arise from the pericycle at the region :

(A) Opposite the xylem bundles

(B) Opposite the phloem bundles

(C) Between the xylem and phloem bundles

(D) Opposite both xylem and phloem bundles

55. Maturation of stamens and carpels of a flower at different times is called :

(A) Dicliny

(B) Dichogamy

(C) Herkogamy

(D) Heterostyly

56. Perisperm is :

(A) Degenerated synergids

(B) A type of endosperm

(C) Remains of nucellus

(D) Persistent integument

57. Chromosome number of the endosperm cells of hybrid seeds raised by a cross between a diploid female and a tetraploid male angiospermic plant is 16. What will be the chromosome number of the endosperm cells of hybrid seeds raised by a cross between a tetraploid female and a diploid male plant ?

(A) 16

(B) 20

(C) 24

(D) 32

58. When embryo sac develops from the cells of nucellus or integuments, the phenomenon is called :

(A) Non-recurrent apomixis

(B) Generative apomixis

(C) Somatic apomixis

(D) Adventive embryony

59. Filiform apparatus is characteristic feature of :

(A) Cellular endosperm

(B) Synergids

(C) Endothecium

(D) Aleurone

60. Find the odd man out on the basis of seed dispersal mechanism :

(A) Jaculators

(B) Wings

(C) Pappus

(D) Coma

61. Continuity of cytoplasm from one cell to the adjacent cells in higher plants is established through :

(A) Apoplast

(B) Symplast

(C) Tonoplast

(D) Leucoplast

62. At incipient plasmolysis, water potential (ψ_w) of a cell is assumed to be equal to :

(A) $\psi_s + \psi_p$

(B) $\psi_p + \psi_m$

(C) ψ_s

(D) Zero

63. Copper deficiency causes a disease in fruit trees called _____ where gums are secreted and deposited on the bark.

(A) Whip tail

(B) Exanthema

(C) Little leaf

(D) Brown heart

64. Water absorbed by root hairs from the soil is :

(A) Surface water

(B) Gravitational water

(C) Hygroscopic water

(D) Capillary water

65. Carbon dioxide acceptor in C_4 plants is :

(A) Phosphoglyceric acid

(B) Ribulose 1, 5 diphosphate

(C) Phosphoenol pyruvate

(D) Glycolic acid

66. Which pigment system is inactivated during red drop ?

(A) PS I

(B) PS II

(C) Both PS I and PS II

(D) Neither PS I nor PS II

67. The active form of enzyme Rubisco is :

(A) Enzyme alone

(B) Enzyme-CO_2 complex

(C) Enzyme-CO_2-Mg^{2+} complex

(D) Enzyme-CO_2-Mn^{2+} complex

68. Which one of the following enzymes catalyzes the reversible reaction during glycolysis ?

(A) Hexokinase

(B) Phosphofructokinase

(C) Phosphoglyceryl kinase

(D) Pyruvic kinase

69. FAD acts as an electron acceptor in between :

(A) Isocitric and Oxalosuccinic acid

(B) Succinic and Fumaric acid

(C) Fumaric and Malic acid

(D) Malic and Oxaloacetic acid

70. Correct sequence of electron acceptors in ATP synthesis is :

(A) Cyt a, a_3, b, c, c_1

(B) Cyt b, c_1, c, a, a_3

(C) Cyt b, c_1, c, a_3, a

(D) Cyt c, c_1, b, a, a_3

71. Select the type of enzyme involved in the following reaction :

$$X-C-C-Y \longrightarrow C=C+X-Y$$

(A) Lyase

(B) Transferase

(C) Hydrolase

(D) Exonuclease

72. The process of oxidation of ammonia to nitrites and nitrates by microbes is called :

(A) Ammonification

(B) Nitrogenation

(C) Nitrification

(D) Denitrification

73. Which is NOT a component of phytochrome ?

(A) Photoreceptor domain

(B) Protein kinase domain

(C) Chromoplast

(D) Chromophore

74. Which of the following pairs is NOT correctly matched ?

(A) GA – leaf fall

(B) IAA – cell wall elongation

(C) Cytokinin – senescence

(D) Abscisic acid – stomatal closure

75. Treatment of seeds at low temperature under moist conditions for a long period to break the dormancy is called :

(A) Stratification

(B) Scarification

(C) Chilling

(D) Moisturization

76. The minimum time required for stimulus to produce response in plants is called :

(A) Stimulation time

(B) Relaxation time

(C) Presentation time

(D) Reaction time

77. Amount of soil water available to plants is called :

(A) Echard

(B) Chresard

(C) Holard

(D) Field capacity

78. Keystone species in community are those :

(A) Present in maximum number

(B) That are more frequent

(C) Attaining a large biomass

(D) That they have important role in community dynamics

79. Niche of a species in an ecosystem refers to its :

(A) Centre of origin

(B) Place of occurrence

(C) Function at its place of occurrence

(D) Competitive ability

80. BOD of a pond is very low means its water is :

(A) Clean

(B) Polluted

(C) Contains more algae

(D) Contains dissolved minerals

81. Which statement is correct regarding ion-channels ?

(A) They are small extrinsic proteins

(B) Movement through them is by facilitated diffusion

(C) Movement of ions is from lower to higher concentration

(D) Only one type of ions pass through the same type of channel

82. Glyoxysomes contain enzymes that initiate the conversion of :

(A) Simple carbohydrates into complex carbohydrates

(B) Glycerol into carbohydrates

(C) Fatty acids into sugars

(D) Proteins into sugars

83. The microtubules are associated with two motor proteins which provide energy to take part in various cellular movements. These are :

(A) Tubulin and Kinesin

(B) Kinesin and Dynein

(C) Dynein and Myosin

(D) Myosin and Kinesin

84. More than one codon code for one type of amino acid. This characteristic of genetic code is called :

(A) Non-ambiguity

(B) Degeneracy

(C) Colinearity

(D) Universality

85. A cytoplasmic factor MPF is responsible for controlling the transition from G_2 to M during cell division. MPF is a :

(A) Hormone

(B) Dimer of a cyclin protein and a protein kinase

(C) Dimer of α-tubulin and β-tubulin

(D) Tetramer of histone proteins

86. During pachytene, large vesicles appear at intervals on synaptonemal complex which contain all enzymes and other factors necessary for crossing over. The vesicles are called :

(A) Recombination nodules

(B) Synaptonemal nodules

(C) Transitory vesicles

(D) Chromatosomes

87. Which of the following statements is correct ?

(A) A DNA has 10 base pairs per turn

(B) Distance between two adjacent nucleotide pairs in B DNA is 2.3 A^o

(C) Rotation per base pair in C DNA is 36°

(D) Z DNA has left-handed helical sense

88. Proofreading during prokaryotic DNA synthesis is done by :

(A) Polymerase I in 3′ → 5′ direction

(B) Polymerase I in 5′ → 3′ direction

(C) Polymerase II in 3′ → 5′ direction

(D) Polymerase III in 5′ → 3′ direction

89. In a trp operon triptophan acts as :

(A) Inducer

(B) Repressor

(C) Co-repressor

(D) Enhancer

90. What types of genotypes are expected when a plant with AaBB genotype is self-pollinated ?

(A) 3AABB : 1AaBB

(B) 3AaBB : 1aaBB

(C) 1AABB : 1AaBB

(D) 1AABB : 2AaBB : 1aaBB

91. Which of the following statements is correct ?

(A) **Triticale** is an autohexaploid

(B) **Raphanobrassica** is an amphidiploid

(C) Super female **Drosophila** is an example of monosomy

(D) Trisomy of 13th chromosome in human shows Down's syndrome

92. Substitution of a purine base by a pyrimidine base causing gene mutation is called :

(A) Transition

(B) Transversion

(C) Frameshift

(D) Tautomerism

93. Which method of selection is applied mainly in cross pollinated crops ?

(A) Mass selection

(B) Pure-line selection

(C) Clonal selection

(D) Random selection

94. Who explained organic evolution on the basis of gene mutation, changes in chromosome structure and number, genetic recombination, natural selection and reproductive isolation ?

(A) Charles Darwin

(B) R. A. Fisher

(C) G. L. Stebbins

(D) J. B. Lamarck

95. Which of the following statements regarding micropropagation in NOT true ?

(A) For production of true to type plants

(B) For production of virus free plants

(C) To get more variations for further selection

(D) Achieved by shoot apex culture

96. Recognition sequence for **Eco RI** is :

(A) AAGCTT

(B) GAATTC

(C) AGGCCT

(D) GTATAC

97. Golden rice possesses four transgenes to enhance its levels of iron and betacarotene. The genes for betacarotene biosynthesis were transferred from :

(A) Bean

(B) **Aspergillus**

(C) Wild rice

(D) Daffodil

98. One of the most commonly used reporter genes for the purpose of gene transfer is CAT gene. What is the full form of CAT ?

(A) Chloramphenicol acyl transferase

(B) Chloramphenicol acetyl transferase

(C) Carbomycin acyl transferase

(D) Carbomycin acetyl transferase

99. Which of the following statements is true ?

(A) **Ficus elastica** is para rubber

(B) Half fermented tea is green tea

(C) White pepper is the dried ripe fruit of black pepper without pericap

(D) Kufri Chandramukhi is a high yielding variety of groundnut

100. Nowadays the orthodox method of tea processing is replaced by C. T. C. method. Full form of C. T. C. is :

(A) Cutting, Thresing and Curing

(B) Crushing, Tearing and Curling

(C) Cutting, Tearing and Curing

(D) Crushing, Thresing and Curling

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