

10036

120 MINUTES

1. In Wheat and rice
 - A) Pericarp is fused with seed coat
 - B) Fruits are multi seeded
 - C) Perisperm is fused with seed coat
 - D) Seed coat and pericarp are separate

2. In gymnosperms, the endosperm is
 - A) Polyploid
 - B) Haploid
 - C) Triploid
 - D) Diploid

3. 'Gamma garden' is used for
 - A) Growing plantlets produced by tissue culture
 - B) Eradicating pathogen from infected plants
 - C) Growing genetically engineered plants on trial basis
 - D) Mutation breeding for crop improvement.

4. Which one of the following is the botanical name of oil palm?
 - A) *Olea europea*
 - B) *Carthamus tinctorius*
 - C) *Elaeis guineensis*
 - D) *Cocos nucifera*

5. The solute most abundant in phloem sap is
 - A) Amino Acids
 - B) Sugar
 - C) Hormones
 - D) Minerals

6. The metal component of Nitrogenase enzyme is
 - A) Manganese
 - B) Molybdenum
 - C) Copper
 - D) Zinc

7. The random changes in gene frequency occurring by chance and the effect of which is large in small populations is called
 - A) Hardy-Weinberg equilibrium
 - B) Pasteur effect
 - C) Genetic drift
 - D) Haldane effect

8. In mosses, primary protonema is
 - A) Haploid and gametophytic
 - B) Diploid and sporophytic
 - C) Haploid and sporophytic
 - D) Diploid and gametophytic

9. "Red rot" of sugarcane is caused by
 - A) *Fusarium*
 - B) *Alternaria*
 - C) *Ustilago*
 - D) *Colletorichum*

10. RNA molecules that possess catalytic activity are known as
 - A) Ribozymes
 - B) Ribosomes
 - C) Polyribosomes
 - D) Polysomes

11. Glycolysis and TCA Cycle operate in
A) Photorespiration B) β -oxidation
C) α -oxidation D) Dark respiration
12. 'Senna' is obtained from the plant
A) Cassia fistula B) Cassia alata
C) Cassia angustifolia D) Cassia tora
13. 'Iris moss' is
A) Chondrus B) Hydrodictyon
C) Funaria D) Sphagnum
14. One of the following trees is endemic to India
A) Tectona grandis B) Artocarpus integrifolia
C) Ficus religiosa D) Azadirachta indica
15. Late blight of potato is caused by
A) Alternaria solani B) Phytophthora infestans
C) Pseudomonas solanacearum D) Albugo bliti
16. The only plant hormone that is not translocated from the cells producing it
A) Auxin B) Ethylene
C) Cytokinin D) Gibberellic acid
17. Nepenthes thaliana, a rare endangered pitcher plant occurs in India in
A) Madhya Pradesh B) Meghalaya
C) Himachal Pradesh D) Andhra Pradesh
18. One chambered dry dehiscent fruit that dehisces along both the sutures is
A) Siliqua B) Follicle
C) Capsule D) Legume
19. The roots of plant yielding Aswagandha which are used in the treatment of rheumatism, inflammation and skin lesion is
A) Curcuma amada B) Rauwolfia serpentina
C) Cinchona officinalis D) Withania somnifera
20. The seven volumes of the "Flora of British India" was compiled by
A) William Hooker B) J. D. Hooker
C) Bentham D) Gamble
21. The use of gamma rays from a cobalt source for control of microorganisms in food
A) Radiation B) Radappertization
C) Radurization D) Ionization
22. Botanical name of finger millet is
A) Poinsettum americanum B) Paspalum scorbiculatum
C) Setaria italica D) Eleusine coracana

23. The production of fruits without fertilization is
 A) Parthenogenesis B) Apomixis
 C) Parthenocarpy D) Pseudocarpy
24. The family Lamiaceae is characterized by the inflorescence
 A) Scorpioid cyme B) Helicoid cyme
 C) Verticillaster D) Cyathium
25. Which of the following trait shows mendelian inheritance as a dominant gene in man
 A) Presence of dimples B) Colour blindness
 C) Both D) None
26. Elators and pseudoelators in the capsules of bryophyte are meant for
 A) Nutrient absorption B) Water conduction
 C) Spore dispersal D) Mechanical support
27. In Smilax tendrils are
 A) Modified stipules B) Modified leaf
 C) Modified petiole D) Modified leaflet
28. Genes with intervening sequences
 A) Introns B) Split genes
 C) Exons D) Pseudo genes
29. A research technique to modify a gene in a predetermined way
 A) Site directed mutagenesis B) Cloning
 C) rDNA technique D) Western blotting
30. In eukaryotes the ribosomal RNA genes are transcribed by
 A) Reverse transcriptase B) RNA dependent RNA polymerase
 C) RNA polymerase 1 D) RNA polymerase 2
31. Floral formula of Hibicus rosasinensis is
 A) $O \text{ } \underset{\text{♀}}{\text{Epi}} K_{6-8} K_{(5)} C_5 A_{(\infty)} G_{\underline{5}}$ B) $O \text{ } \underset{\text{♀}}{\text{Epi}}_{(5)} K_{(5)} C_5 A_{(\infty)} G_{(\underline{5-\infty})}$
 C) $O \text{ } \underset{\text{♀}}{\text{Epi}}_3 K_{(5)} C_5 A_{(\infty)} G_{\underline{5}}$ D) $O \text{ } \underset{\text{♀}}{\text{Epi}} K_3 K_{(5)} C_3 A_{(\infty)} G_{\infty}$
32. Vegetative propagating part of Sugarcane is called
 A) Suckers B) Setts
 C) Scion D) All of the above
33. Antibody diversity is generated by
 A) Protein splicing B) Somatic recombination
 C) Mutation D) Allelic exclusion
34. Example of an aggregate fruit
 A) Pine apple B) Custard apple
 C) Apple D) Orange

35. FASTA program was first described by
A) Adach & Hasegawa B) Lipman & Pearson
C) Kyte and Dolittle D) Fitch & Margoliash
36. An important feature of the genetic code which allows the expression of a protein in any host is its
A) Degeneracy B) Universality
C) Redundancy D) Triplet nature.
37. Muller's CIB method was used to detect
A) Sex linked mutation
B) Sex linked lethal mutations
C) Autosomal dominant mutation
D) Autosomal recessive mutation
38. Gynostegium relates to
A) Fusion of stamens with gynoecium
B) Fusion of stamens with stigmatic disc
C) Fusion of gynoecium with anther
D) Fusion of gynoecium with filaments
39. Venketraman Ramakrishnan has got Nobel Prize for the detailed mapping of
A) Small subunit of ribosome from *Thermos thermophilus*.
B) Large ribosomal subunit of the ribosome of *Geobacillus tearothermophilus*.
C) Large ribosomal subunit of *Pyrococcus abyssi*.
D) Small subunit of ribosome of *Pyrodictium occultum*.
40. The transgenic plant which is developed by anti-sense RNA technology.
A) Golden rice B) Bt cotton
C) Flavr Savr tomato D) Both A and C
41. The non motile male spermata are carried to the female by means of water currents in
A) Fucus B) Polysiphonia
C) Chara D) Vaucheria
42. X-ray scattering from an atom depends on the number of
A) Electrons B) Protons
C) Neutrons D) All of these
43. The most famous X-helix polypeptide secondary structure is
A) Left handed B) Circular
C) Right handed D) Branched
44. RNA – DNA hybrid always adopt A form because of
A) Steric hindrance of – OH group in RNA
B) Steric hindrance of – OH group in DNA
C) Coiling of the molecule
D) Presence of Uracil base in RNA

45. Chlorella will fulfill the need of all vitamins except
A) Ascorbic acid B) Biotin
C) Palmitic acid D) Pathonic acid
46. Which of the experiment is suitable to detect linkage?
A) aaBB x aaBB B) AaBb x aabb
C) AABB x aabb D) AAbb x AaBB
47. According to Rodley & Sasi Sekharan model, DNA is
A) Right handed
B) Left handed
C) Alternating right and left handed helix
D) None of these.
48. Which plant is efficient converter of solar energy?
A) Wheat B) Sugarcane
C) Rice D) Banana
49. The plant hormone used to induce parthenocarpy
A) Gibberellins B) Cytokinins
C) Auxins D) Ethylene
50. Quaternary structure of protein describes.
A) Conformational organization B) Functional organization
C) Amino acid sequence D) None of these.
51. Who among the following is known as father of biostatistics
A) Francis Galton B) Adolphe Queste
C) Neyman D) William Gosset
52. Which one is used for comparison between two or more variables
A) Pie chart B) Bar diagram
C) Line diagram D) All of these
53. The feeding of avidin may result in a deficiency of
A) Riboflavin B) Vitamin B12
C) Vitamin A D) Biotin
54. A fatty acid not synthesized in man is
A) Oleic acid B) Stearic acid
C) Linoleic acid D) Palmitic acid
55. Genomic imprinting is
A) Expression of genes depend on its paternal or maternal inheritance
B) Expression of genes linked with X chromosomes
C) Expression of genes linked with Y chromosomes
D) Expression of extrachromosomal genes

56. Calyptrogen is needed in monocots to
A) Produce root cap B) Protect root tip
C) Absorb water D) None of the above
57. Riboswitches are
A) Short RNA sequences that change their conformation on binding with small molecules
B) Short RNA sequences that interact with DNA
C) Short RNA molecules that bind with proteins
D) Short RNA sequences degrade from mRNA
58. The O₂ dissociation curve of hemoglobin is shifted to right by
A) Decreased CO₂ tension B) Increased pH
C) Increased CO₂ tension D) Increased N₂ tension
59. How many genetically different gametes can be made from an individual of genotype of AaBbccDDEe
A) 8 B) 32 C) 10 D) 5
60. What component of the bacterial cell wall are attacked by penicillins?
A) Peptidoglycan B) Teichoic acid
C) Teichuronic acid D) Lipopolysaccharide
61. Daughter of a colour blind father and normal mother marries a colour blind person. How the trait will express among their children?
A) 50 % sons and 50 % daughters
B) All sons only
C) All daughters only
D) All sons and Daughters
62. How many triplet codons can be made from four nucleotides A, U, G and C containing no uracils?
A) 27 B) 64 C) 37 D) 6
63. Which of the following is not a method of genetic recombination in bacteria?
A) Translocation B) Transformation
C) Conjugation D) Transduction
64. Albinism is due to lack of
A) Tyrosinase B) Phenylalanine hydroxylase
C) Kynureninase D) Homogentisicase
65. Which of these is a pentasaccharide sugar?
A) Verbascose B) Raffinose C) Stachyose D) Threose
66. In men, the lipoprotein fraction with highest cholesterol contents is
A) α - lipoprotein B) β - lipoprotein
C) Chylomicrons D) Prealbumin

67. Which of the following is the important reactive group of glutathione in its role as antioxidant
A) Serine B) Sulf hydryl
C) Acetyl CoA D) Carboxyl
68. Bell-shaped normal distribution curve inheritance is an example of
A) Complementary genes B) Qualitative inheritance
C) Polygenic traits D) Pleiotropy
69. The distance between bacterial genes, as determined from interrupted conjugation experiments are measured in units of
A) Recombination B) Micrometer
C) Minutes D) Percentage of genophgore
70. The first attempt to show linkage in plants was carried out in
A) Oenothera lamarckiana B) Pisum sativum
C) Lathyrus odoratus D) Zea mays
71. In prenatal diagnosis, the polymorphism used to determine genetic disorders is
A) SNPs B) RFLPs C) RAPDs D) SCARs
72. A Drug resistance marker used for selection of recombinants is
A) NPT II B) SSP C) SSR D) AFLP
73. Colchicine induces polyploidy by
A) Inhibiting cell division B) Promoting cell division
C) Inhibiting spindle formation D) Doubling the Chromosome size
74. Which type DNA is found in M13 phages?
A) Single stranded and circular
B) Single stranded and linear
C) Double stranded and linear
D) Double stranded and circular
75. The regions of gene which do not form part of functional mRNA are called
A) Transposons B) Cistrons
C) Introns D) Exons
76. Overlapping genes
A) Are characteristics to eukaryotes
B) Code for over lapping amino acid sequences in Protein
C) Are split genes
D) Means that a gene can code for more than one polypeptide
77. Which one of the following carries dwarf gene with high protein and lysine percentage in wheat.
A) Lerma safed B) Kalyan
C) Sharbati sonara D) Sonalika

78. Which is the most short -lived RNA?
A) sRNA B) rRNA C) tRNA D) mRNA
79. The DNA sequence cut by Eco RI is
A) GCAT /GCAT B) GAATTC/GAATTC
C) GAATTC/CTTAAG D) GAATTG/CTTTAAC
80. In Z-DNA, helix pitch is
A) 60 \AA^0 B) 34 \AA^0 C) 20 \AA^0 D) 45 \AA^0
81. Triticale has been evolved by hybridization between
A) Rice and Maize B) Wheat and rice
C) Wheat and rye D) Ragi and Maize
82. During translation phase of protein synthesis, process of initiation, elongation and termination involve
A) Protein factors and AMP B) Protein factors and CAMP
C) Protein factors and GTP D) Glycoxylation.
83. Shuffling of gene from one location to another is possible. Such genes are called
A) Mutons B) Recons
C) Exons D) Transposons
84. Andrew Fire and Craig Mello got Nobel Prize in Medicine for
A) PCR B) Protein Sequencing
C) RNA interference D) GFP
85. The holandric genes are located on
A) Polytene B) Y- chromosome
C) X- Chromosome D) Mitochondria
86. Mutagenic agents causing frame shift mutation are
A) 2-Amino purine B) EMS
C) Bromouracil D) Acridine dye
87. Kornberg with Ochoa received Nobel Price for the work of
A) Mechanism of biological synthesis of DNA and RNA
B) Co linearity hypothesis
C) Central Dogma
D) Artificial Synthesis of protein
88. The Hybrid variety cotton obtained by crossing two different strains of *Gossypium hirsutum* is
A) Godhavari B) Varalaxmi
C) Savitri D) Jayalaxmi
89. BSI is located at
A) Lucknow B) Mysore C) Kolkatta D) Kerala

90. Quanta required for assimilation of one molecule of CO_2/O_2 liberation in photosynthesis are
A) 2 B) 8 C) 6 D) 4
91. Continuous variations are attributed to meiosis through
A) Polyploidy B) Crossing over
C) Mutation D) All of these
92. Oligogenes are
A) Quantitative genes B) Qualitative genes
C) Holandric genes D) Epistatic genes
93. The common bread wheat is
A) Allotetraploid B) Allohexaploid
C) Auto tetraploid D) Diploid
94. RNA Polymerase enzyme is
A) Monocistronic only B) Polycistronic only
C) Monocistronic & Polycistronic D) Not a protein
95. Which sub unit of ribosome is attached to ER?
A) 50S B) 60S C) 30S D) 40S
96. Unidirectional replication takes place in
A) Coliphage P2 B) Escherichia
C) Pneumococcus D) Salmonella
97. Which phrase is not true about backcross breeding?
A) It is a practice that has been used by plant breeders for decades
B) Backcross breeding is repeated until the offspring has 99+% elite genes and the transgene
C) Backcross breeding is a new technique developed for genetically engineered plants
D) Backcross breeding is often used to reduce yield drag
98. Which of the following occurs in the sporangia of mosses?
A) Spores germinate into protonemata
B) Sperm cells are produced in rows just beneath the surface of the antheridiophore
C) Sporocytes undergo meiosis to produce spores
D) The zygote develops into a multicellular embryo
99. Conservation hotspots are best described as
A) Areas with large numbers of endemic species that are disappearing rapidly
B) Areas where people are particularly active supporters of biological diversity
C) Islands that are experiencing high rates of extinction
D) Areas where native species are being replaced with introduced species

100. Which bacteria causes food poisoning
A) Escherichia B) Penicillium
C) Salmonella D) Candida
101. Which of the following statements about Marchantia sporophytes is true?
A) The capsule is attached directly to the foot without the development of a seta.
B) An operculum forms on the apex of the mature capsule
C) The sporophyte hangs down from the underside of the archegonium.
D) None of the above
102. When a specific epithet exactly repeats the generic name it is known as
A) Neotype B) Priority
C) Taxa D) Tautonym
103. The seed known by the name 'Chilgoza', that is used as a dry fruit
A) Zamia B) Pinus gerardiana
C) Cedrus deodara D) Cycas racemosa
104. Quantitative PCR is
A) Real time PCR B) RT PCR
C) Inverse PCR D) Multiplex PCR
105. Percentage frequency distribution is represented by
A) Frequency polygon B) Ogive representation
C) Pie diagram D) Frequency table
106. Mode can be located graphically with the help of
A) Line diagram B) Bar
C) Histogram D) Pie diagram
107. The first artificial plant hybrid was made by
A) Thomas Fairchild B) De Viries
C) Borlaug D) M.S.Swaminathan
108. Somatic embryogenesis is:
A) Germ line cells developing into embryos
B) Non-germ line cells developing into embryos
C) Embryos developing from zygotes
D) Embryonic tissue becoming somatic
109. A CsCl gradient will separate DNA molecules by
A) Absorption B) Resorption
C) Density D) Adhesion
110. Klenow fragment without free nucleotides exhibits
A) Exonuclease activity B) Endonuclease activity
C) Nickase activity D) No activity

111. The unwinding of the double helix of DNA prior to replication is carried out by
A) Topoisomerase B) Helicase
C) Restriction endoclease D) All of A, B and C
112. The non sister chromatids twist around and exchange segments with each other in
A) Leptotene B) Pachytene
C) Zygotene D) Diplotene
113. Line Weaver – Burk plot helps to find out
A) Rate of enzyme action B) Competitive inhibitor
C) Substrate composition D) Group specificity
114. Amyloplastids are plastids which store
A) Proteins B) Lipids
C) Starch D) Ergastic substances
115. When lactose is present
A) The regulator protein is unable to bind the operator and transcription turned on
B) The regulator protein binds the operator and transcription turned off
C) The regulator protein is unable to bind the operator and transcription turned off
D) The regulator protein binds the operator and transcription turned on
116. Which one of the following trees yield gum
A) Pinus B) Acacia
C) Eucalyptus D) Phyllanthus
117. Which amino acid is precursor of ethylene production
A) Alanine B) Threonine
C) Methionine D) Serine
118. Jute is
A) Corchorus capsularis B) Crotalaria juncea
C) Ceiba pentadra D) Calamus rotundus
119. Rose wood belongs to the family
A) Leguminosae B) Verbenaceae
C) Liliaceae D) Cruciferae
120. Marginal placentation and monocarpellary pistil are found in
A) Poaceae B) Asteraceae
C) Fabaceae D) Liliaceae

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