

(Microbiology)

1. Protective mechanisms used by bacteria to survive in the host may be
 - (A) Capsules
 - (B) M protein
 - (C) various enzymes
 - (D) All of the above

2. Microbes which are capable of growing over a wide range of temperature are called
 - (A) Eubacteria
 - (B) Thermophilic
 - (C) Thermotolerant
 - (D) Eurythermal

3. Carbohydrate binding proteins are called
 - (A) Lectins
 - (B) Defensins
 - (C) Lipopolysaccharides
 - (D) Peptidoglycans

4. Spliceosomes are absent in cells of
 - (A) Plants
 - (B) Animals
 - (C) Fungi
 - (D) Bacteria

5. Bacteria that are resistant to penicillin and related antibiotics produce an enzyme that breaks----- in these antibiotics.
 - (A) Benzene ring
 - (B) Side groups (R groups)
 - (C) beta-lactam ring
 - (D) Disulfide bonds

6. An antimicrobial agent that interferes with translation of mRNA into protein is
- (A) Cephalosporin
 - (B) Chloramphenicol
 - (C) Mitomycin
 - (D) Amphotericin B
7. Membrane bound organelles are absent in
- (A) *Chlamydomonas*
 - (B) *Saccharomyces*
 - (C) *Streptococcus*
 - (D) *Plasmodium*
8. Endotoxin in Gram negative bacteria is made up of :
- (A) Lipoproteins
 - (B) Peptidoglycan
 - (C) Lipopolysaccharide
 - (D) Polypeptide
9. Which of the following has coiled RNA and capsomeres?
- (A) Poliovirus
 - (B) Tobacco mosaic virus
 - (C) Measles virus
 - (D) Retrovirus
10. In the laboratory, bacterial cells can be rendered by the use of cold calcium chloride or electroporation.
- (A) Conjugated
 - (B) Transposable
 - (C) Competent
 - (D) Transducible
11. What bacterial gene transfer process is most sensitive to extracellular nucleases?
- (A) Generalized transduction
 - (B) Specialized transduction
 - (C) Homologous recombination
 - (D) Transformation

12. What is the peculiarity of Pandoravirus?
- (A) Largest virus
 - (B) Largest viral genome
 - (C) Smallest virus
 - (D) Smallest viral genome
13. The first antibody to contact invading micro-organism:
- (A) IgG
 - (B) IgA
 - (C) IgD
 - (D) IgM
14. Which of the following is a sexual spore of fungi?
- (A) Conidiospore
 - (B) Ascospore
 - (C) Sporangiospore
 - (D) Chlamydo-spore
15. Kojic acid is obtained from
- (A) *Nocardia*
 - (B) *Micobacterium*
 - (C) *Aspergillus*
 - (D) *Penicillium*
16. Which of the following structure is absent in Gram positive bacteria?
- (A) Cell wall
 - (B) Teichoic acid
 - (C) Murein
 - (D) Outer membrane
17. The only bacterial genus with sterols in their cell wall
- (A) *Vibrio*
 - (B) *Escherichia*
 - (C) *Mycoplasma*
 - (D) *Salmonella*

18. Magnetosomes are inclusions ofin certain bacteria

- (A) Iron oxide
- (B) Iron phosphate
- (C) Iron chloride
- (D) Iron nitrate

19. Ehrlich and Hata discovered ----- that was used to treat -----

- (A) salvarsan; syphilis
- (B) penicillin; surgical wounds
- (C) salvarsan; malaria
- (D) prontosil; malaria

20. Agar-agar is obtained from

- (A) *Gelidium*
- (B) *Polysiphonia*
- (C) *Fucus*
- (D) *Laminaria*

21. Which of the algae is responsible for red colour of red sea?

- (A) *Chlamydomonas brucei*
- (B) *Trichodesmium erythrum*
- (C) *Ulothrix zonata*
- (D) None of the above

22. The resolving power of an optical microscope is :

- (A) $\approx 2 \mu\text{m}$
- (B) 0.2 nm
- (C) $\approx 2 \text{ A}^\circ$
- (D) 0.2 nm

23. Presence of sodium taurocholate in McConkey agar make it a

- (A) Differential medium
- (B) Basal medium
- (C) Selective medium
- (D) Enriched medium

24. The third amino acid in the peptidoglycan crosslinking chain is either diaminopimelic acid or lysine because this amino acid must
- (A) Be positively charged for a salt bridge to form.
 - (B) Be hydrophilic.
 - (C) Have a free amino group for peptide bond formation.
 - (D) Have a large R-side chain to fill space in the cell wall.
25. Which of the following are most suitable indicators of SO₂ pollution in the environment?
- (A) Algae
 - (B) Fungi
 - (C) Lichens
 - (D) Conifers
26. A dikaryon is formed when
- (A) Meiosis is arrested
 - (B) The two haploid cells do not fuse immediately
 - (C) Cytoplasm does not fuse
 - (D) None of the above
27. Genes present on the same locus but having different expressions are
- (A) Polygenes
 - (B) Multiple alleles
 - (C) Pleiotropic genes
 - (D) Co-dominant genes
28. Chitin is
- (A) Sulphur containing polysaccharide
 - (B) Simple polysaccharide
 - (C) Nitrogen containing polysaccharide
 - (D) Phosphorous containing polysaccharide
29. C₄ plants are more efficient in photosynthesis than C₃ plants due to the
- (A) Presence of large number of chloroplasts
 - (B) Higher leaf area
 - (C) Lower rate of photorespiration
 - (D) Presence of thin cuticle

30. Sickle cell anemia shows
- (A) Epistasis
 - (B) Incomplete dominance
 - (C) Pleiotropy
 - (D) Co-dominance
31. The polymer of natural rubber is
- (A) all trans isoprene
 - (B) Buna-N
 - (C) all cis isoprene
 - (D) None of the above
32. Main constituent of LPG is
- (A) Methane
 - (B) Iso-butane, propane
 - (C) H₂, CH₄, Iso-butane
 - (D) None of the above
33. Which of the following enzymes is used to join two DNA molecules?
- (A) Endonucleases
 - (B) Restriction enzymes
 - (C) Lyases
 - (D) Ligases
34. The K_m value of an enzyme is
- (A) the total enzyme concentration
 - (B) the substrate concentration at half maximal velocity
 - (C) half the substrate concentration at maximum velocity
 - (D) dissociation constant of enzyme substrate complex
35. The enzymes that break hydrogen bonds and unwind are
- (A) primases
 - (B) ligases
 - (C) helicases
 - (D) polymerases

36. In prokaryotes
- (A) Transcription and translation are coupled
 - (B) Transcription and processing are coupled
 - (C) Processing and translation are coupled
 - (D) Replication and transcription are coupled
37. The 21st amino acid is
- (A) Hydroxyl proline
 - (B) Hydroxyl lysine
 - (C) Selenocysteine
 - (D) Citrulline
38. Absorbance at 280nm exhibited by proteins is due to
- (A) all amino acids
 - (B) aliphatic amino acids
 - (C) polar amino acids
 - (D) aromatic amino acids
39. Proteins are separated on the basis of their net charge by
- (A) ion exchange chromatography
 - (B) affinity chromatography
 - (C) gel filtration chromatography
 - (D) dialysis
40. Bacterial capsules are generally viewed by
- (A) Ziehl-Neelsen staining
 - (B) Gram staining
 - (C) Scanning electron microscopy
 - (D) Negative staining
41. What is the refractive index of oil?
- (A) 1.5
 - (B) 1.0
 - (C) 0.5
 - (D) 0.75

42. Approximate generation time of *E.coli* is
- (A) 20 minutes
 - (B) 10 minutes
 - (C) 25 minutes
 - (D) 30 minutes
43. The precursor used in the production of penicillin
- (A) Phenol
 - (B) Phenyl acetic acid
 - (C) Penicilloic acid
 - (D) Biotin
44. Which among the following is thermocuric bacteria?
- (A) Salmonella
 - (B) Bacillus
 - (C) Pseudomonas
 - (D) Flavobacterium
45. Which among the following is not an air borne infection?
- (A) Pertussis
 - (B) Pneumonia
 - (C) Diphtheria
 - (D) Typhoid
46. Wine production is favoured by
- (A) *Penicilium chrysogenum*
 - (B) *Saccharomyces cerevisiae*
 - (C) *Aspergillus niger*
 - (D) *Bacillus subtilis*
47. Which organism is coming under GRAS status?
- (A) *E.coli*
 - (B) *P.aeruginosa*
 - (C) *L.lactis*
 - (D) *B.subtilis*

48. The byproduct of streptomycin fermentation is
- (A) Glutamic acid
 - (B) Ethanol
 - (C) Vitamin B12
 - (D) Riboflavin
49. The typical temperature for an autoclaving is
- (A) 121°C
 - (B) 100°C
 - (C) 180°C
 - (D) 160°C
50. The 1st bacterial genome to be completely sequenced
- (A) *Escherichia coli*
 - (B) *Haemophilus influenzae*
 - (C) *Bacillus subtilis*
 - (D) *Mycobacterium tuberculosis*
51. Mendel's experimental organism was
- (A) *C. renorabditis elegans*
 - (B) *Neurospora crassa*
 - (C) *Drosophila melanogaster*
 - (D) *Pisum sativum*
52. The site of action of Chloramphenicol is
- (A) 30S ribosome
 - (B) 50S ribosome
 - (C) Nucleic acid
 - (D) Cell wall
53. Enzyme used for fruit juice clarification
- (A) Amylase
 - (B) Protease
 - (C) Pectinase
 - (D) Lipase

54. Calcium is not directly involved in
- (A) Blood clotting
 - (B) Cell signaling
 - (C) Muscle contraction
 - (D) Electron transport chain
55. Which one of the following organisms is used for the large scale production of recombinant insulin?
- (A) *P.pastoris*
 - (B) *A.tumefaciens*
 - (C) *B.subtilis*
 - (D) *E.coli*
56. A strain of micro-organism which lacks the ability to synthesize one or more growth factors
- (A) Autotrophs
 - (B) Heterotrophs
 - (C) Lithotrophs
 - (D) Auxotroph
57. Which of the following is a DNA virus?
- (A) Adeno virus
 - (B) Picorna virus
 - (C) Myxovirus
 - (D) Corona virus
58. Immunodiffusion in gel is a type of
- (A) Precipitation reaction
 - (B) Agglutination reaction
 - (C) Complement fixation reaction
 - (D) None of the above
59. Which of the following is not a part of downstream processing?
- (A) Filtration
 - (B) Centrifugation
 - (C) Drying
 - (D) Secondary screening

60. An example for an anaerobic fermentation
- (A) Citric acid production
 - (B) Amino acid production
 - (C) Acetone butanol fermentation
 - (D) Amylase production
61. Which among the following is a Type II restriction endonuclease?
- (A) *EcoPI*
 - (B) *EcoRI*
 - (C) *EcoB*
 - (D) *EcoK*
62. Lamarck theory of organic evolution is usually known as
- (A) Natural selection
 - (B) Inheritance of Acquired characters
 - (C) Genetic drift
 - (D) Continuity of germ plasma
63. A segment of DNA that reads the same forward and backward is called
- (A) Palindromic DNA
 - (B) Complementary DNA
 - (C) Tandem DNA
 - (D) Microsatellite DNA
64. In a plant red colour (R) is dominant over white (r). A cross was made between a red flowered plant and a white flowered plant. The offspring were 50% red and 50% white. What is the possible genotype of the red colored plant?
- (A) RR
 - (B) Rr
 - (C) rr
 - (D) None of the above

65. In H1N1, H and N represent
- (A) Hemolysin and Neuraminase
 - (B) Hemagglutinin and Neuraminase
 - (C) Hemolysin and Neuraminidase
 - (D) Hemagglutinin and Neuraminidase
66. BCG is an example for
- (A) Live attenuated vaccine
 - (B) Killed vaccine
 - (C) Recombinant vaccine
 - (D) Subunit vaccine
67. Antibiotic sensitivity of a clinical isolate is tested by the
- (A) Thayer-Martin method
 - (B) Kirby-Bauer method
 - (C) ONPG test
 - (D) Vogues-Proskauer test
68. Width of DNA double helix is
- (A) 3.4 \AA
 - (B) 20 \AA
 - (C) 10 \AA
 - (D) 34 \AA
69. 3' Terminal end of m-RNA has a polymer of adenylate which is known as
- (A) Capping
 - (B) Polyadenylate
 - (C) Poly (A) tail
 - (D) None of the above
70. T_m is greater for DNA with
- (A) Higher GC content
 - (B) Higher GA content
 - (C) Higher AT content
 - (D) Higher AC content

71. The causative agent of Bubonic plague
- (A) *Pasturella multocida*
 - (B) *Yersinia pestis*
 - (C) *Yersinia enterocolitica*
 - (D) *Yersinia pseudotuberculosis*
72. The etiological agent of common conjunctivitis/ pink eye
- (A) *Pseudomonas aeruginosa*
 - (B) *Klebsella pneumoniae*
 - (C) *Haemophilus aegyptius*
 - (D) *Staphylococcus aureus*
73. The ability to reveal closely adjacent points as separate and distinct
- (A) Magnification
 - (B) Resolution
 - (C) Numerical aperture
 - (D) None of the above
74. The site where RNA polymerase attaches to the DNA molecule to start the formation of RNA is called
- (A) Promoter
 - (B) Exon
 - (C) Intron
 - (D) GC hairpin
75. Which of the following vectors can carry the largest insert?
- (A) Plasmids
 - (B) Phagemids
 - (C) YACs
 - (D) Cosmids
76. Ultraviolet radiation causes
- (A) Protein denaturation
 - (B) Rupturing of cell membrane
 - (C) Dimerization of Thymine
 - (D) Frameshift mutation

77. In which format are sequences submitted in BLAST server?
- (A) FASTA
 - (B) ASN.1
 - (C) MmCIF
 - (D) PDB file format
78. Transposons are discovered by
- (A) F. Griffith & Co.
 - (B) Watson and Crick
 - (C) B. MacClintok
 - (D) F. Meicher
79. In a cell cycle DNA replication occurs at -----phase
- (A) S
 - (B) G1
 - (C) G2
 - (D) G0
80. The most effective way to analyze variation at the whole genome level is to use
- (A) Single nucleotide polymorphism (SNP)
 - (B) Structural DNA
 - (C) Segmental duplication
 - (D) Site directed mutagenesis
81. Which of the following is a gaseous sterilizing agent?
- (A) Ethanol
 - (B) Formaldehyde
 - (C) Glutaraldehyde
 - (D) Ethylene oxide

82. Match the following:

| | Organism | | General Name |
|------|-----------------|---|-------------------------|
| I. | Hyalonema | - | (A) Freshwater sponge |
| II. | Euplectella | - | (B) Boring sponge |
| III. | Cliona | - | (C) Glass rope sponge |
| IV. | Spongilla | - | (D) Venus flower basket |

- (A) I-D, II-C, III-B, IV-A
- (B) I-B, II-D, III-A, IV-C
- (C) I-C, II-D, III-B, IV-A
- (D) I-D, II-A, III-D, IV-C

83. Choose the correct order:

- (A) Sporocyst, Miracidium, Redia, Metacercaria, Cercaria
- (B) Miracidium, Redia, Sporocyst, Metacercaria, Cercaria
- (C) Miracidium, Sporocyst, Redia, Cercaria, Metacercaria
- (D) Cercaria, Metacercaria, Miracidium, Sporocyst, Redia

84. **Assertion (A)** In *Taenia solium*, energy is liberated by breaking glycogen into CO₂ and fatty acids.

Reason (R): Aerobic respiration occurs in *Taenia solium*.

- (A) Both A and R are correct and R is the correct explanation for A
- (B) A is correct but R is incorrect
- (C) A is incorrect but R is correct
- (D) Both A and R are incorrect and R is not the correct explanation for A

85. Which of the following is viviparous?

- (A) *Ascaris*
- (B) *Trichinella*
- (C) *Enterobius*
- (D) *Ancylostoma*

86. I am an air-breathing arthropod with thin cuticle, a single pair of antennae, a single pair of jaws and numerous pairs of hollow stumpy legs. Who am I?

- (A) Centipede
- (B) Millipede
- (C) Spider
- (D) Peripattus

87. Match the following

| Organ part | Parts formed |
|--------------------|------------------------|
| I. Cornegeal layer | - (A) Rods and cones |
| II. Vitrellae | - (B) Corneal lens |
| III. Retinula | - (C) Refractive rod |
| IV. Rhabdome | - (D) Crystalline cone |

(A) I-D, II-C, III-B, IV-A
 (B) I-B, II-D, III-A, IV-C
 (C) I-C, II-A, III-D, IV-B
 (D) I-D, II-C, III-D, IV-A

88. Say True or False:

- (A) In cockroach, the ommatidium produces small pieces of images called 'mosaic image'.
 - (B) In bright light the ommatidium forms 'apposition image' and in dim light it forms 'superposition image'.
- (A) Both A and B are True
 (B) A is True and B is False
 (C) A is False and B is True
 (D) Both A and B are False

89. *Amphullae* of *Lorenzini* helps in _____.

- (A) Olfactory function
- (B) Equilibrium and auditory function
- (C) Detection of slow vibrations in water
- (D) Detection of water temperature

90. The dental formula of rabbit is

- (A) $I = 2/2, C = 1/1, Pm = 2/2, M = 3/3$
- (B) $I = 2/3, C = 0/1, Pm = 3/3, M = 3/3$
- (C) $I = 2/1, C = 0/0, Pm = 3/2, M = 3/2$

(D) I = 1/1, C = 0/0, Pm = 0/0, M = 3/3

91. The embedding medium not used for embedding tissues for electron microscopy is
- (A) Paraffin
 - (B) Vestoplav
 - (C) Araldite
 - (D) Maraglas
92. The Bedouin women have smooth endoplasmic reticulum problem, because they are not able to make enough of this vitamin.
- (A) Vitamin B
 - (B) Vitamin D
 - (C) Vitamin E
 - (D) Vitamin K
93. 'Pompe's Disease', an inborn disease is caused by the malfunctioning of
- (A) ER
 - (B) Ribosomes
 - (C) Lysosomes
 - (D) Golgi complex
94. The microtubule is made up of _____ number of protein protofilaments called tubulin.
- (A) 11
 - (B) 13
 - (C) 15
 - (D) 17
95. Calcium dependent cell adhesion is mediated by this glycoprotein.
- (A) Integrins
 - (B) Selectins
 - (C) Glycines
 - (D) Cadherins

96. This gene is called as 'The Guardian of the Genome'.
- (A) Rb
 - (B) p53
 - (C) PTEN
 - (D) APC
97. In *Mirabilis jalapa* the F₂ generation has same phenotype and genotype ratios, which shows
- (A) Complete dominance
 - (B) Codominance
 - (C) Incomplete dominance
 - (D) Pleiotrophism
98. According to Lyon hypothesis, the number of Barr bodies was always
- (A) $nX-1$
 - (B) $nX+1$
 - (C) $nX-2$
 - (D) $nX+2$
99. (A) In the blind spot, both rods and cones are present.
(R) Image formation does not take place at blind spot.
- (A) Both A and R is correct
 - (B) A is correct, but R is not correct
 - (C) A is not correct, but R is correct
 - (D) Both A and R is not correct
100. Which hormone stops the acid secretion of the gastric gland?
- (A) Gastrin
 - (B) Secretin
 - (C) Enterocrinin
 - (D) Entero-gastrone

101. The inward rolling of cells through the dorsal lip during gastrulation of frog is called
- (A) Involution
 - (B) Invagination
 - (C) Epiboly
 - (D) Delamination
102. The budding of a new and very different daughter species from a semi-isolated peripheral population of the ancestral species in a cross fertilizing organism is called as
- (A) Instantaneous speciation
 - (B) Gradual speciation
 - (C) Quantum speciation
 - (D) Sympatric speciation
103. An algae rich in proteins is
- (A) Chlorella
 - (B) Oscillatoria
 - (C) Ulothrix
 - (D) Spirogyra
104. The loading of phloem during translocation means
- (A) elongation of phloem cells
 - (B) separation of phloem parenchyma
 - (C) strengthening of phloem fibers
 - (D) pouring of sugar into phloem
105. First stable product of photosynthesis by C_3 plants during dark reaction is
- (A) PGA
 - (B) Pyruvic acid
 - (C) RuBP
 - (D) Oxalo acetic acid

106. Phytohormone causing abscission of leaves, senescence, bud dormancy and inhibition of cell division is
- (A) IAA
 - (B) ethylene
 - (C) cytokinins
 - (D) ABA
107. Main function of lenticels is
- (A) transpiration
 - (B) guttation
 - (C) bleeding
 - (D) gaseous exchange
108. Pomato is somatic hybrid between
- (A) poppy and potato
 - (B) potato and tomato
 - (C) poppy and tamarind
 - (D) poppy and ton at
109. Which of the following is used to determine the rate of transpiration in plants?
- (A) Porometer/hygrometer
 - (B) Potometers
 - (C) Auxanometer
 - (D) Tensiometer/barcimeter
110. During the dark reactions of photosynthesis
- (A) Water splits
 - (B) CO_2 is reduced to organic compounds
 - (C) Chlorophyll is activated
 - (D) C_6 -Sugar is broken into three carbon sugars
111. Which of the following is the most primitive vascular plant?
- (A) ferns
 - (B) cycas
 - (C) sphagnum
 - (D) psilotum

112. Which division of fungi lack flagella?
- (A) Mastigomycota
 - (B) Amastgomycota
 - (C) Gymnomycota
 - (D) Basidiomycetes
113. Fruiting bodies of slime moulds are called
- (A) acervulus
 - (B) sori
 - (C) apothecium
 - (D) perithecium
114. Cork cambium and vascular cambium are
- (A) parts of secondary xylem and phloem
 - (B) parts of pericycle
 - (C) lateral meristem
 - (D) apical meristem
115. A bicollateral vascular bundle is characterized by
- (A) phloem being sandwiched between xylem
 - (B) transverse splitting of vascular bundle
 - (C) longitudinal splitting of vascular bundle
 - (D) xylem being sandwiched between phloem
116. What will be left if chlorophyll is burnt?
- (A) Magnesium
 - (B) Manganese
 - (C) Iron
 - (D) Sulphur
117. Elements needed for chlorophyll formation in plants are
- (A) Sodium and copper
 - (B) Calcium and potassium
 - (C) Iron and magnesium
 - (D) Iron and calcium

118. What is meant by 'Organ culture'?
- (A) Maintenance alive of a whole organ, after removal from the organism by partial immersion in a nutrient fluid
 - (B) Introduction of a new organ in an animal body with a view to create genetic mutation in the progenies of that animal
 - (C) Cultivation of organs in a laboratory through the synthesis of tissues
 - (D) The aspects of culture in community which are mainly dedicated by the need of a specified organ of the human body
119. In addition to seeds, which of the following characteristics are unique to the seed-producing plants?
- (A) sporopollenin
 - (B) lignin present in cell walls
 - (C) pollen
 - (D) megaphylls
120. White rust of crucifer is caused by
- (A) *Puccinia*
 - (B) *Ustilago*
 - (C) *Cystocou*
 - (D) *Peziza*
121. When F_1 plants heterozygous for tallness are selfed, F_2 generation has both tall and dwarf plants. This depicts the principle of
- (A) Dwarfness
 - (B) Law of segregation
 - (C) Law of independent assortment
 - (D) Blended inheritance
122. If the trait is X-linked recessive, which of the following statements is true?
- (A) Children will not have the trait
 - (B) Children might or might not have the trait
 - (C) All of the children will have the trait
 - (D) Males will have the trait, but females will only have the trait if their father also has the trait

123. Polyribosomes are aggregates of
- (A) ribosomes and r-RNA
 - (B) only r-RNA
 - (C) peroxisomes
 - (D) several ribosomes held together by string of m-RNA
124. In α -helix secondary structure, hydrogen bonds lie between amide group of one amino acid and carbonyl group of
- (A) 2nd amino acid
 - (B) 3rd amino acid
 - (C) fourth amino acid
 - (D) fifth amino acid
125. Nucleotide arrangement in DNA can be seen by
- (A) X-ray crystallography
 - (B) Electron microscopy
 - (C) Confocal microscopy
 - (D) Light microscopy
126. Initiation codon of protein synthesis (in eukaryotes) is
- (A) GUA
 - (B) GCA
 - (C) CCA
 - (D) AUG
127. If the DNA codons are ATG ATG ATG and a cytosine base is inserted at the beginning, then which of the following will result
- (A) CAT GAT GAT G
 - (B) a non-sense mutation
 - (C) C ATG ATG ATG
 - (D) CATGATGATG

128. The α' subunit of polymerase has a function of
- (A) Promoter binding
 - (B) Elongation
 - (C) Cation binding
 - (D) Termination
129. Northern blotting is performed for
- (A) Determining the size of DNA
 - (B) Determining the size of RNA
 - (C) Quantification of RNA
 - (D) Sequencing of RNA
130. What is the function of polynucleotide kinase?
- (A) Addition of γ -phosphate at $3' - OH$
 - (B) Addition of γ -phosphate at $5' - OH$
 - (C) Removal of γ -phosphate at $3' - OH$
 - (D) Removal of γ -phosphate at $5' - OH$
131. At how many places, reduced coenzymes are produced in TCA cycle?
- (A) Two
 - (B) Three
 - (C) Four
 - (D) Five
132. What is the byproduct of bacterial photosynthesis?
- (A) O_2
 - (B) H_2O
 - (C) $S_2O_3^{2-}$
 - (D) H_2S
133. During electrophoresis denaturation of the double stranded DNA is brought about by
- (A) Treatment with alkali
 - (B) Application of current
 - (C) Treatment with $EtBr$
 - (D) Application of heat

134. The inheritance pattern of RAPD is
- (A) Dominant
 - (B) Recessive
 - (C) Codominant
 - (D) Random
135. After entering a T cell, HIV first forms
- (A) mRNA
 - (B) ssDNA
 - (C) dsDNA
 - (D) dsRNA
136. Which of the following compounds is responsible for coordinated regulation of glucose and glycogen metabolism?
- (A) NAD⁺
 - (B) Fructose 2, 6 bisphosphate
 - (C) Acetyl-CoA
 - (D) Fructose 1, 6 bisphosphate
137. An amino acid that has a secondary amine and disrupts α helix formation is
- (A) Glycine
 - (B) Phenylalanine
 - (C) Serine
 - (D) Proline
138. Pyramid of numbers deals with the number of
- (A) Species in an area
 - (B) Sub species in a community
 - (C) Individuals in a community
 - (D) Individuals in a tropical level
139. Food chain in which micro-organisms breakdown the food formed by primary producers
- (A) Parasitic food chain
 - (B) Consumer food chain
 - (C) Detritus food chain
 - (D) Predator food chain

140. Which national park is not present in Assam?
- (A) Kaziranga
 - (B) Nameri
 - (C) Namdhapa
 - (D) Dibru-Saikhawa
141. Which of the following is not a primary contributor to the greenhouse effect?
- (A) carbon dioxide
 - (B) carbon monoxide
 - (C) chlorofluorocarbons
 - (D) methane gas
142. The following disease is caused by nonsense mutation
- (A) Beta thalassemia
 - (B) Autism
 - (C) Albinism
 - (D) Marfan syndrome
143. The reversion of the phenotypic effects of an already existing mutation is by
- (A) Point mutation
 - (B) Somatic mutation
 - (C) Germline mutation
 - (D) Suppressor mutation
144. In ABO blood type, Type AB is produced by
- (A) Homozygous genotype
 - (B) Homozygous and Heterozygous genotype
 - (C) Heterozygous genotype
 - (D) None of the above
145. In mutational event, when adenine is replaced by guanine, it is a case of
- (A) Transition
 - (B) Frameshift mutation
 - (C) Transcription
 - (D) Transversion

146. Citric acid is a useful component of a buffer mixture because
- (A) it has one pK_a value
 - (B) it has two pK_a values
 - (C) it has four pK_a values
 - (D) it has three pK_a values
147. Which of the vector was mostly used in Human Genome project
- (A) Lamda phage and M13 vectors
 - (B) Phagemid and shuttle vectors
 - (C) Plasmid and Cosmid
 - (D) BAC and YAC
148. Which of the following amino acids have an abundance of Histones?
- (A) Arginine and Glutamine
 - (B) Alanine and Glutamine
 - (C) Glycine and Glutamine
 - (D) Lysine and Arginine
149. In Lineweaver Burk plot, the Y-intercept represents
- (A) V_{max}
 - (B) K_m
 - (C) $1/V_{max}$
 - (D) $1/K_m$
150. Viable material of endangered species can be preserved by
- (A) Gene Bank
 - (B) Gene Library
 - (C) Gene Pool
 - (D) Herbarium
