BIOTECHNOLOGY
(FINAL)

1. Genetic elements which possess the dual capacity to exist either as chromosomal or an extrachromosomal entity are called

   (A) Autosomes
   (B) Oxysomes
   (C) Mesosomes
   (D) Episomes

2. The process by which a gene is able to yield a phenotypic character is called

   (A) Gene expression
   (B) Gene manipulation
   (C) Transcription
   (D) Transformation

3. Ti plasmids are found in

   (A) *Escherichia coli*
   (B) *Saccharomyces cerevisae*
   (C) *Agrobacterium tumefaciens*
   (D) *Arabidopsis*

4. AGO proteins are associated with

   (A) Histone complex
   (B) RNAi effector complex
   (C) SOS mechanisms
   (D) Tryptophan operon

5. Among the following which is an inhibitor of 80S ribosome

   (A) Tetracycline
   (B) Streptomycin
   (C) Chloramphenicol
   (D) Cycloheximide

6. Restriction endonucleases are

(A) Used for in vitro DNA synthesis
(B) Synthesized by bacteria as part of their defense mechanism
(C) Present in mammalian cells for degradation of DNA when the cell dies
(D) Used in genetic engineering for ligating two DNA molecules

7. Microinjection technique of introducing Nucleic Acids is a

(A) Physical method
(B) Biological method
(C) Combination of physical and biological method
(D) Chemical method

8. Why is golden rice pale yellow in color?

(A) It is rich in chlorophyll
(B) It is rich in beta-carotene
(C) It is rich in anthocyanins
(D) It is rich in phycobilins

9. Cellular totipotency is the property of

(A) Plants
(B) Animals
(C) Bacteria
(D) All of the above

10. When a virus enters a cell but does not replicate immediately, the situation is called

(A) Lysogeny
(B) Fermentation
(C) Symbiosis
(D) Synergism

11. In order to insert a foreign gene into a plasmid, both must ……

(A) Have identical DNA sequences

(B) Originate from the same type of cell
(C) Be cut by the same restriction enzyme
(D) Be of the same length

12. Human insulin formed by recombinant DNA technology is known as

(A) H insulin
(B) R insulin
(C) Humulin
(D) Huinsulin

13. During meiosis crossing over takes place at

(A) Zygotene stage
(B) Diplotene stage
(C) Diakinesis stage
(D) Pachytene stage

14. When the transposon jumps into an otherwise functional gene, it has the effect of

(A) Blocking correct transcription
(B) Initiating correct transcription
(C) Propagating correct transcription
(D) Initiating some genetic codes

15. Lysosomes are associated with

(A) Photosynthesis
(B) Respiration
(C) Storage
(D) Digestion

16. Conjugative plasmids

(A) Exhibit antibiotic resistance
(B) Do not exhibit antibiotic resistance
(C) Carry transfer genes called the tra genes
(D) Do not carry transfer genes

17. Bt toxin producing plants are resistant to

(A) Fungal pathogens
(B) Bacterial pathogens
(C) Herbicides
(D) Insect pests

18. If a nucleotide sequence encoding a protein is known and a homologous protein to this protein is to be spotted, which of the following will be best analysis tool for this purpose

(A) BLAST p
(B) BLAST n
(C) BLAST x
(D) tBLASTn

19. Which type of restriction enzymes are most commonly used in molecular cloning?

(A) Type I
(B) Type II
(C) Type III
(D) Type IV

20. What is the purpose of IPTG in molecular biology experiments?

(A) To inhibit bacterial growth
(B) To induce expression of genes under the lac operon promoter
(C) To cleave DNA at specific sites
(D) To stabilize mRNA

21. Which gene-editing technique utilizes a programmable RNA molecule to target specific DNA sequences?

(A) TALEN
(B) ZFN
(C) CRISPR-Cas9
(D) RNAi

22. Which of the following statement/s best describes the process of electro-blotting in Western blotting?

(A) The technique requires the use of chemical reagents to facilitate transfer
(B) The technique separates protein based on molecular weight, by transferring to a solid support and marking target protein using a proper primary and secondary antibody to visualize the same
(C) The technique involves heating the gel to transfer proteins
(D) The technique visualizes proteins on the gel

23. Distance between two successive base pairs in DNA is

(A) 34˚A
(B) 0.34nm
(C) 3.4nm
(D) 0.34˚A

24. Mitochondrial DNA is advantageous for evolutionary studies because

(A) It evolves more slowly than the genes in the nucleus
(B) It is inherited into the X-chromosome
(C) It first appeared in humans and is not found in other animals
(D) It is inherited only through the female parent and thus evolves in a way that allows

25. In eukaryotic systems, highly repetitive sequences are usually located at or near …….. region

(A) Euchromatin
(B) Centromeric
(C) Both euchromatin and heterochromatin
(D) Nuclear organizing

26. A frequently used vector pBR322 for cloning purpose in *E. coli* is……

(A) An original bacterial plasmid
(B) A viral genome
(C) A modified bacterial plasmid
(D) A transposon

27. Which of the following sugars are pentoses?

(A) Glucose and sucrose
(B) Deoxyribose and Ribose
(C) Sucrose and maltose
(D) Maltose

28. The …… state implies the exit of cells from the cell cycle

(A) S
(B) G1
(C) G2
(D) G0

29. Assume that the average amino acid residue has a molecular weight of 110. The DNA strand coding for a polypeptide chain of molecular weight 33,000 has a length of…….nucleotides

(A) 500
(B) 800
(C) 900
(D) 250

30. In common bacterial growth curve, the log phase indicates

(A) Linear increase in the number of bacterial cells & exponential increase in bacterial biomass
(B) Exponential increase in bacterial cell number & exponential increase in bacterial biomass
(C) Exponential increase in the number of bacterial cells & linear increase in bacterial biomass
(D) Linear increase in the number of bacterial cells and linear increase in bacterial biomass

31. Which class of the immunoglobulin will increase in case of an allergic reaction?

(A) IgG
(B) IgM
(C) IgE

(D) IgA

32. The difference between oxidative phosphorylation and substrate level phosphorylation is

(A) Substrate level phosphorylation does not produce any ATP
(B) ADP is directly phosphorylated to ATP in substrate level phosphorylation
(C) ATPs are generated by transferring electron through the electron transfer chain
(D) Oxidative phosphorylation takes place in glycolysis

33. Small solid supports onto which are spotted hundreds of thousands of tiny drops of DNA that can be used to screen gene expression

(A) DNA microarrays
(B) Cloninglibrary
(C) Shotgunsequencing
(D) Southern blot

34. Which of the following component of RNA polymerase facilitates the recognition of promoter sequences?

(A) Sigma factor
(B) Beta component
(C) Delta factor
(D) Alpha component

35. A graduate student used Mannitol Salt Agar (MSA) to culture a bacterial culture and thus successfully inhibited the growth of organisms of its group. The use of MSA is an example of

(A) Differential media.
(B) Selective media
(C) Chemically defined media
(D) Enriched media

36. The technique used to separate components based on their different solubilities is called

(A) Extraction
(B) Filtration
(C) Precipitation
(D) Titration

37. ……. is the second messenger involved in calcium signalling

(A) cAMP
(B) ATP
(C) IP_3
(D) $FADH_2$

38. The process by which a cell engulfs large particles is called

(A) Endocytosis
(B) Exocytosis
(C) Pinocytosis
(D) Phagocytosis

39. ……..nanomaterials are used for imaging and diagnostics

(A) Chitosan nanoparticles
(B) Polymeric nanoparticles
(C) Quantum dots
(D) Lipid nanoparticles

40. What is the role of PEGylation in biopharmaceuticals?

(A) Increase solubility and stability
(B) Improve drug metabolism
(C) Reduce manufacturing costs
(D) Increase protein degradation

41. Which of the following is a commonly used vector for delivering genes in gene therapy?

(A) Bacteriophage
(B) Retrovirus
(C) YACs
(D) SV40

42. The term "germline editing" refers to

(A) Editing genes in somatic cells
(B) Removing genetic material from bacteria
(C) Editing viruses to prevent infections
(D) Editing DNA in reproductive cells, affecting future generations

43. ……. is a major argument against genetic engineering in agriculture

(A) Faster plant growth
(B) Potential environmental risks and loss of biodiversity
(C) Reduction in pesticide use
(D) Increased crop yield

44. Which of the following is a fluorescent dye used in DNA staining?

(A) Eosin
(B) Hematoxylin
(C) Ethidium bromide
(D) Methylene blue

45. The tryptophan operon is an example of

(A) Inducible
(B) Repressible
(C) Constitutive
(D) Positive regulation

46. Which of the following are the functions of reverse transcriptase in retroviruses?

(A) It hydrolyzes the host cell's DNA
(B) It converts host cell RNA into viral DNA
(C) It uses viral RNA as a template for DNA synthesis
(D) It translates viral RNA into proteins

47. The “Witches broom of legumes” is caused by

(A) Mycoplasma
(B) Virus
(C) Bacteria
(D) Fungus

48. Archaebacteria differs from eubacteria

(A) Cell shape
(B) Cell membrane structure
(C) Mode of nutrition
(D) Mode of reproduction

49. Mesosomes of bacteria are analogous to

(A) Mitochondria
(B) Golgi apparatus
(C) Chloroplast
(D) Lysosome

50. Trickling filter is used in which of the following wastewater treatment processes?

(A) Primary treatment
(B) Secondary treatment
(C) Advanced treatment
(D) Final treatment

51. Which of the following, regarding acid-fastness of the two Mycobacteria is true?

(A) Mycobacterium tuberculosis is more acid-fast than Mycobacterium leprae
(B) Mycobacterium leprae is more acid-fast than Mycobacterium tuberculosis
(C) Bothe are equally acid-fast
(D) Both are acid-fast but not acid-alcohol-fast

52. Which one of the following establishes symbiotic association with Glycine max?

(A) Nostoc
(B) Azotobacter
(C) Rhizobium
(D) Bradyrhizobium

53. Bacteria which obtain energy from chemical compounds are called as

(A) Chemotroph
(B) Heterotroph
(C) Organotroph
(D) Phototroph

54. What is the process involving transferring of naked DNA fragments between bacteria called?

(A) Vectoring
(B) Transformation
(C) Transduction
(D) Conjugation

55. The phase of bacterial growth during which bacteria shows exponential growth curve is called?

(A) Lag phase
(B) Log phase
(C) Stationary phase
(D) Decline phase

56. The foundation of germ theory of the disease was set forth by

(A) Robert Koch
(B) Ronald Ross
(C) Louis Pasteur
(D) Walter Reed

57. Penicillin's mode of action is by

(A) Inhibiting RNA synthesis
(B) Inhibiting cell wall formation
(C) Destroying chromatin
(D) inhibiting spindle formation

58. …… produce an anti-viral state - that inhibits viral replication

(A) B cells
(B) Tumour necrosis factors
(C) Interferons
(D) Antibodies

59. B7 receptor present on activated B cell interacts with …… receptor on T helper cell

(A) CD 28
(B) CD 40 L
(C) CD 40
(D) CD 8

60. …….. are major antigenic variation which results in sudden emergence of new subtype of influenza high infection rates in an immunologically naïve population leading influenza pandemics

(A) Antigenic shift
(B) Hypersensitive reactions
(C) Opsonization
(D) Antigenic drift

61. The basic principles of microscopy include

(A) Resolution
(B) Magnification
(C) Numerical aperture
(D) All of the above

62. RNA-dependent RNA-Polymerases is likely to be present in the virion of a

(A) DNA virus that multiplies in the cytoplasm

(B) DNA virus that multiplies in the nucleus
(C) Minus strand RNA virus
(D) Transforming virus

63. An alpha helix represents

(A) Primary structure of a protein
(B) A coiled structure of amino acids and secondary structure of a protein
(C) Tertiary structure of a protein
(D) Aggregation of proteins

64. Which one of the following is an example of a non-covalent interaction in proteins?

(A) Salt bridge
(B) Peptide bond
(C) Disulfide bond
(D) Phosphodiester bond

65. Transmission electron microscopy is best for high magnification viewing of

(A) internal structure of live, motile cells.
(B) surface structure of fixed cells
(C) internal structure of fixed cells.
(D) surface membranes of live, motile cells.

66. Identify the INCORRECT statement/s given below

(A) Many Gram-positive bacteria have teichoic acids a major component of the cell wall in their cell wall
(B) Space between the plasma membrane and the outer membrane is called the periplasmic space
(C) The outer membrane characteristically present only in Gram-negative bacterium
(D) Capsules of *Bacillus anthracis* consist of polypeptides, mainly poly-D-glutamic acid

67. ……..group of organisms uses light as the energy source and CO_2 as the principal or primary carbon source

(A) Photoheterotrophs
(B) Chemoheterotrophs
(C) Chemoautotrophs
(D) Photoautotrophs

68. Encapsulated bacteria

(A) Are sometimes more virulent than their non-encapsulated counterparts
(B) Are more susceptible to phagocytes destruction
(C) Have more signal for protein synthesis than non-encapsulated bacteria
(D) Both a and c are correct

69. The bacterium responsible for peptic ulcer disease is

(A) *E. coli*
(B) *H. pylori*
(C) *V. cholerae*
(D) *S. aureus*

70. DNA virus is

(A) Influenza virus
(B) Hepatitis B virus
(C) Poliovirus
(D) Measles virus

71. An example of a free-living nitrogen-fixing bacterium is

(A) *Rhizobium*
(B) *Azotobacter*
(C) *Mycobacterium*
(D) *Bacillus*

72. Which bacterial genus is commonly associated with food poisoning due to improperly cooked or stored food?

(A) Salmonella

(B) Lactobacillus
(C) Corynebacterium
(D) Neisseria

73. ……..component of Gram-negative bacteria is responsible for inducing endotoxin shock

(A) Peptidoglycan
(B) Lipopolysaccharide
(C) Teichoic acid
(D) Capsule

74. Which of the following mechanisms is NOT involved in bacterial antibiotic resistance?

(A) Efflux pump activation
(B) Antibiotic degradation
(C) Ribosome inactivation
(D) Capsule formation

75. …… antifungal drug is commonly used for systemic fungal infections

(A) Amphotericin B
(B) Penicillin
(C) Ciprofloxacin
(D) Rifampicin

76. The mecA gene in MRSA encodes for

(A) β-lactamase
(B) Penicillin-binding protein 2a
(C) DNA gyrase
(D) Efflux pump

77. Which of the following is used in cheese production?

(A) *Saccharomyces cerevisiae*
(B) *Penicilliumroqueforti*

(C) *Escherichia coli*
(D) *Pseudomonas putida*

78. The primary function of secondary metabolites in microbes is

(A) Growth and reproduction
(B) Energy production
(C) Defense and competition
(D) DNA replication

79. …… microorganism is involved in sewage treatment

(A) *Escherichia coli*
(B) *Pseudomonas aeruginosa*
(C) *Methanobacterium*
(D) *Clostridium botulinum*

80. Which microbial enzyme is used in laundry detergents?

(A) Cellulase
(B) Amylase
(C) Ligase
(D) Protease

81. ……. method is used to predict the 3D structure of proteins in bioinformatics?

(A) Sequence alignment
(B) Homology modelling
(C) Gene expression analysis
(D) PCR amplification

82. An example of a bioinformatics tool for multiple sequence alignment is

(A) CLUSTALW
(B) RASMOL
(C) GenBank
(D) BLAST

83. …….. microorganism is commonly used in bioremediation to degrade oil spills

(A) *Escherichia coli*
(B) Pseudomonas species
(C) *Saccharomyces cerevisiae*
(D) Bacillus species

84. The role of "microbial fuel cells" in environmental biotechnology is

(A) To break down organic waste for bioremediation
(B) To remove heavy metals from contaminated soil
(C) To generate electricity from wastewater
(D) To degrade plastic waste

85. ……. is an example of a secondary metabolite produced during fermentation

(A) Alcohol
(B) Lactic acid
(C) Biomass
(D) Antibiotics

86. Which microorganism is commonly used for the production of insulin in a bioprocess?

(A) *E. coli*
(B) *S. cerevisiae*
(C) *B. subtilis*
(D) *A.niger*

87. The substrates are used for the production of ethanol

(A) Starch containing substrate
(B) Juice from sugarcane or molasses
(C) Waste products from wood or processed wood
(D) All of the above

88. Which of the following statements regarding infection by M13 phage is incorrect?

(A) It is a lytic phage
(B) It is a lysogenic phage
(C) New phage particles are produced continuously
(D) The DNA does not integrate into the host genome

89. The characteristic feature of slime mould is

(A) Elaters
(B) Capitulum
(C) Capillitium
(D) Psuedoelaters

90. Who is known as “Father of microbiology”?

(A) Robert Kotch
(B) AntoniVenLeeuvenhoek
(C) Ferdinand Cohn
(D) Edwin John Butler

91. Plasma membrane of animal cells is consisted of

(A) Phospholipids and glycolipids
(B) Phospholipids and Cholesterol
(C) Phospholipids, glycolipids, cholesterol
(D) Phospholipids only

92. Which one of the following is present only in fingertips, palms and soles?

(A) Stratum lucidum
(B) Stratum spinosum
(C) Stratum granulosum
(D) Stratum corneum

93. Sodium ion concentration in the distal convoluted tubule of the kidney is detected by

(A) Macula densa
(B) Zonaglomerulosa
(C) Juxtaglomerular body
(D) Bowman’s Capsule

94. Which one of the following is not a mechanical method of pest management?

(A) Hand destruction
(B) Exclusion by screens
(C) Trapping
(D) Release of genetically incompatible pests

95. In comparison to generalized species, the ecologically specialized species are

(A) Vulnerable to changes in their environment
(B) Stronger to face changes in their environment
(C) Non-affected by changes in their environment
(D) Resistant to changes in their environment

96. In the elderly people, degeneration of articular cartilage causing friction of bone against bone that results in difficulty in movement is referred as

(A) Osteomyelitis
(B) Osteoarthritis
(C) Osteopenia
(D) Osteosarcoma

97. The excess cytoplasm and cytoplasmic organelles of the developing spermatid is lost as

(A) Polar body
(B) Residual body
(C) Chromatoid body
(D) Endocyticvessicle

98. The J-chain in immmunoglobulins

(A) is made only by epithelial cells
(B) is responsible for immunoglobulin multimer formation
(C) is present in monomeric forms of immunoglobulin
(D) is a carbohydrate side chain of immunoglobulin

99. Which is the principal immunoglobulin found in secretions such as milk?

(A) IgG
(B) IgM
(C) IgA
(D) IgD

100. In India, brackish water aquaculture dates back to 1950s. It came into extensively use in 1990s. The brackish water aquaculture in India is primarily focused on

(A) Shrimp farming
(B) Clamp faming
(C) Tilapia farming
(D) Pearl farming

101. When the innate immune system encounters a foreign antigen, which cell-surface molecules play role in recognizing the presence of a foreign antigen?

(A) T cell receptor
(B) The membrane attack complex of complement
(C) Toll-like receptor (TLR)
(D) Antibody

102. In a cardiac cycle, the volume of blood ejected per beat from each ventricle is referred as

(A) Stroke volume
(B) End-diastolic volume
(C) End-systolic volume
(D) Cardiac output

103. The hormone that causes the formation of subsequent larval stages during development is known as

(A) Ecdysone
(B) Prothoracicotropic hormone
(C) Juvenile hormone
(D) Thyroid hormone

104. Frame shift mutation is caused due to

I. Addition of bases
II. Transition of bases
III. Deletion of bases
IV. Transversion of bases

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

105. Immunoglobulins are produced by

(A) Plasma cells
(B) T-cells
(C) B-cells
(D) All immune cells

106. Meiosis does not occur in

(A) Asexually reproducing diploid individuals
(B) Sexually reproducing haploid individuals
(C) Sexually reproducing diploid individuals
(D) All of the above

107. Sugarcane is propagated by

(A) Root cutting
(B) Stem cutting
(C) Seeds
(D) Buds

108. In short day plants

(A) Dark period is critical and must be continuous
(B) Dark period is critical and must be interrupted
(C) Plants must be exposed to long days during early periods of growth
(D) Require a dark period exceeding a critical length

109. The symbiotic association between fungi and plants is called as

(A) Lichens
(B) Endosymbiosis
(C) Mycorrhiza
(D) Mutualism

110. A scientific process by which crop plants are enriched with certain desirable nutrients is called

(A) Crop protection
(B) Breeding
(C) Bio fortification
(D) Bio remediation

111. Golden rice, developed through transgene approach is rich in

(A) High lysine content
(B) High methionine content
(C) High glutenin content
(D) High vitamin A content

112. The plants which are genetically identical to the original plant from which they were grown are called as

(A) Somaclones
(B) Somatic hybrids
(C) Explants
(D) Recombinants

113. Which of the following is a post-fertilisation event in flowering plants?

(A) Transfer of pollen grains
(B) Formation of flower
(C) Embryo development
(D) Formation of pollen grains

114. What is removal of anthers from flower bud before the anther dehisces for plant Breeding known as?

(A) Emasculation
(B) Bagging
(C) Artificial hybridization
(D) Rebagging

115. What is Spirulina?

(A) Biofertilizer
(B) Edible fungus
(C) Single cells protein
(D) Biopesticide

116. Which one of the following cell organelles is not involved in the photorespiration

(A) Chloroplasts
(B) Peroxisomes
(C) Ribosomes
(D) Mitochondria

117. The biomass produced by the plants which is available for the consumption to heterotrophs is plant's

(A) Gross Primary Productivity
(B) Net Primary Productivity
(C) Secondary Productivity
(D) Tertiary Productivity

118. The enzymes of TCA- cycle for complete oxidation of Pyruvic acid into CO_2 and H_2O are present in

(A) Chloroplasts
(B) Mitochondria
(C) Peroxisomes
(D) Mesosomes

119. The synthesis of glucose from fat is called

(A) Glycolysis
(B) TCA
(C) Gluconeogenesis
(D) Saponification

120. During water stress in plants increase in ABA level causes

(A) Stomatalopeing
(B) Stomatal closure
(C) Increase in root length
(D) Inhibition of flowering

121. What is the isoelectric point of sickle-cell hemoglobin?

(A) 7.09
(B) 6.87
(C) 6.53
(D) 7.27

122. According to Chargaff's rules discovered in the late 1940s by Erwin Chargaff

(A) DNA has equal numbers of adenine and thymine residues
(B) DNA has equal numbers of guanine and cytosine residues
(C) Both A and B
(D) None of the above

123. The charging of a tRNA with the proper amino acid is carried out by

(A) RNA polymerases
(B) Aminoacyl-tRNAsynthetases
(C) Acyl CoA synthetase
(D) DNA polymerase

124. Which of the following enzyme was first crystalized by James Sumner in 1926?

(A) Protease
(B) Phosphatase
(C) Urease

(D) Polymerase

125. Lysozyme is an enzyme that cleaves

(A) Peptide bonds
(B) Phosphodiester bonds
(C) Glycosidic bonds
(D) Di sulphide bonds

126. Individuals with which of the ABO blood type is said to be "universal donors"

(A) A positive
(B) O negative
(C) AB positive
(D) O positive

127. A catalytically active enzyme–cofactor complex is called as

(A) Co enzyme
(B) Holoenzyme
(C) Apoenzyme
(D) All of the above

128. Gap junctions on plasma membrane consist of a single sort of protein subunit known as a

(A) Tubulin
(B) Connexin
(C) Actin
(D) Myosin

129. The protein components of lipoprotein is known as

(A) Myoglubin
(B) Actin
(C) Fibronectin
(D) Apolipoprotein

130. Typical intracellular concentrations of ATP in muscle is

(A) 5.0 Mm
(B) 0.5 mM
(C) 1.0 mM
(D) 2.0 mM

131. Which of the following is the primary function of the Leloir pathway in carbohydrate metabolism?

(A) Conversion of glucose to glycogen
(B) Conversion of galactose to glucose-6-phosphate
(C) Conversion of glucose to lactate
(D) Conversion of fructose to glucose

132. In the Entner-Doudoroff pathway, glucose is converted to which of the following intermediates?

(A) Fructose-6-phosphate
(B) 3-phosphoglycerate
(C) 6-phosphogluconate
(D) Acetyl-CoA

133. Dolichol is involved in the synthesis of which type of molecule?

(A) Nucleotides
(B) Lipoprotein
(C) Phospholipids
(D) Oligosaccharides

134. Pernicious anemia is primarily caused by a deficiency of

(A) Vitamin A
(B) Vitamin B12
(C) Vitamin D
(D) Folate

135. Which of the following operons is repressed by catabolite repression in the presence of glucose in E. coli?

(A) Lac operon
(B) Ara operon
(C) Trp operon
(D) Tryptophan operon

136. The monomer of natural rubber is

(A) Styrene
(B) Isoprene
(C) Ethylene
(D) Vinyl chloride

137. The use of biodegradable plastics in packaging helps in

(A) Reducing air pollution
(B) Reducing plastic waste accumulation
(C) Increasing greenhouse gas emissions
(D) Increasing fossil fuel consumption

138. Aspirin is chemically known as

(A) Acetylsalicylic acid
(B) Paracetamol
(C) Ibuprofen
(D) Benzyl alcohol

139. Which noble gas is used to fill electric bulbs?

(A) Xenon
(B) Helium
(C) Neon
(D) Argon

140. ……. is the main chemical used for the preservation of soft drinks

(A) Benzoic acid
(B) Sulfur dioxide
(C) Citric acid
(D) Sodium chloride

141. Which of the following is a Lewis acid?

(A) NH_3
(B) H_2O
(C) BF_3
(D) CH_4

142. …… is a thermosetting polymer

(A) Polyethylene
(B) Polyvinyl chloride
(C) Bakelite
(D) Polypropylene

143. The wave-particle duality of electrons was proposed by

(A) Max Planck
(B) Niels Bohr
(C) Louis de Brogli
(D) Werner Heisenberg

144. The Schrödinger wave equation is based on

(A) Newtonian mechanics
(B) Classical wave theory
(C) Thermodynamics
(D) Quantum mechanics

145. The …….. process is used to convert vegetable oils into solid fats for margarine

(A) Hydrogenation
(B) Fermentation
(C) Crystallization
(D) Saponification

146. The fine structure of atomic spectra is due to

(A) Electron spin
(B) Nuclear charge

(C) Photon emission
(D) Relativity

147. The Lyman series of the hydrogen spectrum is observed in …… region

(A) Infrared
(B) Visible
(C) Microwave
(D) Ultraviolet

148. The main raw material for the manufacture of cement is

(A) Silica and alumina
(B) Limestone and clay
(C) Gypsum and feldspar
(D) Bauxite and coke

149. The industrial production of sodium carbonate (washing soda) is done by …… process

(A) Solvay
(B) Haber
(C) Contact process
(D) Ostwald process

150. The artificial sweeteners used in diabetic-friendly foods are

(A) Sucrose
(B) Aspartame
(C) Glucose
(D) Lactose

ANSWER KEY									
Subject Name:		**BIOTECHNOLOGY**							
SI No.	**Key**	**SI No.**	**Key**	**SI No.**	**Key**	**SI No.**	**Key**	**SI No.**	**Key**
1	D	31	C	61	D	91	C	121	A
2	A	32	B	62	C	92	A	122	C
3	C	33	A	63	B	93	A	123	B
4	B	34	A	64	A	94	D	124	C
5	D	35	B	65	C	95	A	125	C
6	B	36	A	66	C	96	B	126	B
7	A	37	C	67	D	97	B	127	B
8	B	38	D	68	A	98	B	128	B
9	A	39	C	69	B	99	C	129	D
10	A	40	A	70	B	100	A	130	A
11	C	41	B	71	B	101	C	131	B
12	C	42	D	72	A	102	A	132	C
13	D	43	B	73	B	103	C	133	D
14	A	44	C	74	D	104	B	134	B
15	D	45	B	75	A	105	A	135	A
16	C	46	C	76	B	106	A	136	B
17	D	47	A	77	B	107	B	137	B
18	C	48	B	78	C	108	D	138	A
19	B	49	A	79	C	109	C	139	D
20	B	50	B	80	D	110	C	140	A
21	C	51	A	81	B	111	D	141	C
22	B	52	D	82	A	112	A	142	C
23	B	53	A	83	B	113	C	143	C
24	D	54	B	84	C	114	A	144	D
25	B	55	B	85	D	115	C	145	A
26	A	56	C	86	A	116	C	146	A
27	B	57	B	87	D	117	B	147	D
28	D	58	C	88	A	118	B	148	B
29	C	59	A	89	C	119	C	149	A
30	B	60	A	90	B	120	B	150	B