LIFE SCIENCE (Final)

1. The life originated first in

   A. Water
   B. Land
   C. Air
   D. Rocks

2. The development of a living organism from embryo to adult stage is called as

   A. Phylogeny
   B. Ontogeny
   C. Embryology
   D. Palaeobotany

3. What is the estimated number of forms of living beings on Earth?

   A. 1.0 billion
   B. 0.5 trillion
   C. 8.7 million
   D. 7.8 million

4. In the context of evolution, the 'Natural Selection Theory 'was proposed by

   A. Darwin
   B. Lamarck
   C. Gregore Johannes Mendel
   D. Weismann

5. Which one among the following is considered as the connecting link between non-living and living according to the theory of evolution of life?

   A. Viruses
   B. Bacteria
   C. Phaeophyceae members
   D. Green algae

6. The present day epoch is

   A. Palaeozoic
   B. Coenozoic
   C. Mesozoic
   D. Triassic

7. Ozone layer is considered to be important for life because it

   A. Provides CO_2 for respiration
   B. Provides O_2 for respiration
   C. Protects from ultraviolet radiation
   D. Protects from microwaves

8. We determine the age of fossil with the help of

   A. Deposition of Calcium
   B. Radioactive Carbon dating
   C. By counting rings formed inside the fossil
   D. By estimating silicates

9. According to 'fluid mosaic model', the correct sequence of organization of biomolecules in the plasma membrane is

   A. Lipid-Protein-Protein-Lipid
   B. Protein-Protein-Lipid-Lipid
   C. Protein-Lipid-Lipid-Protein
   D. Protein-Lipid-Lipid-Lipid

10. Cell organelles are embedded in the

    A. Cytoplasm
    B. Nucleus
    C. Microtubules
    D. Plasma membrane

11. Which one of the following contains blue-print for growth and development?

    A. Nucleus
    B. Nucleolus
    C. Golgi complex
    D. Tonoplast

12. When the cell is young, the cytoplasm fills the lumen of the cell. But in mature cells, the cytoplasm

    A. gets vacuolated
    B. contracts
    C. disintegrates
    D. evaporates

13. In general, the plant cells are surrounded by cell-wall except one of the following

    A. Shoot hairs
    B. Root hairs
    C. Gametes
    D. Parenchyma cells

14. The highest number of mitochondria are found in

    A. Meristematic tissue
    B. Sclerenchyma cell
    C. Xylem tracheid
    D. Xylem vessel

15. A string of ribosomes joined together is called as

    A. Lysosome
    B. Spherosome
    C. Polysome
    D. Mitochondria

16. True nucleus is absent in which one of the following?

    A. Green algae
    B. Bacteria
    C. Lichen
    D. Fungi

17. Find the odd one from the following:

    A. Leucoplasts
    B. Chromoplasts
    C. Chloroplasts
    D. Tonoplasts

18. Who were awarded Nobel Prize for the discovery of double-helical structure of DNA?

A. J.D. Watson
B. F.H.C. Crick
C. Both A and B
D. Watson and Shutton

19. The bond between two strands of DNA is

A. Carbon
B. Hydrogen
C. Oxygen
D. Nitrogen

20. The cell-organelles can better be isolated by

A. Chemical analysis
B. Autoradiography
C. X-ray diffraction
D. Differential centrifugation

21. Which one of the following structures carries out a similar function in both plant and animal cell?

A. Contractile vacuole
B. Cell-wall
C. Mitochondrion
D. Chloroplast

22. Which one of the following exhibits endosymbiosis?

A. Mitochondria
B. Ribosomes
C. Peroxisomes
D. Centrioles

23. Which one of the following option is correct regarding occurrence of surrounding membrane in the cell structures?

A. Cytoplasm, nucleus, starch grains
B. Chromosomes, nucleus , mitochondria
C. Chromosome, chloroplast , starch grains
D. Mitochondrion, tonoplast, chloroplast

24. DNA strands run

A. Parallel
B. Partly parallel, partly anti-parallel
C. Anti-parallel
D. Horizontal

25. Nucleoside consists of

A. Sugar
B. Sugar and phosphate
C. Sugar, phosphate and a nitrogenous base
D. Phosphate

26. What is karyotype?

A. Characteristics of chromosome of a species
B. Characteristics of nucleolus of a species
C. Characteristics of endoplasmic reticulum of a species
D. Characteristics of multiple allele of different genotypes

27. Which of the following resembles clover leaf pattern?

A. m-RNA
B. r-RNA
C. t-RNA
D. hnRNA

28. The time lapsing between inoculation and appearance of symptoms is known as

A. Invasion
B. Systematic infection
C. Incubation period
D. Syndrome

29. When does a chromosome exhibit maximum coiling?

A. During pachytene of meiosis
B. During metaphase of mitosis
C. During anaphase of meiosis I
D. During telophase of meiosis II

30. Which one of the following bases is not found in DNA?

A. Thymine
B. Uracil
C. Adenine
D. Guanine

31. The excess of water that is lost from the aerial parts of a plant in the form of vapour is called as

A. Guttation
B. Transpiration
C. Osmosis
D. Endosmosis

32. Which one of the following is a trace element?

A. Zinc
B. Phosphorus
C. Sulphur
D. Calcium

33. Protein part of an enzyme is called

A. Prosthetic group
B. Apoenzyme
C. Holoenzyme
D. Substrate

34. Leaf abscission takes place at

A. internodes
B. nodes
C. the base of petiole
D. the margin of leaf

35. Starch, inulin and glycogen are examples of

A. Storage polysaccharides
B. Structural polysaccharides
C. Oligosaccharides
D. Monosaccharides

36. Organic compounds with both acidic and basic properties are called as

A. Autophagic
B. Ionophores
C. Compound
D. Amphoteric

37. Which among the following is not a saturated fatty acid?

A. Palmitic
B. Stearic
C. Oleic
D. Myristic

38. When triglycerides are solid at room temperature, they are called as

A. Oils
B. Gases
C. Fats
D. Lipids

39. The botanical name of soybean is

A. *Glycine max*
B. *Maryland mammoth*
C. *Alaria valida*
D. *Rhodomenia palmate*

40. Which one of the following was most important technique for investigating Calvin Cycle?

A. X-ray imaging technique
B. Ultraviolet radiation technique
C. Radioactive isotope technique
D. Colorimetry

41. The fixation of CO_2 in C_4 cycle takes place through

A. RuBP
B. Oxaloacetic acid
C. Phosphoenol pyruvate
D. Dihydroxy acetone phosphate

42. Kranz type of anatomy is found in which one of the following options?

A. C_2
B. C_3
C. C_4
D. C_{16}

43. Which one of the following organelles is not involved in the photorespiration?

A. Chloroplasts
B. Peroxisomes
C. Ribosomes
D. Mitochondria

44. Fermentation is an example of

A. Aerobic respiration
B. Anaerobic respiration
C. Photosynthesis
D. Protein synthesis

45. Carotenoids are

A. Green pigments
B. Yellow or orange pigments
C. Red pigments
D. Blue pigments

46. Which among the following plant growth hormones was first discovered in plants?

A. Gibberellins
B. Auxins
C. Cytokinin
D. Ethylene

47. Except for a small group of catalytic RNA molecules such as ribozymes, all enzymes are

A. Hormones
B. Proteins
C. Fats
D. Carbohydrates

48. The promotion of germination by red-light and inhibition by far-red light involves the operation of a proteinaceous pigment called

A. Cytochrome
B. Phytochrome
C. Phycobilisome
D. Ubiquitin

49. Concave surface of mammalian RBCs is helpful in

A. Formation of more haemoglobin
B. Increasing surface areas of RBCs
C. Reducing surface tension of plasma membrane
D. Providing more space for haemoglobin

50. Nucleus and mitochondria are not found in

A. WBCs of mammals
B. Young immature mammalian erythrocytes
C. Matured mammalian erythrocytes
D. RBCs of frog

51. Synapse is a gap between adjacent

A. Muscle fibres
B. Nerve cells
C. Nerve cell bodies
D. Epidermal cells

52. What is common between acetylcholine, noradrenalin and serotonin?

A. All lower blood pressure
B. All are antidiuretic
C. All promote apetite
D. All are neurotransmitters

53. *Saccharomyces* belongs to the class

A. Deuteromycetes
B. Basidiomycetes
C. Ascomycetes
D. Zygomycetes

54. Water functions as a neutral medium because its pH value is

A. 7.00
B. 5.30
C. 8.90
D. 2.35

55. The heat energy required to raise the temperature of 1gm of water by 1°C is termed as

A. Specific heat of water
B. Vapour density
C. Rate of Vaporization
D. Osmolarity

56. Which of the following ions plays an important role in the muscle contraction?

A. Mg^{2+}
B. Ca^{2+}
C. K^{+}
D. Na^{+}

57. The sprain is caused due to excessive pulling of

A. Tendons
B. Ligaments
C. Muscles
D. Nerves

58. Silk glands are modified

A. Salivary glands
B. Endocrine glands
C. Intestinal glands
D. Gastric glands

59. The main nitrogen reservoir in the biosphere is

A. Rock
B. Ocean
C. Atmosphere
D. Organism

60. Which of the following structures is equipped with devices to allow the pollen of only the right mating type to function, normally?

A. Flower
B. Pistil
C. Anther
D. Pollen mother cell

61. Chemicals which enhance the toxicity of pesticides when added in small quantities are

A. Anti-feedants
B. Synergists
C. Antidotes
D. Disinfectants

62. Which one of the following is not a communicable disease?

A. Tuberculosis
B. Diphtheria
C. Cholera
D. Cancer

63. Diarrhoea leads to

A. Typhoid
B. Pneumonia
C. Dehydration
D. Whooping cough

64. HIV belongs to a group of viruses known as

A. Retrovirus
B. Papilloma virus
C. Arbovirus
D. Tobacco mosaic virus

65. Spraying oil on stagnant-water controls malaria as

A. Water becomes impure
B. Larvae cannot breathe and hence die
C. Specific gravity of water increases
D. Water becomes oily

66. The study of birds is called

A. Ichthyology
B. Herpetology
C. Saurology
D. Ornithology

67. Which one of the following is not found in the amphibian skin?

A. Epidermis
B. Mucous glands
C. Scales
D. Chrormatophores

68. Which one among the following animals can change its body colour?

A. *Chameleon*
B. Toad
C. Frog
D. *Cobra*

69. Urinary bladder is absent in

A. Reptiles
B. Aves
C. Mammals
D. Amphibians

70. Cytochrome oxidase contains

A. Manganese
B. Iron
C. Magnesium
D. Zinc

71. Chemical reaction that liberates energy is

A. Endergonic
B. Exergonic
C. Lipolytic
D. Proteolytic

72. Most of the absorption of the nutrients of digestion takes place in man across the

A. Squamous epithelium of the oesophagus
B. Walls of stomach
C. Villi and microvilli of the small intestine
D. Large intestine

73. Riboflavin is otherwise called as

A. Vitamin B_1
B. Vitamin B_6
C. Vitamin B_2
D. Vitamin B_{12}

74. Coagulation of blood in the vessels is prevented under normal conditions by

A. Prothrombin
B. Heparin
C. Plasminogen
D. Enzymes

75. Antibodies are synthesized by

A. B lymphocytes
B. Phagocytes
C. Helper T lymphocytes
D. Killer T lymphocytes

76. The planet Earth along with the atmosphere (i.e., air, land and water) that sustains life is called

A. Stratosphere
B. Biosphere
C. Trophosphere
D. Ecosystem

77. CFCs are widely used as

A. Propellants
B. Heaters
C. Coolants
D. Conductors

78. The best agar is obtained from

A. *Gelidium* of Rhodophyceae
B. Nerocystis
C. *Chondrus crispus*
D. *Hibiscus esculentus*

79. 'Manila hemp' is the source of

A. Hard fibres
B. Soft fibres
C. Surface fibres
D. Root fibres

80. The unit used in expressing the sedimentation coefficient is called after

A. Nanogram
B. Angstrom
C. Svedberg
D. Kornberg

81. The reaction given by two or more peptide linkages is identified by the

A. Biuret test
B. Ninhydrin test
C. Xanthoproteic reaction
D. Pauleys test

82. An agent that neutralizes the poison is called as

A. Antidote
B. Antagonist
C. Analogue
D. Agonist

83. The time required for killing 50% of the population at a certain dose or concentration is often represented as

A. LS_{50}
B. EC_{50}
C. LD_{50}
D. ED_{50}

84. Acetylene Reduction assay is an indirect measure of

A. Photosynthesis
B. Nitrogen fixation
C. Respiration
D. Hydrogenase activity

85. Canned foods thermally processed in steam-heated vats are called

A. Rework
B. Pasteurization
C. Retorts
D. Tyndallization

86. Inhibitor of DNA synthesis is

A. Penicillin
B. Polymyxin
C. Actinomycin - D
D. Chloramphenicol

87. A bioreactor in which the microorganisms are suspended in a tall cylinder by rising air, which is introduced at the base of the column, is called

A. Bubble column fermentor
B. Batch fermentor
C. Continuous fermentor
D. Fed-batch fermentor

88. An example of signaling by direct cell-cell interaction is the

A. Wingless (Wnt) signaling pathway
B. JAK/STAT pathway
C. Notch pathway
D. Pathways leading to vulval development in *C. elegans*

89. The antibiotic from *Streptomyces nourse* that is used in the treatment of *Candida* infections of the skin, vagina and alimentary canal is

A. Cephalosporin
B. Tetracycline
C. Penicillin
D. Nystatin

90. The location of porins in Gram –ve bacteria is in the

A. Cytoplasm
B. Outer membrane
C. Periplasm
D. Cytoplasmic membrane

91. 'DNA foot printing' is a suitable technique for identifying which of the following?

A. Particular mRNAs in a mixture
B. Particular tRNA in a mixture
C. Introns within a gene
D. Protein binding sites within DNA

92. The Sulfur and Nitrogen oxides in the atmosphere arise primarily from

A. Volcanoes
B. Agricultural wastes
C. Geothermal changes
D. Burning of fossil fuels

93. High Temperature Short Time Pasteurization is a process that occurs at

A. 71.5^{o}C for 2 min
B. 62.8^{o}C for 30 min
C. 71.5^{o}C for 15 sec
D. 71.5^{o}C for 5 sec

94. Plastic disposable syringes are sterilized using

A. Gamma irradiation
B. UV irradiation
C. Sunlight
D. Phenol solution

95. Soy sauce is prepared by using the fungus

A. *Penicillium roquefortii*
B. *Fusarium oxysporum*
C. *Rhizoctonia solani*
D. *Aspergillus oryzae*

96. How many molecules would be expected from 2 molecules of DNA following 5 cycles of PCR?

A. 10
B. 32
C. 64
D. 1 billion

97. What technique would you employ to determine the level of a specific mRNA increased in response to an inducer?

A. Northern blot
B. Southern blot
C. Western blot
D. Eastern blot

98. The *lac* operon in *E.coli* is regulated by lactose, that

A. activates an activator of transcription
B. inactivates an activator of transcription
C. activates a repressor of transcription
D. inactivates a repressor of transcription

99. In *Agrobacterium*-mediated genetic transformation, which one of the following is used to check the *Agrobacterium* growth?

A. Kanamycin
B. Ampicillin
C. Timentin
D. Penicillin

100. Japanese researchers very recently reported that the PET plastics is degraded by

A. *Agrobacterium tumefaciens*
B. *Bacillus thuringiensis*
C. *Cyanobacterium prochlorococcus*
D. *Ideonella sakeinsesis*

101. Which of the following is an herbicide resistance gene?

A. Bar
B. H*pt*
C. Chitinase
D. Cyt C oxidase

102. A genetic disorder caused by the accumulation of sphingomyelin in brain is

A. Gout
B. Neimann-Pick disease
C. Gauche's disease
D. Tay-Sach syndrome

103. A circular ds-DNA molecule has 4 restriction sites for an enzyme. How many DNA fragments will be produced upon complete digestion?

A. Five
B. Three
C. Four
D. Six

104. A man has some buffaloes and ducks. If the number of heads is 70 and the number of legs is 200, then the number of buffaloes is

A. 30
B. 70
C. 40
D. 20

105. Which one of the following sequences is a palindrome?

A. 5' CCCATTT 3'
B. 5' ATGCCG 3'
C. 5' ACGGATTCGC 3'
D. 5'AGGCCT3'

106. Circadian rhythm is regulated by the

A. Hypothalamus
B. Supra chiasmatic nucleus
C. Amygdala
D. Basal ganglia

107. Which one of the following is the natural host for pseudo-rabies virus?

A. Dog
B. Man
C. Horse
D. Swine

108. Induction of β-galactosidase activity by IPTG is due to

A. Stimulation of *lac* repressor function
B. IPTG binding to *lac* operon and inducing transcription
C. IPTG binding to *lac* I gene product and inhibiting its activity
D. Inhibition of β-galactosidase degradation

109. Which of the following is NOT found inside the eukaryotic nucleus?

A. Nucleolus
B. PML bodies
C. Cajal bodies
D. Centrosomes

110. Which one of the following is NOT a plant hormone?

A. Abscic acid
B. Ethylene
C. Brassinosteroid
D. Cytokine

111. It takes 40 minutes for a typical *E. coli* cell to completely replicate its chromosome. Simultaneous to the ongoing replication, 20 min of a fresh round of replication is completed before the cell divides. What would be the generation time of *E. coli* growing at 37^{o}C in complex medium?

A. 20 min
B. 40 min
C. 30 min
D. 25 min

112. Transposon was discovered by

A. Charles Darwin
B. Barbara McClintok
C. Jacob Monod
D. James Watson

113. Despite freezing temperature, the penguin feathers are ice-proof because of

A. Ice is in solid form
B. Two wings
C. Microstructures of feathers
D. Color of feathers

114. Which of the following hormones is responsible for the emotional states such as fear, anger and tension and a rise in blood pressure and heart rate?

A. Somatotrophin
B. Thyroxine
C. Oxytocin
D. Adrenaline

115. Which of the following has been classified as associative nitrogen-fixing bacteria?

A. *Azotobacter* sp.
B. *Azospirillum* sp.
C. *Azorhizobiu*m sp.
D. *Rhizobium* sp.

116. The plant with the smallest genome is

A. *Zea mays*
B. *Arabidopsis thaliana*
C. *Vigna radiata*
D. *Oryza sativa*

117. Transfection is

A. Genetic transformation in eukaryotic cell
B. Transfer of gene(s) from one system to another by virus
C. Synthesis of RNA molecule from DNA
D. Formation of peptide bonds

118. Kidney stones are mainly formed by which of the following compound?

A. Sodium chloride
B. Sodium silicate
C. Calcium bicarbonate
D. Calcium oxalate

119. Which one among the following is the largest edible bud found in nature?

A. Agave
B. Carrot
C. Cauliflower
D. Beet root

120. DNA synthesis occurs during

A. G1 phase
B. G2 phase
C. S-phase
D. M-phase

121. The largest living bird is

A. Ostrich
B. Dodo
C. Peacock
D. Turkey

122. The compound used as anti-malarial drug is

A. Aspirin
B. Chloroquine
C. Neoprene
D. Isoprene

123. Enzymatic isolation of protoplasts Indra was first demonstrated by

A. Zimmermann
B. Indra K. Vasil
C. E.C. Cocking
D. Murashige

124. Which of the following tests helps diagnose cancer?

A. Urine test
B. Biopsy test
C. X-ray
D. Blood test

125. The gas predominantly responsible for global warming is

A. CO
B. N_2
C. CO_2
D. NO_2

126. Name the biological source of Iodine

A. Sea water
B. Oedogonium
C. Laminaria
D. All of the above

127. Which blood group is called as ‘universal donor’?

A. A
B. B
C. AB
D. O

128. All are particulate pollutants except the

A. Dust
B. Ozone
C. Soot
D. Smoke

129. Which one of the following lights has the highest energy?

A. Yellow
B. Blue
C. Green
D. Red

130. The persons working in textile factories such as carpet weavers are exposed to which of the following occupational disease?

A. Asbestosis
B. Asthma and Tuberculosis
C. Silicosis
D. Siderosis

131. Seventy-one per cent of Earth is occupied by

A. Air
B. Land
C. Coal
D. Water

132. Algal bloom results in

A. Global warming
B. Biodegradation
C. Salination
D. Eutropication

133. Sea water freezes at

A. Same temp as fresh water
B. Slightly lower temp than fresh water
C. Slightly higher temp than fresh water
D. Seawater doesn't freeze

134. Restriction enzymes are used in genetic engineering because

A. They can join different DNA fragments
B. They can cleave DNA at a specific site
C. They are nucleases that cut DNA at variable sites
D. They are proteolytic enzymes which can degrade harmful enzymes

135. Rusting of iron is

A. Oxidation
B. Absorption
C. Reduction
D. Adsorption

136. Soaps and detergents are the sources of organic pollutants by

A. Glycerol
B. Sulphonated hydrocarbons
C. Polyphosphates
D. All of the above

137. DNA isolated from plant tissue contains 28% A; what percentile will be C?

A. 14
B. 22
C. 28
D. 36

138. Cytoplasmic male sterility is extensively exploited in

A. Cardamom
B. Ginger
C. Maize
D. Barley

139. The elephant reserves cluster in Kerala is

A. Anaimalai, Nilambur, Periyar
B. Anamudi, Anaimalai, Bhadra
C. Nilambur, Periyar, Anamudi
D. Anamudi, Wayanad, Mayurjharna

140. KFRI is located at

A. Kottayam
B. Wayanad
C. Peechi
D. Nilambur

141. What is the pH of 10^{-8} M solution of HCl?

A. 5.876
B. 8.121
C. 6.367
D. 6.959

142. Which of the following bonds is most difficult to break?

A. C-N
B. C-S
C. C-C
D. C-O

143. The nucleotide sequence in a mRNA is 5' UAA AUG ACC CAU UGG UCU CGU UAG AAA AAA 3'. Assuming that ribosomes could translate this mRNA, how many amino acids long would you expect the resulting polypeptide chain to be?

A. 6
B. 7
C. 10
D. 5

144. Free radical scavenging activity of a medicinally important plant extract can be quantified by

A. ABTS method
B. Bradford's method
C. Benedict's method
D. Bial's method

145. The masking effect between two different genes is called as

A. Hypostatic
B. Allele
C. Mutant
D. Epistasis

146. Microcephaly is a neuro-developmental disorder in infants caused by

A. Adenovirus
B. Simian virus
C. Zika virus
D. TMV

147. Bread gets digested in a diabetic man at a slower rate improving blood glucose control by the addition in bread of

A. Insulin
B. Starch
C. Lignin
D. Anthocyanin

148. The Government of India, in the recent railways budget, has proposed to introduce

A. Steam engine trains
B. Electromotive
C. Higher fee for berth
D. Biotoilets

149. The isotope with a half-life period of 14.3 days is

A. ^{35}S
B. ^{32}P
C. ^{14}C
D. ^{3}H

150. Air pollution is largely due to

A. Insecticides
B. Smog
C. Sewage
D. Smoke

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