LIFE SCIENCE

1. Which of the glycosidic linkages given below occurs between the two glucose molecules of maltose?

|  |  |
| --- | --- |
| (A) | β1, 4 |
| (B) | α1, 4 |
| (C) | α1, 6 |
| (D) | β1, 6 |

2. In human beings, hyaluronic acid is present in

|  |  |
| --- | --- |
| (A) | Vitreous humor |
| (B) | Adipose tissue |
| (C) | Sperm |
| (D) | Gall Bladder |

3. Identify the sulphur containing non-essential amino acid among the following

|  |  |
| --- | --- |
| (A) | Methionine |
| (B) | Proline |
| (C) | Cysteine |
| (D) | Serine |

4. A tertiary protein lacks which of the bonds mentioned below

|  |  |
| --- | --- |
| (A) | Hydrogen Bond |
| (B) | van der Waals force |
| (C) | Ionic bond |
| (D) | Hydrophilic interactions |

5. Which of these are non-professional antigen presenting cells?

|  |  |
| --- | --- |
| (A) | Macrophages |
| (B) | Dendritic cells |
| (C) | Fibroblast |
| (D) | B lymphocytes |

6. How many Calcium ions can bind with the Calmodulin protein?

|  |  |
| --- | --- |
| (A) | One |
| (B) | Two |
| (C) | Three |
| (D) | Four |

7. Name the antibiotic which inhibits the synthesis of oligosaccharides?

|  |  |
| --- | --- |
| (A) | Tunicamycin |
| (B) | Cephalosporins |
| (C) | Penicillins |
| (D) | Ofloxacin |

8. Haematopoiesis process occurs in

|  |  |
| --- | --- |
| (A) | Spleen |
| (B) | Bone marrow |
| (C) | Lymph nodes |
| (D) | Thymus gland |

9. Which of the following statements is correct with regard to Hapten?

|  |  |
| --- | --- |
| (A) | It is a complete antigen |
| (B) | It is immunogenic when binds with a carrier lipid |
| (C) | It cannot induce an antibody production by itself |
| (D) | Paracetamol is a typical example for Hapten |

10. Identify the bone producing cell

|  |  |
| --- | --- |
| (A) | Osteocyte |
| (B) | Osteoblast |
| (C) | Chondrocyte |
| (D) | Chondroblast |

11. In rDNA technology, competent cells are produced by using

|  |  |
| --- | --- |
| (A) | MgCl2 |
| (B) | MnCl2 |
| (C) | CaCl2 |
| (D) | FeCl2 |

12. Cyanide inhibits the action of which of the following enzymes?

|  |  |
| --- | --- |
| (A) | Malate dehydrogenase |
| (B) | ATP synthase |
| (C) | Cytochrome oxidase |
| (D) | PEP Carboxylase |

13. The causative organism of Peptic ulcer is

|  |  |
| --- | --- |
| (A) | *Helicobacter pylori* |
| (B) | *Yersinia pestis* |
| (C) | *Bordetella pertussis* |
| (D) | *Coxiella burnetii* |

14. The fungus responsible for Bengal famine is

|  |  |
| --- | --- |
| (A) | *Cochliobolus miyabeanus* |
| (B) | *Sphaerulina oryzina* |
| (C) | *Pyricularia oryzae* |
| (D) | *Xanthomonas oryzae* |

15. The sexual stage (teleomorph) of *Aspergillus* is called as

|  |  |
| --- | --- |
| (A) | *Emericella* |
| (B) | *Eurotium* |
| (C) | *Gibberella* |
| (D) | *Erysiphe* |

16. The term ‘meristem’ was first coined by

|  |  |
| --- | --- |
| (A) | Julius von Sachs |
| (B) | Karl Friedrich Schmit |
| (C) | Johannes von Hanstein |
| (D) | Carl Wilhelm von Nageli |

17. In older stems, the outer light coloured regions are called as

|  |  |
| --- | --- |
| (A) | Duramen |
| (B) | Dendrum |
| (C) | Alburnum |
| (D) | Phellem |

18. Which enzymes are responsible for the detoxification of organic compounds carried out by the smooth endoplasmic reticulum?

|  |  |
| --- | --- |
| (A) | Dehydrogenases |
| (B) | Oxygenases |
| (C) | Nucleases |
| (D) | Ribonucleases |

19. Most common local alignment search tool used in DNA databases is

|  |  |
| --- | --- |
| (A) | EMBOSS Needle |
| (B) | BLAST |
| (C) | PLAST |
| (D) | MUSCLE |

20. Standard deviation is the square root of

|  |  |
| --- | --- |
| (A) | Variance |
| (B) | Range |
| (C) | Frequency |
| (D) | Regression |

21. Which of the following green algae is parasitic on tea plants?

|  |  |
| --- | --- |
| (A) | *Desmodesmus* sp. |
| (B) | *Scenedesmus* sp. |
| (C) | *Closterium* sp. |
| (D) | *Cephaleuros* sp. |

22. Agar, a polysaccharide is obtained from the cell wall of

|  |  |
| --- | --- |
| (A) | Gelidiaceae |
| (B) | *Porphyra umbilicalis* |
| (C) | Coralline algae |
| (D) | Euglenophytes |

23. What is common to *Polysiphonia* (red algae) and *Ectocarpus* (brown algae)?

|  |  |
| --- | --- |
| (A) | Cell wall composition |
| (B) | Pigment constitution |
| (C) | Storage compound |
| (D) | Haplo-diplontic life cycle |

24. The storage compound of fungi is

|  |  |
| --- | --- |
| (A) | Starch |
| (B) | Glycogen |
| (C) | Chitin |
| (D) | Lignin |

25. Ascomycetes are called as ‘sac fungi’ because of

|  |  |
| --- | --- |
| (A) | Ascocarp (fruit body) |
| (B) | Ascus (ascospore bearing structure) |
| (C) | Ascospore (reproductive unit) |
| (D) | Heterokaryotic mycelium (plant body) |

26. Dolipore septum is present in the members of

|  |  |
| --- | --- |
| (A) | Phycomycetes |
| (B) | Ascomycetes |
| (C) | Basidiomycetes |
| (D) | Deuteromycetes |

27. Identify the heterosporous form from among the following ferns

|  |  |
| --- | --- |
| (A) | *Adiantum* |
| (B) | *Nephrolepis* |
| (C) | *Pteris* |
| (D) | *Marsilea* |

28. The spore bearing structure of *Psilotum* is called as

|  |  |
| --- | --- |
| (A) | Sorus |
| (B) | Sporocarp |
| (C) | Synangium |
| (D) | Strobilus |

29. Sporophyte developing from gametophyte without the fusion of gametes is known as

|  |  |
| --- | --- |
| (A) | Syngamy |
| (B) | Apogamy |
| (C) | Polygamy |
| (D) | Allogamy |

30. Which of the following is called as a ‘living fossil’?

|  |  |
| --- | --- |
| (A) | *Gnetum* |
| (B) | *Pinus* |
| (C) | *Ginkgo* |
| (D) | *Cycas* |

31. The most common mode of pollination in gymnosperms is

|  |  |
| --- | --- |
| (A) | Hydrophily |
| (B) | Anemophily |
| (C) | Entomophily |
| (D) | Zoophily |

32. The common blue green algae found in the coralloid root of *Cycas* is

|  |  |
| --- | --- |
| (A) | *Nostoc* sp. |
| (B) | *Spirulina* sp. |
| (C) | *Chroococcus* |
| (D) | *Oscillatoria* sp. |

33. Which of the following types of inflorescence is present in Euphorbia?

|  |  |
| --- | --- |
| (A) | Hypanthodium |
| (B) | Cyathium |
| (C) | Helicoid cyme |
| (D) | Capitulum |

34. Interpetiolar stipules are very common in the family of

|  |  |
| --- | --- |
| (A) | Apocynaceae |
| (B) | Asteraceae |
| (C) | Rubiaceae |
| (D) | Poaceae |

35. The economically important plant of Anacardiaceae is

|  |  |
| --- | --- |
| (A) | *Musa paradisiaca* |
| (B) | *Mangifera indica* |
| (C) | *Artocarpus heterophyllous* |
| (D) | *Areca catechu* |

36. The activated feeding stage in the life cycle of some protozoans is called as

|  |  |
| --- | --- |
| (A) | Merozoite |
| (B) | Sporozoite |
| (C) | Trophozoite |
| (D) | Tachyzoite |

37. Which of the following is lacking in Poriferans?

|  |  |
| --- | --- |
| (A) | Water vascular system |
| (B) | Circulatory system |
| (C) | Spongocoel |
| (D) | Calcareous spicules |

38. Cnidarians reproduce asexually by the process of

|  |  |
| --- | --- |
| (A) | Fragmentation |
| (B) | Budding |
| (C) | Binary fission |
| (D) | Amitosis |

39. Bioluminescence is exhibited by

|  |  |
| --- | --- |
| (A) | Ctenophores |
| (B) | Cnidarians |
| (C) | Poriferans |
| (D) | Protozoans |

40. The intermediate host of *Fasciola* *hepaticae* is

|  |  |
| --- | --- |
| (A) | Pork |
| (B) | Snail |
| (C) | Chicken |
| (D) | Beef |

41. Which of these is the characteristic feature of annelids?

|  |  |
| --- | --- |
| (A) | Metacentric |
| (B) | Metamorphism |
| (C) | Metagenesis |
| (D) | Metamerism |

42. The absorptive surface of intestine is increased in earthworms by

|  |  |
| --- | --- |
| (A) | Caecum |
| (B) | Gizzard |
| (C) | Typhlosole |
| (D) | Ileum |

43. Book lungs are the common respiratory organ of the class

|  |  |
| --- | --- |
| (A) | Myriapoda |
| (B) | Crustacea |
| (C) | Insecta |
| (D) | Arachnida |

44. The primitive wingless insects without metamorphosis are represented in

|  |  |
| --- | --- |
| (A) | Exopterygota |
| (B) | Apterygota |
| (C) | Endopterygota |
| (D) | Pterygota |

45. The balancing organ present in Phylum Mollusca is

|  |  |
| --- | --- |
| (A) | Nematocyst |
| (B) | Somatocyst |
| (C) | Statocyst |
| (D) | Blastocyst |

46. Which of these is commonly called as shipworm?

|  |  |
| --- | --- |
| (A) | *Siliqua patula* |
| (B) | *Kuphus polythamia* |
| (C) | *Laevicardium elatum* |
| (D) | *Anomia simplex* |

47. Which of the following genera is called as ‘Basket star’?

|  |  |
| --- | --- |
| (A) | *Ophioderma appressum* |
| (B) | *Ophiothrix angulata* |
| (C) | *Asteroporpa annulata* |
| (D) | *Astrophyton muricatum* |

48. Identify the jawless vertebrate among the following

|  |  |
| --- | --- |
| (A) | *Petromyzon* |
| (B) | *Hippocampus* |
| (C) | *Scoliodon* |
| (D) | *Pristis* |

49. *Amphioxus* possesses light sensitive spots called

|  |  |
| --- | --- |
| (A) | Stigma |
| (B) | Floaters |
| (C) | Ocelli |
| (D) | Stemma |

50. The migration of adult fish from sea to fresh water for spawning is known as

|  |  |
| --- | --- |
| (A) | Catadromous |
| (B) | Diadromous |
| (C) | Monodromous |
| (D) | Anadromous |

51. Which of the following animals is ureotelic?

|  |  |
| --- | --- |
| (A) | Salamander |
| (B) | Parrot |
| (C) | Toad |
| (D) | Lizard |

52. Bones in reptiles are covered by

|  |  |
| --- | --- |
| (A) | Collagen |
| (B) | Calcium |
| (C) | Keratin |
| (D) | Phosphorous |

53. Which of the following reptiles is devoid of urinary bladder?

|  |  |
| --- | --- |
| (A) | Snake |
| (B) | Chameleon |
| (C) | Lizard |
| (D) | Tortoise |

54. The bone that helps in the strengthening of thoracic skeleton to withstand the rigors of flight is

|  |  |
| --- | --- |
| (A) | Furculum |
| (B) | Hollow |
| (C) | Synsacrum |
| (D) | Palatine |

55. The mammalian muscles which help in breathing are

|  |  |
| --- | --- |
| (A) | Intercostal |
| (B) | Diaphragm |
| (C) | Abdominal |
| (D) | Pulmonary |

56. Which of the following Indian birds is not endangered?

|  |  |
| --- | --- |
| (A) | Sea Gull |
| (B) | Himalayan Quail |
| (C) | Indian Vulture |
| (D) | White Bellied Heron |

57. The angiosperm commonly used for genetic experiments is

|  |  |
| --- | --- |
| (A) | *Mirabilis jalapa* |
| (B) | *Pisum sativum* |
| (C) | *Arabidopsis thaliana* |
| (D) | *Lathyrus odoratus* |

58. The deficiency of Hexosaminidase A enzyme causes

|  |  |
| --- | --- |
| (A) | Alzheimer’s disease |
| (B) | Tay-Sachs disease |
| (C) | Patau Syndrome |
| (D) | Addison’s disease |

59. Edwards’ syndrome is caused due to

|  |  |
| --- | --- |
| (A) | 18 trisomy |
| (B) | 21 Trisomy |
| (C) | 13 Trisomy |
| (D) | 22 trisomy |

60. Which of the following promotes somatic embryogenesis?

|  |  |
| --- | --- |
| (A) | Polyamines |
| (B) | Abscisic acid |
| (C) | Nicotinoids |
| (D) | Triazines |

61. Phytosiderophores are generally secreted by the plants of the family

|  |  |
| --- | --- |
| (A) | Palmae |
| (B) | Cruciferae |
| (C) | Graminae |
| (D) | Orchidaceae |

62. The endocrine pineal gland secretes

|  |  |
| --- | --- |
| (A) | Melatonin |
| (B) | Melanocyte releasing hormone |
| (C) | Calcitonin |
| (D) | Aldosterone |

63. Water in plants is transported by

|  |  |
| --- | --- |
| (A) | Xylem |
| (B) | Epidermis |
| (C) | Phloem |
| (D) | Cambium |

64. Which of the following is not a component of chlorophyll?

|  |  |
| --- | --- |
| (A) | Calcium |
| (B) | Carbon |
| (C) | Magnesium |
| (D) | Hydrogen |

65. Number of chromosomes in Down’s syndrome is

|  |  |
| --- | --- |
| (A) | 46 |
| (B) | 47 |
| (C) | 48 |
| (D) | 49 |

66. Human blood is a viscous fluid due to the presence of

|  |  |
| --- | --- |
| (A) | Platelets in plasma |
| (B) | Protein in blood |
| (C) | RBC and WBC in blood |
| (D) | Sodium in serum |

67. Which fungus is known as 'Green Mold'?

|  |  |
| --- | --- |
| (A) | *Tricoderma* sp. |
| (B) | *Rhizopus* sp. |
| (C) | *Mucor* sp. |
| (D) | *Penicillium* sp. |

68. Which tissue of plants conducts food in its body?

|  |  |
| --- | --- |
| (A) | Xylem |
| (B) | Phloem |
| (C) | Parenchyma |
| (D) | Selerides |

69. The constituent monosaccharide in Chitin is

|  |  |
| --- | --- |
| (A) | D-Glucose |
| (B) | D-Xylose |
| (C) | N-acetyl D-glucosamine |
| (D) | D-Galactose |

70. An example for aromatic amino acid is

|  |  |
| --- | --- |
| (A) | Methionine |
| (B) | Valine |
| (C) | Glycine |
| (D) | Tyrosine |

71. Which of these is not a true group of amino acids?

|  |  |
| --- | --- |
| (A) | NH2 |
| (B) | COOH |
| (C) | CHO |
| (D) | –SH |

72. Co-enzyme A is derived from

|  |  |
| --- | --- |
| (A) | Thiamin |
| (B) | Vitamin B12 |
| (C) | Pantothenic acid |
| (D) | Pyridoxine |

73. All steroids originate from

|  |  |
| --- | --- |
| (A) | Lanosterol |
| (B) | Squalene |
| (C) | Farnesal |
| (D) | Cholesterol |

74. Unit of distance in Linkage map is

|  |  |
| --- | --- |
| (A) | Centimeter |
| (B) | Centimendel |
| (C) | Centimorgan |
| (D) | Centimuller |

75. The core of the Nucleosome consists of

|  |  |
| --- | --- |
| (A) | H1, H2A, H2B, H4 |
| (B) | H2A, H2B, H3, H4 |
| (C) | H1, H2A, H2B, H3 |
| (D) | H1, H2A, H3, H4 |

76. A condition where one gene influences more than one trait is referred to as

|  |  |
| --- | --- |
| (A) | Phenocopy |
| (B) | Pleiotropy |
| (C) | Epistasis |
| (D) | Linkage |

77. In which of the following organisms, the environment does not influence sex determination?

|  |  |
| --- | --- |
| (A) | *Melandrium album* (Plant) |
| (B) | *Bonellia viridis* (Marine worm) |
| (C) | *Agama agama* (Lizard) |
| (D) | *Chrysema picta* (Turtle) |

78. Holliday model of chromosome recombination during cross over is of

|  |  |
| --- | --- |
| (A) | Copy choice model |
| (B) | Duplication theory model |
| (C) | Torsion theory model |
| (D) | Breakage and reunion model |

79. Iojop (ij) gene is an example for maternal inheritance found in

|  |  |
| --- | --- |
| (A) | Yeast |
| (B) | Corn |
| (C) | Chlamydomonas |
| (D) | Drosophila |

80. The Ziehl–Neelsen staining technique is used for the detection of

|  |  |
| --- | --- |
| (A) | Endospores |
| (B) | Capsule |
| (C) | Flagella |
| (D) | Cell wall |

81. Which one of the given antibiotics inhibits synthesis of bacterial cell walls?

|  |  |
| --- | --- |
| (A) | Penicillin |
| (B) | Rifampin |
| (C) | Tetracyclines |
| (D) | Streptomycin |

82. Which is the Nitrogen fixing Cyanobacteria?

|  |  |
| --- | --- |
| (A) | *Westiellopsis* sp. |
| (B) | *Plectonema* sp. |
| (C) | *Oscillatoria* sp. |
| (D) | *Lynbya* sp. |

83. Caspases play essential role in

|  |  |
| --- | --- |
| (A) | DNA replication |
| (B) | Mutation and recombination |
| (C) | Apoptosis |
| (D) | Antibody synthesis |

84. An example for Gap gene is

|  |  |
| --- | --- |
| (A) | Evenskipped |
| (B) | Kruppel |
| (C) | Goose-berry |
| (D) | Fushi-tarazu |

85. The class of switch gene that controls muscle cell formation in both vertebrates and invertebrates is

|  |  |
| --- | --- |
| (A) | SEP genes |
| (B) | Myo D Genes |
| (C) | Apetala |
| (D) | Bicoid |

86. Which sequence is the best to evaluate the phylogeny of the closely related mammals?

|  |  |
| --- | --- |
| (A) | Coding sequences |
| (B) | Ribosomal proteins |
| (C) | SINES and LINES |
| (D) | Centromeric and telomeric regions |

87. A particular allele can have different effects if it was inherited from a male rather than a female. This phenomenon is known as

|  |  |
| --- | --- |
| (A) | Extranuclear inheritance |
| (B) | Prader Willi syndrome |
| (C) | Sex linkage |
| (D) | Genome imprinting |

88. Zinc fingers are classified as

|  |  |
| --- | --- |
| (A) | Blood clotting proteins |
| (B) | RNA chaperons |
| (C) | DNA binding proteins |
| (D) | Protein – protein binding motifs |

89. Split genes are

|  |  |
| --- | --- |
| (A) | Genes with intervening sequences |
| (B) | Genes without intervening sequences |
| (C) | Genes without regulatory sequences |
| (D) | Genes with a part of the sequence on one chromosome and other part of the gene sequence on another chromosome |

90. The region where RNA polymerase binds to promoter in prokaryotes is called

|  |  |
| --- | --- |
| (A) | Hogness Box |
| (B) | Pribnow Box |
| (C) | Homeo Box |
| (D) | Shine-Dalgarno Box |

91. The absence of sigma factor (σ) in the RNA polymerase affects

|  |  |
| --- | --- |
| (A) | Elongation only |
| (B) | Initiation only |
| (C) | Both Initiation and Elongation |
| (D) | Does not affect transcription |

92. In *lactose* operon, which is not true?

|  |  |
| --- | --- |
| (A) | Regulator Gene --- Codes for inducer |
| (B) | Operator Gene --- Binding site for RNA polymerase |
| (C) | Structural Gene *y* --- Encodes permease |
| (D) | Structural gene *z* --- Encodes β-galactosidase |

93. Interaction of acrydine dyes with DNA causes

|  |  |
| --- | --- |
| (A) | Alkylation |
| (B) | Intercalation |
| (C) | Dimerization |
| (D) | Cross linking |

94. This mutation does not cause a change in any amino acid

|  |  |
| --- | --- |
| (A) | Frameshift |
| (B) | Transition |
| (C) | Transversion |
| (D) | Silent |

95. An open reading frame is that, which has

|  |  |
| --- | --- |
| (A) | No start and stop codons |
| (B) | A start and a stop codon |
| (C) | No start but stop codon |
| (D) | A start but no stop codon |

96. RAF protein is a

|  |  |
| --- | --- |
| (A) | Serine – threonine protein kinase |
| (B) | Tyrosine kinase |
| (C) | GTPase activity |
| (D) | MAP Kinase |

97. During photosynthesis, the process of splitting of water to release hydrogen and electron occurs during

|  |  |
| --- | --- |
| (A) | light independent reactions |
| (B) | light dependent reactions |
| (C) | carbon fixation |
| (D) | the regeneration of Rubilose bis phosphate(RuBP) |

98. Which of the following activate Pyruvate carboxylase in gluconeogenesis?

|  |  |
| --- | --- |
| (A) | Acetyl CoA |
| (B) | Fructose 2,6 bis phosphate |
| (C) | ADP |
| (D) | ATP |

99. Mitochondria and Chloroplasts carry out Oxidative phosphorylation and Photophosphorylation by

|  |  |
| --- | --- |
| (A) | Conformational coupling |
| (B) | Sliding filaments |
| (C) | High energy intermediate coupling |
| (D) | Chemiosmotic coupling |

100. Which of the transgenic animals have both knock-in and knock-out genes?

|  |  |
| --- | --- |
| (A) | Hamster |
| (B) | Sheep |
| (C) | Mouse |
| (D) | Guinea Pig |

101. The vector system which is suitable for cloning a DNA fragment larger than 100kb;

|  |  |
| --- | --- |
| (A) | pUC 19 |
| (B) | pBR 322 |
| (C) | bacterial artificial chromosome |
| (D) | λ phage |

102. Transfer of RNA on to the nylon membrane is called

|  |  |
| --- | --- |
| (A) | Southern blotting |
| (B) | Western blotting |
| (C) | Northern blotting |
| (D) | tRNA binding |

103. The method used to identify the coding sequence of the gene is

|  |  |
| --- | --- |
| (A) | DNA sequencing |
| (B) | cDNA sequencing |
| (C) | Restriction mapping |
| (D) | Linkage mapping |

104. Which of the following metabolite intermediates is involved in the biosynthesis of phenylalanine and tyrosine in bacteria?

|  |  |
| --- | --- |
| (A) | Chorismate |
| (B) | Pantothenate |
| (C) | Alpha ketobutyrate |
| (D) | Indole 3- Phosphate |

105. Attenuation was first discovered in

|  |  |
| --- | --- |
| (A) | Lac operon |
| (B) | Arabinose operon |
| (C) | trp operon |
| (D) | Gal operon |

106. The region of the chromosome which takes up stain strongly during Giemsa banding technique is

|  |  |
| --- | --- |
| (A) | GC rich regions |
| (B) | AT rich regions |
| (C) | Whole chromosome |
| (D) | Only centromeric region |

107. The telomeric repeat sequence in humans is

|  |  |
| --- | --- |
| (A) | TTAAGG |
| (B) | TTGGGG |
| (C) | TTTAGG |
| (D) | TTAGGG |

108. Alkaptonuria is a condition due to the failure to produce the enzyme

|  |  |
| --- | --- |
| (A) | Tyrosinase |
| (B) | Homogentisic acid oxidase |
| (C) | Phenylalanine hydroxylase |
| (D) | Alkaline phosphatase |

109. The enzyme catalase occurs in

|  |  |
| --- | --- |
| (A) | Lysosome |
| (B) | Sphaerosome |
| (C) | Peroxisome |
| (D) | Peroxisome and Glyoxysome |

110. Glyoxisomes are predominantly present in

|  |  |
| --- | --- |
| (A) | Leaf cells |
| (B) | Oil seeds |
| (C) | Root |
| (D) | Meristematic cells |

111. Grana is present in

|  |  |
| --- | --- |
| (A) | Mitochondria |
| (B) | Chloroplasts |
| (C) | Golgi bodies |
| (D) | Ribosomes |

112. Cellulose microfibrils get bound to pectin of matrix through

|  |  |
| --- | --- |
| (A) | Hemicellulose |
| (B) | Lignin |
| (C) | Peptidoglycan |
| (D) | Glycoprotein |

113. In plant cells, the microbodies are known as

|  |  |
| --- | --- |
| (A) | Glycosomes |
| (B) | Glyoxysomes |
| (C) | Glycogenomes |
| (D) | Glycogen granules |

114. The non-condensed chromosomes which extend during interphase are called

|  |  |
| --- | --- |
| (A) | L-chromosomes |
| (B) | Heterochromosomes |
| (C) | M-chromosomes |
| (D) | Euchromosomes |

115. The first part of interphase is called

|  |  |
| --- | --- |
| (A) | Synthetic phase |
| (B) | G1 phase |
| (C) | G2 phase |
| (D) | M phase |

116. In human, mature sperms are stored in the

|  |  |
| --- | --- |
| (A) | Epididymis |
| (B) | Seminiferous tubules |
| (C) | Vas deferens |
| (D) | Seminal vesicles |

117. Oogenesis begins with a diploid germ cell called

|  |  |
| --- | --- |
| (A) | Ontogeny |
| (B) | Karyogamy |
| (C) | Isogamy |
| (D) | Oogonium |

118. After how many instars, the larva of *Drosophila* changes into pupa?

|  |  |
| --- | --- |
| (A) | One |
| (B) | Two |
| (C) | Three |
| (D) | Six |

119. Diagnostic restriction site can be introduced artificially by

|  |  |
| --- | --- |
| (A) | Matched PCR Primer |
| (B) | Mismatched PCR Primer |
| (C) | RADP |
| (D) | AFLP |

120. Comparative DNA sequencing is done by using

|  |  |
| --- | --- |
| (A) | Plasmid |
| (B) | Ribosomal DNA |
| (C) | Genomic DNA |
| (D) | Phage DNA |

121. ‘Steriotaxi’ strategy is used in

|  |  |
| --- | --- |
| (A) | Tumor gene therapy |
| (B) | AAV gene therapy |
| (C) | Cold treatment |
| (D) | Retroviral gene therapy |

122. The blood bank of human body is

|  |  |
| --- | --- |
| (A) | Liver |
| (B) | Spleen |
| (C) | Pancreas |
| (D) | Heart |

123. The pace maker in heart is called

|  |  |
| --- | --- |
| (A) | Papillary muscle |
| (B) | Purkinje fibres |
| (C) | Sio-atrial node |
| (D) | Atrio-ventricular node |

124. The length of human female urethra is about

|  |  |
| --- | --- |
| (A) | 2.1 to 3.5 cm |
| (B) | 4.8 to 5.1 cm |
| (C) | 8.2 to 9.2 cm |
| (D) | 10 to 12 cm |

125. Hassall’s corpuscles are found in

|  |  |
| --- | --- |
| (A) | Thymus gland |
| (B) | Pineal gland |
| (C) | Kidneys |
| (D) | Skin |

126. Which of these stimulates sertoli cells for spermiogenesis?

|  |  |
| --- | --- |
| (A) | FSH |
| (B) | TSH |
| (C) | ADH |
| (D) | ACTH |

127. *Diabetes* *mellitus* is related with

|  |  |
| --- | --- |
| (A) | Graafian follicles |
| (B) | Peyer’s patches |
| (C) | Islets of Langerhans |
| (D) | Glisson’s capsules |

128. Kala-azar is transmitted by

|  |  |
| --- | --- |
| (A) | Tse-tse fly |
| (B) | Sandfly |
| (C) | *Aedes aegypti* |
| (D) | *Culex pipiens* |

129. Pick up the correct combination features of B-DNA.

|  |  |
| --- | --- |
| (A) | 66% humidity, right handed, 11 base/turn helix, helix diameter 19 |
| (B) | 92% humidity, right handed, 10 base/turn helix, helix diameter 19 |
| (C) | 75% humidity, left handed, 9.3 base/turn helix, helix diameter 18 |
| (D) | 92% humidity, right handed, 12 base/turn helix, helix diameter 23 |

130. How many genetically different gametes can be made by an individual of genotype AaBbccDDEe, assuming they are independently assorting?

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 5 |
| (C) | 8 |
| (D) | 32 |

131. In prokaryotic cells, the ribosome binds to the 5’ end of the mRNA at a sequence which is popularly known as

|  |  |
| --- | --- |
| (A) | Kozak sequence |
| (B) | Shine-Dalgarno sequence |
| (C) | Promoter region |
| (D) | Polymerase enzyme binding site |

132. Sickle-cell anaemia is a genetic disease caused by a single amino acid substitution in each β chain of haemoglobin. So, the substitution is between which two amino acids?

|  |  |
| --- | --- |
| (A) | Gly6-Lys6 |
| (B) | Asp5-Asn4 |
| (C) | Glu6-Val6 |
| (D) | His4-Lys5 |

133. Plant shoot bends towards a light source as a result of

|  |  |
| --- | --- |
| (A) | The increased amount of food synthesized by the leaves facing the light |
| (B) | An unequal auxin distribution in their shoot apex |
| (C) | The necessity of light for transpiration |
| (D) | Increased elasticity on the light-facing side |

134. Which non-covalent bond is responsible for the high melting and boiling points of water?

|  |  |
| --- | --- |
| (A) | H-bond |
| (B) | Peptide bond |
| (C) | Hydrophobic bond |
| (D) | Van der Waals force |

135. Malignant cancer cells have all of the following properties except

|  |  |
| --- | --- |
| (A) | Inhibition of angiogenesis |
| (B) | Resistance to apoptosis |
| (C) | Cellular immortality |
| (D) | Unregulated cell division |

136. Each individual antigenic determinants of the variable region of the antibody is referred to as

|  |  |
| --- | --- |
| (A) | Idiotope |
| (B) | Agretope |
| (C) | Epitope |
| (D) | Paratope |

137. Amphibian metamorphosis is controlled by

|  |  |
| --- | --- |
| (A) | Thyroid hormone |
| (B) | Oxytocin |
| (C) | Vasopressin |
| (D) | Gastrointestinal hormone |

138. The Shannon-Wiener index is useful to measure

|  |  |
| --- | --- |
| (A) | Species diversity in an ecological community |
| (B) | Rate of biomass transfer in food chain |
| (C) | Visibility in smog polluted areas |
| (D) | Wetland pollution levels |

139. Adjacent plant cells communicate with each other through cytoplasmic connections called

|  |  |
| --- | --- |
| (A) | Plasmodesmata |
| (B) | Desmosome |
| (C) | Gap junction |
| (D) | Septate junction |

140. Which cofactor is present in the enzyme glutathione peroxidase?

|  |  |
| --- | --- |
| (A) | Mo |
| (B) | Se |
| (C) | K**+** |
| (D) | Zn2**+** |

141. The component present only in the Ti plasmid and not in any other binary vector system is

|  |  |
| --- | --- |
| (A) | Vir gene |
| (B) | LB, RB |
| (C) | Opine Gene |
| (D) | Gus gene |

142. Genetic disorder caused by mutation in the hexosaminidase enzyme A which hydrolyzes the GM2 to GM3 during membrane lipid turnover leads to

|  |  |
| --- | --- |
| (A) | Tay-Sachs syndrome |
| (B) | Fabryi disease |
| (C) | Gauche’s disease |
| (D) | Niemann-Pick disease |

143. What is a sensitive technique to find out the number of template molecules originally present in a PCR reaction?

|  |  |
| --- | --- |
| (A) | AP PCR |
| (B) | Real time PCR |
| (C) | Hot start PCR |
| (D) | Reverse transcriptase PCR |

144. A laboratory technique in Electrophysiology used to study ionic currents in individual living cells

|  |  |
| --- | --- |
| (A) | ECG |
| (B) | Patch clamp technique |
| (C) | EEG |
| (D) | Single neuron recording |

145. The statistical test which can be utilized to validate the statement “People having high cholesterol suffer more from hypertension”

|  |  |
| --- | --- |
| (A) | Students ‘t’ test |
| (B) | Pearson correlation coefficient |
| (C) | ANOVA |
| (D) | Regression analysis |

146. Among the following, which is responsible for nerve action potential?

|  |  |
| --- | --- |
| (A) | Out-flux of Na**+** and K**+** ion |
| (B) | Influx of Na**+** and outflux of K**+** |
| (C) | Influx of Na**+** and K**+** ions |
| (D) | Out-flux of Na**+** and influx of K**+** ions |

147. Which mineral ion plays important role in functioning of photosystem II?

|  |  |
| --- | --- |
| (A) | Magnesium |
| (B) | Molybdenum |
| (C) | Iron |
| (D) | Manganese |

148. Muscular dystrophy, a devastating disease that cripple and kills children is caused by

|  |  |
| --- | --- |
| (A) | Mutation in dystrophin |
| (B) | Mutation in band 3 protein |
| (C) | Mutation in glycoprotein A |
| (D) | Mutation in ankyrin |

149. A Trickling filter is used for

|  |  |
| --- | --- |
| (A) | Antibiotic production |
| (B) | Beer production |
| (C) | Citric acid manufacturing |
| (D) | Waste water treatment |

150. Which of the following is used as a fusogen?

|  |  |
| --- | --- |
| (A) | Polyethylene glycol |
| (B) | CaMV |
| (C) | Sendai Virus |
| (D) | Adenovirus |

