MICROBIOLOGY

1. This combines with the 50S subunit ribosome and inhibits protein synthesis

|  |  |
| --- | --- |
| (A) | chloramphenicol |
| (B) | tetracycline |
| (C) | streptomycin |
| (D) | tyrocidine |

2. In northern blotting

|  |  |
| --- | --- |
| (A) | RNA is in the gel |
| (B) | DNA is in the gel |
| (C) | Antibody is in the gel |
| (D) | Protein is in the gel |

3. In Swiss cheese, during ripening, the characteristic eyes are due to

|  |  |
| --- | --- |
| (A) | lactic acid production by *L.bulgaricus* |
| (B) | gas production by *Propionibacterium* species |
| (C) | high temperature lactic cultures like *S. thermophilus* |
| (D) | lactic fermentation using *S. cremoris* |

4. The precursor from CSL which is incorporated into penicillin to give benzylpenicillin is

|  |  |
| --- | --- |
| (A) | phenylethylamine |
| (B) | phenoxyacetic acid |
| (C) | benzoic acid |
| (D) | penicillanic acid |

5. Plasmids are generally used as vectors, due to their

|  |  |
| --- | --- |
| (A) | ability to withstand high temperatures |
| (B) | ability to multiply within the cell |
| (C) | ability to get hydrolyzed quickly |
| (D) | ability to hydrolyze RNA |

6. This complexes with toxic metals and radionuclides, and thus is used as detoxifying agent.

|  |  |
| --- | --- |
| (A) | Starch |
| (B) | Acrylamide |
| (C) | Alginic acid |
| (D) | Gelatin |

7. Limulus amebocyte lysate (LAL) bioassay is used to monitor for

|  |  |
| --- | --- |
| (A) | steroids |
| (B) | endotoxins |
| (C) | exotoxins |
| (D) | squalene |

8. The major factor responsible in the tissue rejection process is

|  |  |
| --- | --- |
| (A) | Polyclonal Ab produced against foreign Ag |
| (B) | Monoclonal Ab produced against foreign Ag |
| (C) | MHC protein present on the cells |
| (D) | Cytotoxic T-cell reacting against the foreign Ag |

9. The pH of a tissue culture medium was changed from 6 to 3, this change would

|  |  |
| --- | --- |
| (A) | Precipitate the proteins in the medium |
| (B) | Increase the number of hydrogen ions thousand fold |
| (C) | Dissolve all the salts |
| (D) | Halve the concentration of the hydroxyl ions |

10. In Bt cotton, the Bt protein

|  |  |
| --- | --- |
| (A) | Causes more cotton production |
| (B) | Increases the protein content |
| (C) | Stops egg laying by adult |
| (D) | Prevents larvae from further feeding |

11. A person without thymus will not be able to

|  |  |
| --- | --- |
| (A) | Develop an inflammatory response |
| (B) | Reject a tissue transplant |
| (C) | Produce antibodies |
| (D) | Fight cold and cough |

12. The Monod model relates

|  |  |
| --- | --- |
| (A) | the biomass produced to the substrate utilized |
| (B) | the biomass concentration to the product concentration |
| (C) | the specific growth rate to the substrate availability |
| (D) | the specific growth rate to the biomass concentration |

13. It’s a water-in-oil emulsion with the heat killed tubercle bacteria

|  |  |
| --- | --- |
| (A) | Freund’s complete adjuvant |
| (B) | Freund’s incomplete adjuvant |
| (C) | Complement |
| (D) | None of the above |

14. What is diauxie?

|  |  |
| --- | --- |
| (A) | Nothing really. The cells just start growing |
| (B) | The stage wise uptake of nutrients |
| (C) | A requirement for growth factors |
| (D) | Microbiological die-off |

15. This is prepared by cleavage of DNA polymerase with subtilisin, giving a large enzyme fragment, which has no 5’ to 3’exonuclease activity, but which still acts as a 5’ to 3’ polymerase.

|  |  |
| --- | --- |
| (A) | Klenow fragment |
| (B) | Okazaki fragment |
| (C) | Telomerase |
| (D) | Hind III |

16. The analysis of a gene reveals that 30% of the nucleotides is G residues. Calculate the values for A +T.

|  |  |
| --- | --- |
| (A) | 30% |
| (B) | 40% |
| (C) | 50% |
| (D) | 60% |

17. The enzyme used in the prevention of chill –haze in beer is

|  |  |
| --- | --- |
| (A) | Amylase |
| (B) | Lipase |
| (C) | Cellulase |
| (D) | Papain |

18. Removal of debris and coarse materials from waste waters that may clog the equipment in the plant is known as

|  |  |
| --- | --- |
| (A) | Preliminary treatment |
| (B) | Primary treatment |
| (C) | Preparatory treatment |
| (D) | None of the above |

19. Which of the following appears first in the circulation on stimulation?

|  |  |
| --- | --- |
| (A) | IgM |
| (B) | IgG |
| (C) | IgD |
| (D) | IgE |

20. A protein having both structural and enzymatic properties is

|  |  |
| --- | --- |
| (A) | Actin |
| (B) | Trypsin |
| (C) | Myosin |
| (D) | Collagen |

21. The RBC is

|  |  |
| --- | --- |
| (A) | Rotating Biological Chain Reactor |
| (B) | Rotating Biological Contactor |
| (C) | Rotating Biological Centrifuge |
| (D) | Round Biological Chamber |

22. The single letter symbol for lysine is

|  |  |
| --- | --- |
| (A) | L |
| (B) | K |
| (C) | Y |
| (D) | S |

23. Advantages of trickling filters is

|  |  |
| --- | --- |
| (A) | Ponding occurs |
| (B) | Bio-coenoses develop within the reactor |
| (C) | Specific area of voidage is less |
| (D) | The action is not filtration |

24. The ratio of intensity of transmitted light to that of incident light is called

|  |  |
| --- | --- |
| (A) | absorbance |
| (B) | transmittance |
| (C) | reciprocal of transmittance |
| (D) | logarithm of transmittance |

25. One of the following is used in waste water treatment

|  |  |
| --- | --- |
| (A) | air lift reactors |
| (B) | membrane bioreactors |
| (C) | hollow fiber reactors |
| (D) | continuously stirred tank reactor |

26. The first discovered example of a positive regulation in bacteria was

|  |  |
| --- | --- |
| (A) | L-*ara* operon |
| (B) | *lac* operon |
| (C) | *trp* operon |
| (D) | *glu* operon |

27. In glycerol production, the inhibitor effect is

|  |  |
| --- | --- |
| (A) | glycerol -3-phosphate production is repressed |
| (B) | conversion of glycerol -3-phosphate to glycerol is repressed |
| (C) | conversion of glycerol-3-phosphate to DHAP is repressed |
| (D) | acetaldehyde production is repressed |

28. The repeat unit size in base pairs of the telomeres

|  |  |
| --- | --- |
| (A) | 8 base pairs |
| (B) | 6 base pairs |
| (C) | 4 base pairs |
| (D) | 3 base pairs |

29. 1-fluoro-2, 4-dinitrobenzene is known as

|  |  |
| --- | --- |
| (A) | Edman’s reagent |
| (B) | Sanger’s reagent |
| (C) | Folin’s reagent |
| (D) | Ninhydrin reagent |

30. In an enzyme assay, when [S] is much less than the Km, the rate

|  |  |
| --- | --- |
| (A) | approaches Vm |
| (B) | is independent of [S] |
| (C) | is independent of [E] |
| (D) | is proportional to [S] |

31. The mannitol supplied in the incubation mixture of protoplast isolation, functions primarily as

|  |  |
| --- | --- |
| (A) | source of energy |
| (B) | buffer |
| (C) | osmotic stabilizer |
| (D) | N-source |

32. In fluidized bed reactors

|  |  |
| --- | --- |
| (A) | Temperature gradients are very high |
| (B) | Temperature is more or less uniform |
| (C) | Hotspots are formed |
| (D) | Segregation of solids occurs |

33. An example of Gram positive plant pathogenic bacterium is

|  |  |
| --- | --- |
| (A) | *Pseudomonas* |
| (B) | *Erwinia* |
| (C) | *Xanthomonas* |
| (D) | *Corynebacterium* |

34. The different phases of the cell cycle are in the following order

|  |  |
| --- | --- |
| (A) | G1, S, G2, M |
| (B) | S, G1, G2, M |
| (C) | G2, S, M, G1 |
| (D) | M, G2, S, G1 |

35. When 20 Ci of radioactive elements were kept for 40 days, the radioactivity was reduced to 5 Ci, then the half life of the radioactive element is

|  |  |
| --- | --- |
| (A) | 10 |
| (B) | 15 |
| (C) | 20 |
| (D) | 30 |

36. In which component of a mitochondrion, ATP is synthesized

|  |  |
| --- | --- |
| (A) | Crista |
| (B) | Matrix |
| (C) | F0 – F1 complex |
| (D) | Outer membrane |

37. The function of penicillin in the production of glutamic acid by *Micrococcus glutaricus* is

|  |  |
| --- | --- |
| (A) | increase glutamic acid production |
| (B) | increase the purity of glutamic acid |
| (C) | act as inducer |
| (D) | increase cell wall permeability for glutamic acid release |

38. In prokaryotes, ETC and oxidative phosphorylation occur

|  |  |
| --- | --- |
| (A) | in the cytosol |
| (B) | attached to the cell wall |
| (C) | in the plasma membrane |
| (D) | in vacuoles |

39. The kinetics of microbial cell death is

|  |  |
| --- | --- |
| (A) | arithmetic |
| (B) | exponential |
| (C) | logarithmic |
| (D) | None of the above |

40. In electrophoresis, if the pH is above the isoelectric pH of a protein, it will

|  |  |
| --- | --- |
| (A) | migrate to the anode |
| (B) | migrate to the cathode |
| (C) | remain stationary |
| (D) | precipitate |

41. While constructing genomic library, one of the following combinations of restriction enzymes is most ideal. Recognize the combination

|  |  |
| --- | --- |
| (A) | EcoR1 and Sau3A1 |
| (B) | EcoR1 and BamH1 |
| (C) | BamH1 and Sau3A1 |
| (D) | BamH1 and HindIII |

42. Type IV hypersensitivity is caused by

|  |  |
| --- | --- |
| (A) | IgE |
| (B) | IgM |
| (C) | Immunecomplex |
| (D) | CMI |

43. Oxygen demand increases when

|  |  |
| --- | --- |
| (A) | the carbon source concentration is more reduced |
| (B) | the carbon source is more reduced |
| (C) | the carbon source concentration is less reduced |
| (D) | carbon source is less reduced |

44. The inhibition of glycolysis by oxygen is called

|  |  |
| --- | --- |
| (A) | Hypochromic effect |
| (B) | Bernoullii effect |
| (C) | Pasteur effect |
| (D) | Bohr effect |

45. Methylated DNA has not been found in

|  |  |
| --- | --- |
| (A) | *Drosophila* |
| (B) | *E.coli* |
| (C) | *Homo sapiens* |
| (D) | *Arabidopsis thaliana* |

46. Growth of bacteria requiring p-amino benzoic acid is inhibited by

|  |  |
| --- | --- |
| (A) | pantothenic acid |
| (B) | tetrahydrofolic acid |
| (C) | folic acid |
| (D) | sulfonamides |

47. The chemical which induces premature polypeptide chain termination

|  |  |
| --- | --- |
| (A) | Actinomycin |
| (B) | Streptomycin |
| (C) | Erythromycin |
| (D) | Puromycin |

48. SWL contains

|  |  |
| --- | --- |
| (A) | 1% sugar |
| (B) | 1.5% sugar |
| (C) | 2% sugar |
| (D) | 2.5 % sugar |

49. Under aerobic conditions, cellular yield coefficient is used to estimate

|  |  |
| --- | --- |
| (A) | Carbon requirements for biomass production |
| (B) | Nitrogen requirements for biomass production |
| (C) | Energy requirements for biomass production |
| (D) | All the above |

50. Which of the following is unchanged in the Lineweaver and Burk plot of an enzyme by the presence of an uncompetitive inhibitor?

|  |  |
| --- | --- |
| (A) | X-intercept |
| (B) | Y-intercept |
| (C) | Slope |
| (D) | None of the above |

51. Origin of replication in *E.coli* is recognized by a complex of proteins called as

|  |  |
| --- | --- |
| (A) | Replisome |
| (B) | DNA polymerase |
| (C) | Primosome |
| (D) | Ribosome |

52. Chitin is a polymer of

|  |  |
| --- | --- |
| (A) | Glucosamine |
| (B) | N-acetylglucosamine |
| (C) | N-acetyl galactosamine |
| (D) | Glucose and maltose |

53. Which of the following is false about anaerobic waste water treatment processes?

|  |  |
| --- | --- |
| (A) | Less sensitive to upsets by toxicants |
| (B) | Produce less sludge than aerobic process |
| (C) | Slower than aerobic process |
| (D) | All the above |

54. Phosphorous accumulates inside the cells as polyphosphates under

|  |  |
| --- | --- |
| (A) | Microaerophilic conditions |
| (B) | Anaerobic conditions |
| (C) | Aerobic conditions |
| (D) | Conditions of nutrient depletion |

55. Eukaryotic cells contain …………..DNA polymerases.

|  |  |
| --- | --- |
| (A) | 3 |
| (B) | 4 |
| (C) | 5 |
| (D) | 6 |

56. Beet molasses

|  |  |
| --- | --- |
| (A) | is limiting in biotin for yeast production |
| (B) | is 70-75% sugar |
| (C) | best molasses ever |
| (D) | is hydrol |

57. The addition of antifoams in an aerated bioreactor will decrease oxygen transfer rates because antifoams

|  |  |
| --- | --- |
| (A) | decrease bubble coalescence |
| (B) | reduce surface tension of the liquid |
| (C) | decrease bubble size |
| (D) | increase substrate availability |

58. In fermentor sterilization, the thermal death characteristics of which organism is used?

|  |  |
| --- | --- |
| (A) | *Bacillus megaterium* |
| (B) | *Bacillus macerans* |
| (C) | *Bacillus stearothermophilus* |
| (D) | *Coxiella burnetti* |

59. When *Saccharomyces cerevisiae* is grown in a medium with a high concentration of glucose, the cells will

|  |  |
| --- | --- |
| (A) | ferment only if the dissolved oxygen concentration is high |
| (B) | ferment only if the dissolved oxygen concentration is low |
| (C) | ferment regardless of the concentration of dissolved oxygen |
| (D) | None of the above |

60. Which of the following is best described as a secondary metabolite?

|  |  |
| --- | --- |
| (A) | Penicillin |
| (B) | Glutamic acid |
| (C) | Acetic acid from oxidation of alcohol |
| (D) | Ethanol from fermentation of glucose |

61. The region of the air lift reactor in which the air is sparged is called

|  |  |
| --- | --- |
| (A) | the down comer |
| (B) | the air riser |
| (C) | the disengagement zone |
| (D) | flotsam |

62. Antibiotic that damages the cytoplasmic membrane

|  |  |
| --- | --- |
| (A) | Chloramphenicol |
| (B) | Polymyxin |
| (C) | Penicillin |
| (D) | Cycloserine |

63. Identify the variety of surface ripened cheese

|  |  |
| --- | --- |
| (A) | Monterey |
| (B) | Limburger |
| (C) | Gouda |
| (D) | Edam |

64. The Orleans process is used in the manufacture of

|  |  |
| --- | --- |
| (A) | Interferon |
| (B) | Dextran |
| (C) | Vinegar |
| (D) | 2,3-butanediol |

65. Picornaviridae are

|  |  |
| --- | --- |
| (A) | Viruses composed of single stranded (+) type RNA |
| (B) | Viruses composed of single stranded (-) type RNA |
| (C) | Viruses composed of single stranded DNA |
| (D) | Viruses composed of double stranded RNA |

66. Negri bodies, inclusion bodies in Purkinje cells and cells of the hippocampus are diagnostic of

|  |  |
| --- | --- |
| (A) | Vesicular stomatitis |
| (B) | Mumps |
| (C) | Rabies |
| (D) | Influenza |

67. Mammals cannot synthesize

|  |  |
| --- | --- |
| (A) | linoleate and linolenate |
| (B) | palmitic acid and linoleic acid |
| (C) | oleic acid and linoleic acid |
| (D) | palmitic acid and oleic acid |

68. The outer membrane of the Gram negative cell wall is anchored to the underlying peptidoglycan by means of

|  |  |
| --- | --- |
| (A) | Pseudomurein |
| (B) | Braun’s lipoprotein |
| (C) | Teichoic acids |
| (D) | Core polysaccharide |

69. The resolving power of the unaided human eye is

|  |  |
| --- | --- |
| (A) | 10 micrometre |
| (B) | 100 micrometre |
| (C) | 1000 nanometre |
| (D) | 1000 nanometre |

70. MacConkey agar is modified according to need. Choose the correct answer from the following

|  |  |
| --- | --- |
| (i) | If swarming of *Proteus* species is *not* required, sodium chloride is omitted. |
| (ii) | Crystal violet at 0.0001% is included to inhibit Gram-positive bacteria. |
| (iii) | MacConkey with sorbitol is used to isolate an enteric pathogen *E. coli* O157. |

|  |  |
| --- | --- |
| (A) | (i), (ii) and (iii) are incorrect |
| (B) | (i), (ii) are correct, but (iii) is incorrect |
| (C) | (i), (ii) and (iii) are all correct |
| (D) | (i) and (iii) are incorrect, but (ii) is correct |

71. When tryptophan is converted by tryptophanase, roseindol is formed by adding Kovac’s reagent containing

|  |  |
| --- | --- |
| (A) | p-dimethylaminobenzaldehyde |
| (B) | p-aminobenzoic acid and aldehyde |
| (C) | tetramethylparaphenylene diamine dihydrochloride |
| (D) | p-dimethylaminocinnamaldehyde |

72. Identify this medium based on the composition- yeast extract, peptone, sodium thiosulfate, sodium citrate, ox, gall, sodium cholate, saccharose, sodium chloride, ferric citrate, bromothymol blue, thymol blue and agar.

|  |  |
| --- | --- |
| (A) | Simmon’s citrate agar |
| (B) | TCBS agar |
| (C) | EMB agar |
| (D) | XLD agar |

73. Select the correct choice for the statement*-The* redox indicator used in oxidase test

|  |  |
| --- | --- |
| (i) | *hydrochloride salt of N,N,N′,N′*-tetramethyl-*p*-phenylenediamine |
| (ii) | *hydrochloride salt of* p-dimethyaminocinnamaldehyde |
| (iii) | Wurster's blue is the trivial name and the radical cation is a characteristic blue-violet colour |
| (iv) | It loses two electrons in one-electron oxidation steps |

|  |  |
| --- | --- |
| (A) | (i) is correct, (ii), (iii) and (iv) are incorrect |
| (B) | (i), (iii) and (iv) are correct, while (ii) is incorrect |
| (C) | (i) and (ii) are correct, (iii) and (iv) are incorrect |
| (D) | (ii), (iii) and (iv) are correct, while (i) is incorrect |

74. The Crystal® VC Rapid Diagnostic Test (RDT) Procedure is used for

|  |  |
| --- | --- |
| (A) | *E.coli* |
| (B) | *V.parahaemolyticus* |
| (C) | *P.aeruginosa* |
| (D) | *V.cholerae* |

75. Peroxisomes and glyoxysomes are

|  |  |
| --- | --- |
| (A) | energy transforming organelles |
| (B) | membraneless organelles |
| (C) | macrobodies |
| (D) | microbodies |

76. Indole acetic acid belongs to a group of hormones known as

|  |  |
| --- | --- |
| (A) | Cytokinins |
| (B) | Gibberillins |
| (C) | Auxins |
| (D) | Abscisic acid |

77. The flattened, bulb like structure, produced by the fungi, which allows them to penetrate their host plants directly is known as

|  |  |
| --- | --- |
| (A) | appressorium |
| (B) | propagule |
| (C) | biotroph |
| (D) | aecium |

78. The openings on fruits, stems and tubers that are filled with loosely connected cells to allow passage of air are known as

|  |  |
| --- | --- |
| (A) | Hydathodes |
| (B) | Lenticels |
| (C) | Porins |
| (D) | Stomata |

79. Cutin is an insoluble polyester of

|  |  |
| --- | --- |
| (A) | C12 and C20 hydroxy fatty acids |
| (B) | C20 hydroxy fatty acids |
| (C) | C12 hydroxy fatty acids |
| (D) | C16 and C18 hydroxy fatty acids |

80. The wild fire disease of tobacco is caused by

|  |  |
| --- | --- |
| (A) | *Pseudomonas syringae* |
| (B) | *Pseudomonas aeroginosa* |
| (C) | *Pseudomonas putida* |
| (D) | *Pseudomonas solanacearum* |

81. The disease caused by the bacterium *Agrobacterium tumefaciens* is

|  |  |
| --- | --- |
| (A) | Corn smut |
| (B) | Crown gall |
| (C) | Banana wilt |
| (D) | Root knot |

82. When plants are infected with pathogens,

|  |  |
| --- | --- |
| (A) | The rate of respiration generally increases |
| (B) | The rate of respiration generally decreases |
| (C) | Transpiration is usually decreased |
| (D) | Photosynthesis usually increases |

83. The causative agent of smuts that cause the ears and grains to be transformed into greenish black mass or soot is

|  |  |
| --- | --- |
| (A) | *Puccini*a |
| (B) | *Phytopthor*a |
| (C) | *Ustilago* |
| (D) | *Fusarium* |

84. The saponins present in oats and which have antifungal membranolytic activity is

|  |  |
| --- | --- |
| (A) | Tomatine |
| (B) | Avenacin |
| (C) | Zeatin |
| (D) | Lectin |

85. The precursor of the wound hormone traumatin, that also acts as a signal transducer of the defense reaction in plant-pathogen interactions is

|  |  |
| --- | --- |
| (A) | Jasmonic acid |
| (B) | Gibberellic acid |
| (C) | Indol acetic acid |
| (D) | Glutamic acid |

86. Phytoalexins

|  |  |
| --- | --- |
| (A) | Are produced during compatible biotrophic infections |
| (B) | Are produced by healthy cells adjacent to the localized damaged and necrotic cells in response to materials diffusing from the damaged cells |
| (C) | Do not accumulate around both resistant and susceptible necrotic tissues |
| (D) | Are not produced after stimulation by phytopathogenic microorganisms or by chemical and mechanical injury |

87. During drought conditions, plants produce a hormone known as

|  |  |
| --- | --- |
| (A) | Indole acetic acid |
| (B) | Ethylene |
| (C) | Abscisic acid |
| (D) | Indole butyric acid |

88. Cybrid cells

|  |  |
| --- | --- |
| (A) | contain the nucleus of one cell and the cytoplasm of the other cell |
| (B) | contain the nuclei and the cytoplasm of both protoplast cells |
| (C) | contain only the nuclei of both protoplast cells |
| (D) | contain only the cytoplasm of both protoplast cells |

89. Cauliflower mosaic virus is a

|  |  |
| --- | --- |
| (A) | ds DNA virus |
| (B) | ss DNA virus |
| (C) | ss RNA virus |
| (D) | ds RNA virus |

90. Bordeaux mixture used against downy mildew is a product of the reaction of

|  |  |
| --- | --- |
| (A) | Copper sulfate and calcium hydroxide |
| (B) | Sodium sulfate and calcium hydroxide |
| (C) | Calcium sulfate and calcium hydroxide |
| (D) | Zincsulfate and calcium hydroxide |

91. The pH of normal unpolluted rain is usually

|  |  |
| --- | --- |
| (A) | pH 7.0 |
| (B) | pH 6.0 |
| (C) | pH 5.6 |
| (D) | pH 4.5 |

92. Protoplasts are used for genetic engineering because

|  |  |
| --- | --- |
| (A) | they have diploid nucleus |
| (B) | they have no cell wall |
| (C) | they have no cell membrane |
| (D) | they have intact cytoplasm |

93. Ectomycorrhizae is an association of

|  |  |
| --- | --- |
| (A) | bacteria and plant |
| (B) | cyanobacteria and fungi |
| (C) | bacteria and fungi |
| (D) | fungi and plant root |

94. When sterilizing at 15 lbs pressure for 20 minutes, the temperature is

|  |  |
| --- | --- |
| (A) | 110°C |
| (B) | 115°C |
| (C) | 121°C |
| (D) | 125°C |

95. The fungus-like members of the kingdom Chromista that have elongated mycelium containing cellulose but no cross walls are

|  |  |
| --- | --- |
| (A) | Myxomycetes |
| (B) | Oomycetes |
| (C) | Zygomycetes |
| (D) | Plasmodiophoromycetes |

96. *Xanthomonas campestris* is a seed pathogen that causes

|  |  |
| --- | --- |
| (A) | black rot of Cauliflower |
| (B) | root rot of Barley |
| (C) | anthracnose of French beans |
| (D) | leaf blight of Carrot |

97. Koch’s postulates-Which of the statements below is false?

|  |  |
| --- | --- |
| (A) | The microorganisms must not necessarily be found isolated with every instance of disease |
| (B) | The microorganism must be isolated and brought into pure culture and its specific characters studied |
| (C) | When the host is inoculated with the isolated microorganism under optimum conditions, the disease should appear with characteristic symptoms |
| (D) | The microorganism be reisolated and on comparison with the original culture, must be found identical |

98. A group of plant proteins that bind to specific carbohydrates

|  |  |
| --- | --- |
| (A) | Pectins |
| (B) | Lectins |
| (C) | Chitins |
| (D) | Cutins |

99. Haustoria are present in plants like

|  |  |
| --- | --- |
| (A) | Vanda |
| (B) | Rhizophora |
| (C) | Tinospora |
| (D) | Mistletoe |

100. Keefe’s solution

|  |  |
| --- | --- |
| (A) | is a medium for the preservation of green color in plant specimen |
| (B) | is a nuclear stain |
| (C) | is a fixative |
| (D) | is a culture medium for bacteria |

101. Loeffler’s alkaline methylene blue is

|  |  |
| --- | --- |
| (A) | Flagella stain |
| (B) | Spore stain |
| (C) | Acid fast stain |
| (D) | Capsule stain |

102. Process absent in virus or not virus mediated

|  |  |
| --- | --- |
| (A) | Replication |
| (B) | Mutation |
| (C) | protein synthesis |
| (D) | energy liberation |

103. Mycoplasma like organisms which have only cell membrane and lacking cell wall are classified as

|  |  |
| --- | --- |
| (A) | Gracilicutes |
| (B) | Firmicutes |
| (C) | Mollicutes |
| (D) | Proteobacteria |

104. The change of a cell through uptake and expression of additional genetic material

|  |  |
| --- | --- |
| (A) | Conjugation |
| (B) | Transformation |
| (C) | Generalized transduction |
| (D) | Specialized transduction |

105. RNA dependent DNA polymerase is part of genome of

|  |  |
| --- | --- |
| (A) | Influenza virus |
| (B) | Herpes virus |
| (C) | Adenovirus |
| (D) | Papilloma virus |

106. Incorporation of 5-bromouracil into DNA will result in conversion of

|  |  |
| --- | --- |
| (A) | AT to GC |
| (B) | GC to AT |
| (C) | TA to AT |
| (D) | CG to GC |

107. The function of the sex (F) pilus of *Escherichia coli* involves

|  |  |
| --- | --- |
| (A) | transport of nutrients |
| (B) | attachment of cells to inert surfaces |
| (C) | movement of cells in a type of twitching motion |
| (D) | transfer of DNA between bacteria during conjugation |

108. In bacterial genetics, the term competence refers to a bacterium with

|  |  |
| --- | --- |
| (A) | ability to be transformed |
| (B) | the F factor integrated into its chromosomal DNA |
| (C) | susceptibility to lytic infection by bacteriophage |
| (D) | ability to act as a DNA donor during transformation |

109. Which of the following is an advantage that ectotherms have over endotherms of the same size?

|  |  |
| --- | --- |
| (A) | They require much less food |
| (B) | They are less vulnerable to predation during cold weather |
| (C) | They can remain active in cold weather or on cold nights |
| (D) | They have higher metabolic rates and grow more quickly |

110. As an animal gets larger, which of the following occurs?

|  |  |
| --- | --- |
| (A) | Its surface area grows more rapidly than its volume |
| (B) | Its volume grows more rapidly than its surface area |
| (C) | Its volume and surface area increase in perfect proportion to each other |
| (D) | Its volume increases, but its total surface area decreases |

111. Cellulose is fermented in which of the following structures in rabbits?

|  |  |
| --- | --- |
| (A) | Small intestine |
| (B) | Caecum |
| (C) | Rectum |
| (D) | Rumen |

112. Which of the following brain regions is responsible for formation of new memories?

|  |  |
| --- | --- |
| (A) | Brain stem |
| (B) | Cerebellum |
| (C) | Frontal lobe |
| (D) | Hippocampus |

113. Which of the following classes of muscles is/are voluntary?

|  |  |
| --- | --- |
| (A) | Skeletal muscle |
| (B) | Cardiac muscle |
| (C) | Smooth muscle |
| (D) | All of the above |

114. Which of the following developmental processes is not controlled by hormones?

|  |  |
| --- | --- |
| (A) | The initial development of male and female gonads in mammals, soon after fertilization |
| (B) | Overall growth in vertebrates |
| (C) | Moulting in insects and other invertebrates |
| (D) | Metamorphosis in insects and other invertebrates |

115. Which of the following modes of asexual reproduction describes the mode of reproduction in Sea anemones?

|  |  |
| --- | --- |
| (A) | Fusion |
| (B) | Fission |
| (C) | Budding |
| (D) | Parthenogenesis |

116. What happens during cleavage?

|  |  |
| --- | --- |
| (A) | The neural tube forms |
| (B) | The inner cell mass of the blastocyst begins dividing rapidly |
| (C) | The zygote divides rapidly without growth, forming a mass of cells |
| (D) | Massive movements of cells form the three germ layers |

117. What is the most important difference between the innate and adaptive immune responses?

|  |  |
| --- | --- |
| (A) | The innate response does not distinguish between pathogens, while the adaptive response does |
| (B) | Only the innate response is activated by antigens |
| (C) | The adaptive response generates immunological memory and is more specific than the innate response |
| (D) | The innate response does not kill cells; the adaptive response does |

118. What is one of the differences between CD4+ and CD8+ cells?

|  |  |
| --- | --- |
| (A) | CD4+ cells are immature, and CD8+ cells are mature |
| (B) | CD4+ cells are activated, and CD8+ cells are not |
| (C) | CD4+ cells activate cell-mediated responses, and CD8+cells activate humoral responses |
| (D) | CD4+ cells interact with Class II MHC proteins and CD8+cells interact with class I MHC proteins |

119. Which of the following is not found in the cells of higher plants?

|  |  |
| --- | --- |
| (A) | Plasma membrane |
| (B) | Chromoplasts |
| (C) | Ribosomes |
| (D) | Centriole |

120. A behaviour is considered adaptive if it increases an individual’s fitness. How is fitness measured?

|  |  |
| --- | --- |
| (A) | Strength |
| (B) | Speed |
| (C) | Body size |
| (D) | Number of viable offspring |

121. A taxon is

|  |  |
| --- | --- |
| (A) | A group of related plants or animals |
| (B) | A type of living organism |
| (C) | A group of related families |
| (D) | A taxonomic group of any rank |

122. The pesticide DDT will be mostly concentrated in

|  |  |
| --- | --- |
| (A) | Tertiary consumers |
| (B) | Primary decomposers |
| (C) | Primary producers |
| (D) | Secondary consumers |

123. What does genetic diversity mean?

|  |  |
| --- | --- |
| (A) | The count of species in a territory |
| (B) | Species interacting with the abiotic environment |
| (C) | Abundance of each species present |
| (D) | The complete genetic information of a population, species or a group of species |

124. Blue-green algae belong to the kingdom

|  |  |
| --- | --- |
| (A) | Monera |
| (B) | Protista |
| (C) | Fungi |
| (D) | Plantae |

125. The group of vertebrates with the greatest capacity for gas exchange across the skin is

|  |  |
| --- | --- |
| (A) | Fishes |
| (B) | Amphibians |
| (C) | Reptiles |
| (D) | Mammals |

126. Which of Mendel’s laws cannot be observed in a single-factor cross?

|  |  |
| --- | --- |
| (A) | Segregation |
| (B) | Dominance |
| (C) | Independent assortment |
| (D) | Recessiveness |

127. The enzyme that allows short segments of DNA to move from one location in the genome to another is

|  |  |
| --- | --- |
| (A) | Transposase |
| (B) | Restriction endonuclease |
| (C) | DNA polymerase |
| (D) | RNA polymerase |

128. The movement of landmasses that have changed their positions, shapes, and association with other landmasses is called

|  |  |
| --- | --- |
| (A) | Glaciation |
| (B) | Pangaea |
| (C) | Continental drift |
| (D) | Biogeography |

129. Neck is absent in frog. This helps frog in

|  |  |
| --- | --- |
| (A) | Jumping around |
| (B) | Swimming in water |
| (C) | Respiration |
| (D) | Catching prey |

130. In frog, the biggest bone of vertebral column is

|  |  |
| --- | --- |
| (A) | Pygostyle |
| (B) | Uropyge |
| (C) | Urostyle |
| (D) | None of the above |

131. Hepatic portal system starts from

|  |  |
| --- | --- |
| (A) | Digestive system to liver |
| (B) | Kidney to liver |
| (C) | Liver to heart |
| (D) | Liver to kidney |

132. Nissl granules are found in

|  |  |
| --- | --- |
| (A) | Internal ear |
| (B) | Uriniferous tubules |
| (C) | Bile juice |
| (D) | Neuronal cell |

133. Which of the following chromosomes are found in salivary glands of *Drosophila*?

|  |  |
| --- | --- |
| (A) | Normal |
| (B) | Lampbrush |
| (C) | Polytene |
| (D) | Heterochromatic |

134. In ecological sense, the desert animals are termed as

|  |  |
| --- | --- |
| (A) | Arboreal |
| (B) | Cursorial |
| (C) | Benthic |
| (D) | Xeric |

135. Animal species should be preserved mainly because

|  |  |
| --- | --- |
| (A) | They are lovely creatures |
| (B) | They are useful to mankind |
| (C) | Man cannot recreate a species of animals if it be destroyed |
| (D) | Zoologists want to study them |

136. Memory cells are produced by

|  |  |
| --- | --- |
| (A) | Only B-cells |
| (B) | Only T-cells |
| (C) | Mainly T-cells |
| (D) | Both B - and T- cells |

137. Helper T-cells

|  |  |
| --- | --- |
| (A) | Produce antibodies |
| (B) | Stimulate antibody production by B-cells |
| (C) | Produce B-cells |
| (D) | Produce B-cells as well as Killer cells |

138. Heterocysts are specialized for

|  |  |
| --- | --- |
| (A) | Aerobic respiration |
| (B) | Photosynthesis |
| (C) | Nitrogen fixation |
| (D) | Reproduction |

139. Coprophilous fungi grow on

|  |  |
| --- | --- |
| (A) | Grasses |
| (B) | Dung |
| (C) | Animals |
| (D) | Wood |

140. Sorosis is the fruit that develops from an inflorescence like:

|  |  |
| --- | --- |
| (A) | Spike or Spadix |
| (B) | Capitulum |
| (C) | Racemose |
| (D) | Cymose |

141. Female sex organ of Rodophyceae is

|  |  |
| --- | --- |
| (A) | Carpogonium |
| (B) | Archegonium |
| (C) | Oogonium |
| (D) | Sporogonium |

142. In Pteridophytes, reduction division occurs when

|  |  |
| --- | --- |
| (A) | Prothallus is formed |
| (B) | Sex organs are formed |
| (C) | Spores are formed |
| (D) | Gametes are formed |

143. Lichens are ecologically important because

|  |  |
| --- | --- |
| (A) | They are associations of algae and fungi |
| (B) | They can grow in highly polluted areas |
| (C) | They are pioneers of vegetation in a lithosphere |
| (D) | They are symbiotic with higher plants |

144. The catalytic efficiency of two different enzymes can be compared by the

|  |  |
| --- | --- |
| (A) | formation of the product |
| (B) | the pH of optimum value |
| (C) | the Km value |
| (D) | molecular size of the enzyme |

145. When synapsis is complete all along the chromosome, the cell is said to have entered a stage called

|  |  |
| --- | --- |
| (A) | Zygotene |
| (B) | Pachytene |
| (C) | Diplotene |
| (D) | Diakinesis |

146. The pathway of the movement of water through cell wall only is called

|  |  |
| --- | --- |
| (A) | Symplast pathway |
| (B) | Plasmodesmata pathway |
| (C) | Apoplast pathway |
| (D) | Vacuolar pathway |

147. *Hevea brasiliensis* belongs to the family:

|  |  |
| --- | --- |
| (A) | Fabaceae |
| (B) | Lamiaceae |
| (C) | Verbinaceae |
| (D) | Euphorbiaceae |

148. A mutually beneficial association which is necessary for the survival of both the partners is called:

|  |  |
| --- | --- |
| (A) | Symbiosis |
| (B) | Commensalism |
| (C) | Parasitism |
| (D) | Mutualism |

149. The correct sequence of flow of electrons in the light reaction is

|  |  |
| --- | --- |
| (A) | PS II, plastoquinone, cytochromes, PS I, ferredoxin |
| (B) | PS I, plastoquinone, cytochrome, PS II, ferredoxin |
| (C) | PS I, ferredoxin, PS II |
| (D) | PS I, plastoquinone, cytochromes, PS II, ferredoxin |

150. The chemiosmotic hypothesis of oxidative phosphorylation process is that ATP is formed because

|  |  |
| --- | --- |
| (A) | A proton gradient forms across the inner mitochondrial membrane |
| (B) | There is a change in the permeability of the inner mitochondrial membrane towards ADP |
| (C) | High energy bonds are formed in mitochondrial proteins |
| (D) | ADP is pumped out of the matrix into the inner membrane space |

\*\*\*\*\*\*\*\*\*\*\*

