

1. If a DNA sample contains 13% adenine, what percentage of the sample contains cytosine?
(A) 13% (B) 37%
(C) 26% (D) 74%
2. Ozonation of water is an example of _____ type of effluent treatment.
(A) Primary (B) Preliminary
(C) Secondary (D) Tertiary
3. Synecology deals with :
(A) Ecology of many species (B) Ecology of many populations
(C) Ecology of community (D) None of the above
4. Which biosensor is based on the movement of electrons?
(A) Conductmetric (B) Potentiometric
(C) Amperometric (D) Thermometric
5. Species that occur in different geographical regions separated by special barrier are :
(A) Allopatric (B) Sympatric
(C) Sibling (D) None of the above
6. The first phase contrast microscope was developed by _____ in 1933.
(A) Hans Janssen (B) Zacharias
(C) Frits Zernike (D) Lippershey
7. A major organism used in commercial bioleaching for copper recovery is :
(A) *Desulfovibrio desulfuricans* (B) *Pseudomonas aeruginosa*
(C) *Aspergillus niger* (D) *Thiobacillus ferrooxidans*
8. Which microorganism's genome was first sequenced?
(A) *Saccharomyces cerevisiae* (B) *Haemophilus influenza*
(C) *E.coli* (D) *Mycobacterium*

9. Which of the following best describes biodegradation?
(A) A minor change in an organic molecule
(B) Fragmentation of a complex organic molecule
(C) Complete transformation of the organic molecule to mineral forms
(D) All of the above
10. Who discovered the bacteria that cause cholera?
(A) Filippo Pacini (B) Robert Koch
(C) Louis Pasteur (D) Rudolf Virchow
11. Which of the following devices is suitable for the removal of gaseous pollutants?
(A) Cyclone separator (B) Electrostatic precipitator
(C) Wet scrubber (D) Fabric filter
12. "Superbug" was a name coined for organisms engineered for :
(A) Antibiotic production (B) Probiotic production
(C) Hydrocarbon degradation (D) Enzyme production
13. All the following are immunogenic EXCEPT :
(A) Bacterial flagella (B) Haptens
(C) Bacterial pili (D) Viral spikes
14. The most important organism to be eliminated from the canned food :
(A) *Pseudomonas* (B) *Clostridium*
(C) *Salmonella* (D) *Shigella*
15. Which of the following is used in the production of 'cry' proteins?
(A) *Bacillus thuringiensis* (B) *Streptococcus mutans*
(C) *Streptomyces griseus* (D) *Penicillium chrysogenum*
16. Earthworm used in vermicomposting :
(A) *Lumbricus rubellus* (B) *Eisenia foetida*
(C) *E. buchholzi* (D) All of the above
17. The resolution obtainable with electron microscope is in the range of :
(A) 0.03 μm (B) 0.003 μm
(C) 0.0003 μm (D) 0.3 μm

18. Which of the following abbreviations refers to a cultural technique for determining microorganisms in food?
- (A) FDA (B) SPC
(C) FAO (D) IMC
19. Antibody diversity results from :
- (A) Apoptosis (B) Antigenic shift
(C) Somatic recombination (D) Complement binding
20. SDS-PAGE is used in one of the following immunological technique :
- (A) Immunodiffusion (B) Immunoprecipitation
(C) Immunoelectrophoresis (D) Western blotting
21. The *Corynebacteria* inhabit the surface of eye is an example of :
- (A) Commensalism (B) Parasitism
(C) Symbiosis (D) Predation
22. Which among the following is a virus predominantly infect insects?
- (A) Baculovirus (B) Adenovirus
(C) Parvovirus (D) Retro virus
23. Enzyme widely used in ice cream industry :
- (A) Amylase (B) Protease
(C) Invertase (D) Phosphatase
24. Size exclusion is related to which form of chromatography :
- (A) Gel filtration (B) Affinity
(C) Ion exchange (D) Hydrophobic interaction
25. Which of the following vaccine are products of genetic engineering?
- (A) Diphtheria vaccine (B) Hepatitis B vaccine
(C) Influenza vaccine (D) Tetanus vaccine
26. Which of the following is not a method of immobilization?
- (A) Adsorption (B) Covalent binding
(C) Hydrogen bonding (D) Entrapment

27. The enzyme complex responsible for symbiotic nitrogen fixation is called :
(A) Hydrogenase (B) Nitrite reductase
(C) Nitrate reductase (D) None of the above
28. The most frequently used amino acid in food industry :
(A) Glutamic acid (B) Lysine
(C) Phenyl alanine (D) Tryptophan
29. The first cell to recognize that a graft is foreign are the _____ cells.
(A) B cell (B) T cell
(C) NK cells (D) All the above
30. Quellung reaction is used for typing of :
(A) *Klebsiella pneumonia* (B) *Streptococcus pneumonia*
(C) Both (A) and (B) (D) None of these
31. Mechanism based enzyme inactivation is also known as :
(A) competitive inhibition (B) non competitive inhibition
(C) allosteric regulation (D) suicide inhibition
32. Which of the following genera do not contain species that fix nitrogen symbiotically?
(A) *Clostridium* (B) *Frankia*
(C) *Nitrobacter* (D) *Anabaena*
33. Algal blooms impart a distinct colour to water due to :
(A) their pigments
(B) excretion of coloured substances
(C) formation of coloured chemicals in water facilitated by physiological degradation of algae
(D) absorption of light by algal cell wall
34. Immunocompromised persons are suffered from several fungal diseases. Which of the following is the least frequently associated?
(A) *Cryptococcus neoformans* (B) *Aspergillus fumigates*
(C) *Malassezia furfur* (D) *Mucor* species

35. Aspergillosis is recognized in tissue by the presence of :
(A) Coenocytic hyphae (B) Pseudo hyphae
(C) Septate hyphae (D) Budding cells
36. A girl who pricked her finger while pruning some rose bushes develops a local pustule that progresses to an ulcer. Several nodules then develop along the local lymphatic drainage. The most likely agent is :
(A) *Aspergillus fumigates* (B) *Sporothrix schenckii*
(C) *Cryptococcus neoformans* (D) *Candida albicans*
37. All of the following scientist got Nobel Prize for their contribution in the field of Microbiology EXCEPT :
(A) Louis Pasteur (B) Elie Metchnikoff
(C) Paul Ehrlich (D) Robert Koch
38. The organism whose natural habitat is terrestrial and which are able to grow in media without sea water yet able to tolerate varying degrees of salinity are known as :
(A) Indigenous organism (B) Transient organism
(C) Halotolerant organism (D) None
39. Spinae are tubular surface appendages in :
(A) Gram positive (B) Gram negative
(C) Actinomycetes (D) Archaea bacteria
40. Griseofulvin is a _____ antibiotic.
(A) Antibacterial (B) Antifungal
(C) Antitumor (D) Antiprotozoan
41. Ethanol is one of the most commonly used disinfectants. Which concentration of ethanol is most effective for this purpose?
(A) 100% (B) 70%
(C) 50% (D) 95%
42. The proteins produced in plants in the event of a pathogen attack :
(A) AR (B) SAR
(C) PB (D) PR

43. Cold agglutinin test is useful for the diagnosis of :
(A) *Mycoplasma pneumonia* (B) *H. influenza*
(C) *N. Meningitidis* (D) *Cryptococcus neoformans*
44. Carl Woese proposed the concept of the domain based on differences in which of the following cellular molecules?
(A) rRNA (B) tRNA
(C) mRNA (D) DNA
45. Which of the following can be the final electron receptor in anaerobic respiration in bacteria?
(A) Oxygen (B) Pyruvate
(C) Nitrate (D) Carbon dioxide
46. Mitochondria are missing in :
(A) Yeast (B) Cyanobacteria
(C) *Aspergillus* (D) *Paramecium*
47. Any process that destroys the non-spore-forming contaminants on inanimate objects is :
(A) Antisepsis (B) Sterilization
(C) Disinfection (D) Degermation
48. Fildes technique is used for the culture of :
(A) *Clostridium perfringens* (B) *Clostridium tetani*
(C) *Clostridium botulinum* (D) *Clostridium difficile*
49. A woman with infertility receives an ovary transplant from her sister who is an identical Twin. What type of graft it is?
(A) Xenograft (B) Autograft
(C) Allograft (D) Isograft
50. Type 1 hypersensitivity is mediated by which of the following immunoglobulins?
(A) IgA (B) IgG
(C) IgM (D) IgE
51. The most common pathogens responsible for nosocomial pneumonias in the ICU are :
(A) Gram positive organisms (B) Gram negative organisms
(C) *Mycoplasma* (D) Virus infections

52. Which dye is most suitable for fungal demonstration in biopsy?
(A) Alizarin red (B) Veirhoffdye
(C) Masson's trichrome (D) P.A.S.
53. Which one of the following organisms was not a model organism related to the birth of molecular genetics?
(A) *Streptococcus* (B) *Penicillium*
(C) *Escherichia* (D) *Neurospora*
54. The first aminoacid synthesized during protein synthesis :
(A) Tyrosine (B) Proline
(C) Methionine (D) Tryptophan
55. The insert capacity of plasmid vectors :
(A) 1 – 15kb (B) 15 – 25kb
(C) 35 – 45kb (D) 80 – 100kb
56. The blotting technique used to detect RNA :
(A) Western Blot (B) Southern Blot
(C) Northern Blot (D) Eastern Blot
57. The regulation of gene expression in response to fluctuations in cell-population density :
(A) Microbial intelligence (B) Biofilm
(C) Quorum sensing (D) Translational regulation
58. Which one is not a DNA staining reagent aiding DNA visualization?
(A) Ethidium bromide (B) Sybr Green
(C) Hoechst stain (D) Methyl red
59. The theory behind si-RNA therapy :
(A) Correction of gene mutation with an oligonucleotide
(B) Blocking translation of mRNA from a mutant gene with an oligonucleotide
(C) Providing needed protein synthesized by blood cells
(D) Removal of toxic molecules

60. The enzyme that degrades double stranded DNA :
- | | |
|-----------------|------------------------|
| (A) DNase I | (B) Mung Bean nuclease |
| (C) S1 nuclease | (D) RNase H |
61. Hops are used in the preparation of :
- | | |
|-----------------|-------------|
| (A) Wine | (B) Ethanol |
| (C) Citric acid | (D) Beer |
62. An organism that has super oxide dismutase and peroxidase but lack catalase is most likely a :
- | | |
|-------------------------|---------------------------|
| (A) Aerotolerant aerobe | (B) Facultative anaerobe |
| (C) Obligate anaerobe | (D) Aerotolerant anaerobe |
63. Industrial alcohol will be produced by using starter culture :
- | | |
|------------------|------------------|
| (A) Top yeast | (B) Middle yeast |
| (C) Bottom yeast | (D) Feeder yeast |
64. 2-aminopurine induces mutation by :
- | | |
|----------------------|-----------------|
| (A) Base pair change | (B) Frame shift |
| (C) Duplication | (D) Insertion |
65. The group which is no longer considered under fungi is :
- | | |
|----------------------|--------------------|
| (A) Ascomycetes | (B) Basidiomycetes |
| (C) Chytridiomycetes | (D) Oomycetes |
66. Name the bacteria known as natural genetic engineer of plants :
- | | |
|--------------------------------------|------------------------|
| (A) <i>Agrobacterium tumefaciens</i> | (B) <i>E. coli</i> |
| (C) <i>Saccharomyces</i> | (D) <i>Pseudomonas</i> |
67. The movement of a single cell was required to be continuously monitored during development. This cell was marked with reporter gene. To visualize this movement one would use :
- | | |
|-------------------------------|-----------------------------|
| (A) Phase contrast microscope | (B) Bright field microscope |
| (C) Fluorescence Microscope | (D) Atomic force microscope |
68. Major stimulus for spore formation in bacteria is :
- | | |
|--------------------------|-----------------|
| (A) Nutrition limitation | (B) Heat stress |
| (C) Cold stress | (D) pH stress |

69. *Mycobacterium tuberculosis* is an intra cellular bacterium. It prefers to infect :
- (A) Macrophages (B) B-cells
(C) T-cells (D) Neutrophil
70. Which of the following organism is widely used as biocontrol agent in organic farming?
- (A) *Rhizobium tropicii* (B) *Trichoderma viride*
(C) *Fusarium oxysporum* (D) *Nostoc muscosum*
71. Which of the following acid will have higher bacteriostatic effect at a given pH?
- (A) Maleic acid (B) Tartaric acid
(C) Citric acid (D) Acetic acid
72. If milk is left open lactose is fermented first to produce acid. This is followed by proteolytic bacterial activity which increases the pH. Ultimately milk fats are degraded to produce rancidity. This is example of :
- (A) Ecological succession (B) Microbial antagonism
(C) Interference competition (D) Microevolution
73. Which is the best method for checking *Mycoplasma* contamination in mammalian cell line?
- (A) Western hybridization (B) ELISA
(C) PCR (D) Southern hybridization
74. Plate count of bacteria in foods generally use the plating medium consisting of :
- (A) peptone, yeast extract, glucose, sodium chloride and distilled water
(B) yeast extract, glucose, sodium chloride, agar and distilled water
(C) peptone, glucose, sodium chloride, agar and distilled water
(D) peptone, yeast extract, glucose, agar and distilled water
75. Which of the following is not true for the thermal resistance of the bacterial cells?
- (A) Cocci are usually more resistant than rods
(B) Higher the optimal and maximal temperatures for growth, higher the resistance
(C) Bacteria that clump considerably or form capsules are difficult to kill
(D) Cells low in lipid content are harder to kill than other cells
76. The time temperature combination for HTST pasteurization of 71.1°C for 15 sec is selected on the basis of :
- (A) *Coxiella Burnetii* (B) *E. Coli*
(C) *B. Subtilis* (D) *Clostridium Botulinum*

77. Suspected colonies of *Staphylococcus aureus* when grown on Baird-Parker medium shall show :
- (A) coagulase activity (B) protease activity
(C) catalase activity (D) none of these
78. Which of the following characteristic differentiates Eubacteria from Archaeobacteria?
- (A) Circular nature of chromosome (B) Absence of nuclear membrane
(C) Presence of 70S ribosomes (D) Presence of murein in cellwall
79. PCR based DNA amplification is an essential feature of which of the following combination of molecular markers?
- (A) RFLP, AFLP and SSR (B) AFLP, SSR and RAPD
(C) RFLP, RAPD and SSR (D) RAPD, RFLP and SSR
80. Which of the following processes does not take place in the 5' → 3' direction?
- (A) DNA replication (B) Transcription
(C) Nick translation (D) RNA editing
81. _____ is the founder of Kerala Kaumudi.
- (A) Sree Narayana Guru (B) C.V. Kunjuraman
(C) K. Sukumaran (D) M. S. Sreenivasan
82. Who is the author of the novel Patitapankajam?
- (A) Thakazhi Sivasankara Pillai
(B) Kodungallur Kunjikkuttan Thampuran
(C) G. Sankarakurupu
(D) O. Chandu Menon
83. Martyrdom of Anastasia is a short epic poem written by :
- (A) Kumaranasan (B) K.P. Vellon
(C) M.C. Joseph (D) Blessed Elias Kuriakose Chavra
84. Mrs. Dutty is the initiator of _____ industry.
- (A) Lace (B) Coir
(C) Pepper (D) Medicine

85. Ananda Guru Geeta is written by :
(A) Swami Ananda Teerthan (B) Thycaud Ayya Vaikundar
(C) P.K. Chattan Master (D) Brahmananda Siva Yogi
86. Meena Kumari Report is related to :
(A) Fishermen (B) Farmers
(C) Traders (D) Environment
87. *Representative Indians* is written by :
(A) Barrister G.P. Pillai (B) C. Kesavan
(C) A.K. Gopalan (D) M.R.B.
88. What is the real name of Daya Bhai?
(A) Mercy Mathew (B) Medha Patkar
(C) Vandhana Siva (D) Rukmini Rao
89. Who is the author of *The Red Sari*?
(A) Javier Moro (B) Sonia Gandhi
(C) Maneka Gandhi (D) Rukmini Rao
90. Name the literary Figure that used the pen names like, Gaja Kesari, Vajrasoochi, Uddandhan and Desabhimani :
(A) Makthi Thangal (B) Kumara Guru
(C) Ramakrishna Pilla (D) Moorkoth Kumaran
91. *Ente Jeevitha Katha* is the Autobiography of :
(A) A.K. Gopalan
(B) Kesava Dev
(C) Lalitambika Antarjanam
(D) Kuroor Neelakandan Namboodirippad
92. Velattu Lakshmi kikutty, K.K. Kuramba and K.C. Kalikutty are the leaders of :
(A) Uppercloth revolts (B) Kuttamkulam Satyagraha
(C) Channar Agitation (D) Ezhava Memorial

93. Which of the following is the Drama written by Kodungallur Kunjikkuttan Thampuran?
(A) Chandrika (B) Sarasanadakam
(C) Hemanthakata (D) Raghava Madhavam
94. Which is regarded as the International Soil Year?
(A) 2014 (B) 2000
(C) 2015 (D) 1991
95. Supreme Court of which country allowed Transgender people to identify as the Third Gender in 2014?
(A) India (B) Pakistan
(C) Bangladesh (D) Germany
96. In which year the Government of India had launched The National Rural Health Mission?
(A) 2005 (B) 2014
(C) 2000 (D) 2008
97. The scheme launched by the Government of India in 2014 for uplift of urban rural poor is known as :
(A) DAY (B) ASHA
(C) NSSO (D) Nirbhaya
98. CLPRA 2012 is related to :
(A) Women (B) Caste
(C) Children (D) Marriage
99. *Tozhilkendrattilekku* is a Famous :
(A) Novel (B) Drama
(C) Poem (D) Short Story
100. 2009 was the Birth Centenary of Whom?
(A) Saraswathy Amma (B) Rajalakshmi
(C) Lalitambika Antarjanam (D) Parvathy Nenminimangalam