**Department of Biotechnology**
**Class: F.Y.B.Sc.**
**Semester: I**
**Subject: Basic Life Sciences I**
**Sample Questions**

**Multiple Choice Questions**

1. The term abiogenesis means_____
    a. The emergence of life forms from pre-existing material
    b. Describe the emergence of life forms from inanimate material.
    c. Is another name of natural selection
    d. Describe the emergence of small organism from mud.
2. According to Oparin, which one of the following was not present in the primitive atmosphere of earth?
    a. Methane
    b. Hydrogen
    c. Water vapour
    d. Oxygen
3. Phylogenetic system of classification is based on_____
    a. Floral characters
    b. Evolutionary relationship
    c. Morphological features
    d. Chemical constituent
4. First experiment regarding evolution of life was performed by_____
    a. Watson and Crick
    b. Oparin and Haldane
    c. Urey and Miller
    d. Meselson and Stahl
5. The precellular stage of organization has been termed as _____.
    a. Progenote
    b. Ribozymes
    c. Protocell
    d. Microsphere
6. Which one of the following suggests that simplest living organisms could not have originated spontaneously from non-living matter?
    a. Special Creation Theory
    b. Abiogenesis
    c. Louis Pasteur Experiment
    d. Hypothesis of Panspermia
7. The _____ is the ancestor of modern eukaryote
    a. Eukaryote
    b. Archaebacteria
    c. Eubacteria
    d. prokaryotes
8. Which of the following division of plants is called as 'Amphibians of plant Kingdom'?
    a. Bryophytes
    b. Thallophyta
    c. Angiosperm
    d. Ptrediophytes
9. Which of the following does not reproduce through spores?
    a. Rhizopus
    b. Spirogyra
    c. Pteridophytes

d. Gymnosperms

10. Which of the following is a vascular seed plant?
    a. Fungi
    b. Bryophytes
    c. Algae
    d. Angiosperm
11. Which of the following is NOT the part of four whorls of flower leaves?
    a. Calyx
    b. Corolla
    c. Androcium
    d. Stem
12. Which of the following are characteristics of archaebacterial different from eubacteria?
    a. Anaerobic
    b. either gram positive or gram negative
    c. Organotrophs
    d. Methane-producers, extreme halophiles, and thermoacidophiles
13. Which class has largest number of animals
    a. Mammals
    b. Reptiles
    c. Fishes
    d. Insects
14. Which of the following combination of phylum and description is correct?
    a. Echinodermata- microscopic, excretory system present.
    b. Nematoda – Parasitic, cilia present
    c. Platyhelminthes – dorsoventrally flattened, acoelomate
    d. Calcarea – gastrovascular cavity, nervous system present
15. Name the phylum which is characterized by the presence of notochord.
    a. Chordata
    b. Hemichordata
    c. Echinodermata
    d. Mollusca
16. Which among the following are used widely in food industry?
    a. Archaebacteria
    b. Eubacteria
    c. Actinomycetes
    d. Eumycota
17. Which of the following kingdom does not belong to Eukaryotes?
    a. Plantae
    b. Protista
    c. Monera
    d. Fungi
18. Lipopolysaccharide in cell walls is characteristic of?
    a. Gram-positive bacteria
    b. Gram-negative bacteria
    c. Fungi
    d. Algae
19. Which microorganism(s) among the following perform photosynthesis by utilizing light?
    a. Methanogens
    b. Cyanobacteria
    c. Eumycots
    d. Viruses
20. Antheridia and Archegonia are sex organs of_____
    a. Mosses
    b. Mucor
    c. Spirogyra

d. Puccinia

21. _____ are normal microorganisms in the human large intestine help us break down food, reduce risk of infection
    a. Archaebacteria
    b. Eubacteria
    c. Actinomycetes
    d. Eumycota
22. _____is the sum of genetic information contained in the genes of individual plants, animals, and micro-organisms Chemotrophs
    a. Species diversity
    b. Genetic diversity
    c. Ecosystem diversity
    d. Taxonomic diversity
23. Jelly fish belong to class _____
    a. Hydrozoa
    b. Scyphozoa
    c. Anthozoa
    d. Cubozoa
24. Amphibians have _____ chambered heart.
    a. 2
    b. 3
    c. 4
    d. 6
25. Genetic differentiation within species occurs as a result of _____reproduction.
    a. Sexual
    b. Asexual
    c. Parthenogenesis
    d. Budding
26. The cell wall of Spirogyra contains_____
    a. Cellulose
    b. Chitin
    c. Lignin
    d. Suberin
27. _____diversity is not uniform throughout the world
    a. Genetic
    b. Species
    c. Ecosystem
    d. Taxonomic
28. Ecosystem diversity boosts the availability of _____ via the process of photosynthesis.
    a. Water
    b. Oxygen
    c. Carbon dioxide
    d. Food
29. Ecological diversity is the number of _____ in a community of organisms.
    a. Ecosystems
    b. Genes
    c. Taxanomic classes
    d. Species
30. Peptidoglycan layer is present in large quantity in?
    a. Gram-positive bacteria
    b. Gram-negative bacteria
    c. Fungi
    d. Algae
31. Which plant kingdom can survive both on land and in the water?
    a. Tracheophyta

b. Pteridophyta
c. Thallophyta
d. Bryophyta

32. _____lack chloroplasts and are heterotrophic organisms
a. Thallophyta
b. Pteridophyta
c. Rhizopus
d. Gymnosperm

33. The phenomenon of double fertilization or triple fusion is the characteristic of the _____.
a. Algae
b. Pteridophytes
c. Angiosperms
d. Bryophytes

34. An acoelomate animal _____
a. Has a Double layered body with single cavity
b. Has cavity between body wall and gut
c. Has a tissue tissue layer lining cavity and internal organs
d. Lacks a digestive cavity

35. Which of these is cocci occurring in single or pairs?
a. Streptococci
b. Diplococci
c. Tetracocci
d. Tricocci

36. Flagella in bacteria enable them to _____.
a. Reproduce
b. Locomote
c. Thrive in nutrient agar
d. Adhere to tissue surface

37. _____ can exhibit variety of shape.
a. Pleomorphic
b. Cocci
c. Rod
d. Spiral

38. This cell organelle does not contain DNA _____.
a. Nucleus
b. Mitochondria
c. Lysosomes
d. Chloroplast

39. Genetic information stored in mRNA is translated to polypeptide by _____
a. Ribosome
b. Nucleus
c. Endoplasmic reticulum
d. Golgi apparatus

40. Bacteria produces spore external to the cells are called as _____.
a. Endospores
b. Perispores
c. Centrospores
d. Exospores

41. What is the sedimentation coefficient of mitochondrial ribosome of humans?
a. 70S
b. 55S
c. 80S
d. 60S

42. Which of the following transport involves translocation of the protein from cytosol to the nucleus?
a. Transmembrane transport

b. Vesicular transport
c. Non-gated transport
d. Gated transport

43. Name the site where secreted protein synthesized?
    a. ER membrane bound ribosomes
    b. Mitochondrial ribosome
    c. Membrane free ribosome
    d. Chloroplast ribosome
44. The organelle serving as a primary packaging area for molecules that will be distributed throughout the cell is_____.
    a. Vacuole
    b. Plastids
    c. Mitochondria
    d. Golgi apparatus
45. The power house of cell is called_____.
    a. Cell wall
    b. Mitochondria
    c. Ribosomes
    d. Nucleus
46. In eubacteria, a cellular component which resembles a eukaryotic cell is_____
    a. Ribosome
    b. Plasma membrane
    c. Nucleus
    d. Cell wall
47. Which of the following is present in both prokaryotic and eukaryotic cells?
    a. Proteasomes
    b. Plasmids
    c. Lysosomes
    d. Peroxisomes
48. Which of the following polysaccharide is not present in the eukaryotic plant cell wall?
    a. Cellulose
    b. Chitin
    c. Hemicellulose
    d. Pectin
49. The rotary engine made of protein at the base of the flagella is driven by_____
    a. Vanderwaal's force
    b. Proton- motive force
    c. Electron passage
    d. Exchange of sodium and potassium ions
50. Capsules composed of single kind of sugar are called as _____.
    a. homopolysaccharide
    b. heteropolysaccharide
    c. homolipid
    d. heterolipid
51. Which of the following is not a difference between cilia and flagella?
    a. Cilia is short hairlike; flagella are long thread-like
    b. Nexin present in cilia; Nexin absent in flagella
    c. Axoneme present in cilia; Axoneme absent in flagella
    d. Rapid rotational motion of cilia; Undulating, sinusoidal slow movement of flagella
52. Which of the following statements is false?
    a. Gram negative bacteria is less resistant to physical disruption than Gram positive.
    b. Gram positive bacteria is inhibited by basic dyes
    c. Gram negative bacteria cell wall is thin and single layered.
    d. Gram negative bacteria is more resistant to antibiotics than Gram positive.

53. What is the basic functional and structural unit of organisms?
    a. Nucleus
    b. DNA
    c. Cell
    d. Gene
54. Mark the component which is not the part of lipid bilayer?
    a. Glycerol or Sphingosine
    b. Fatty acids
    c. Tryptophan and methionine
    d. Phosphate
55. Which of the following is the largest single membrane-bound intracellular compartment?
    a. Ribosome
    b. Golgi apparatus
    c. Nucleus
    d. Endoplasmic reticulum
56. Endoplasmic reticulum membrane which is associated with ribosomes is called_____
    a. ER lumen
    b. Smooth endoplasmic reticulum
    c. Rough endoplasmic reticulum
    d. Endosome
57. _____ have walls composed of pseudomurein.
    a. Bacillus
    b. Staphylococcus
    c. Escherichia
    d. Methanobacterium
58. Which of the following organelle control intracellular digestion of macromolecules with the help of hydrolytic enzymes?
    a. Plastid
    b. Peroxisome
    c. Lysosome
    d. Actin
59. Name the control centre of the eukaryotic cell?
    a. Nucleus
    b. Ribosome
    c. Cytoplasm
    d. Golgi complex
60. Which of the following is responsible for pigment synthesis and storage?
    a. Leucoplast
    b. Chloroplast
    c. Chromoplast
    d. Etioplast
61. Name the plant organelle which acts as a major site for an oxidative reaction?
    a. Peroxisomes
    b. Mitochondria
    c. Chloroplast
    d. Thylakoid
62. What is microsome?
    a. Compartment of Golgi
    b. Smaller ribosomes
    c. Small ER compartments
    d. Small vesicles of fragmented ER
63. Which of the following organelle takes part in the secretion?
    a. Cytoplasm
    b. Ribosomes

c. ER compartments
d. Golgi apparatus

64. When flagella are located around the entire bacterial cell, the arrangement is called_____.
a. Polar
b. Random
c. Bipolar
d. Peritrichous

65. Digestion of cell's own component is known as_____
a. Autophagy
b. Heterophagy
c. Phagocytosis
d. Pinocytosis

66. Protoplasm found inside the nucleus is known as_____
a. Amyloplast
b. Nucleoplasm
c. Cytoplasm
d. Etioplast

67. Which of the following is not a function of cell wall?
a. Gives the cells a definite shape and structure
b. Does not prevent osmatic bursting of cell
c. Protect against stress
d. Provides rigidity to cell

68. Cork screw shaped bacteria are_____
a. Bacilli
b. Stalked bacteria
c. Spirochetes
d. Actinomycetes

69. What is sarcinae?
a. Cocci group of bacteria
b. Chainlike group of bacteria
c. Cubelike group of bacteria
d. Grapelike cluster of bacteria

70. Which of the following bacteria is pleomorphic?
a. Mycobacteria
b. Streptococcus
c. Pseudomonas
d. Corynebacterium

71. Which of the following organisms have thick peptidoglycan in their cell wall?
a. Gram-negative bacteria
b. Gram-positive bacteria
c. Yeast
d. Molds

72. Name the type of bacteria which uses reduced inorganic substances as an electron source?
a. Phototrophs
b. Organotrophs
c. Heterotrophs
d. Lithotrophs

73. What is a cluster of polar flagella called?

a. Petritrichous
b. Monotrichous
c. Amphitrichous
d. Lophotrichous

74. Flagella in bacteria enable them to_____

a. Reproduce

b. Locomote
c. Thrive in nutrient agar
d. Adhere to tissue surfaces

75. Which of the following group of bacteria is considered as a link between bacteris and virus?
a. Mycoplasma
b. Spirochetes
c. Actinomycetes
d. Vibrios

76. Bacterial cell wall is made up of _____
a. Chitin
b. Cellulose
c. Dextran
d. Peptidoglycan

77. Name the type of bacteria which uses $CO_2$ as a sole source of carbon for growth.
a. Chemotrophs
b. Autotrophs
c. Organotrophs
d. Heterotrophs

78. The organ of locomotion of bacteria is_____
a. Capsule
b. Flagella
c. Slime
d. Fimbriae

79. A Gram-negative bacterium does not retain crystal violet stain because_____
a. bacteria have thin peptidoglycan layer
b. bacteria have thick peptidoglycan layer
c. periplasmic space is absent
d. cell wall includes significant amount of teichoic and lipoteichoic acids

80. Which of the following is not true about mycoplasma?
a. Multiplication is by binary fission
b. Totally devoid of cell wall
c. Resistant to penicillin and its analogues
d. Cell wall is made up of peptidoglycan

81. Which of the following is NOT the basic shape of the bacteria?
a. Rod
b. Square
c. Comma
d. Spiral

82. First phase of viral multiplication cycle_____
a. penetration
b. biosynthesis
c. uncoating
d. adsorption or attachment

83. Forth phase of viral multiplication cycle_____
a. penetration
b. biosynthesis
c. uncoating
d. adsorption or attachment

84. During lag phase_____
a. Microorganisms increase in size of cell and metabolic rate
b. The cells start dividing and their number increase by geometric progression
c. Rate of multiplication and death becomes almost equal
d. Population of the cells decreases

85. During log phase_____
a. Microorganisms increase in size of cell and metabolic rate

b. The cells start dividing and their number increase by geometric progression
c. Rate of multiplication and death becomes almost equal
d. Population of the cells decreases

86. During decline phase_____
a. Microorganisms increase in size of cell and metabolic rate
b. The cells start dividing and their number increase by geometric progression
c. Rate of multiplication and death becomes almost equal
d. Population of the cells decreases

87. Adenoviruses exhibit which of the following symmetry?
a. helical symmetry
b. circular symmetry
c. icosahedral symmetry
d. complex structure symmetry

88. In papovaviruses, DNA occurs in which of the following forms?
a. linear dsDNA
b. linear ssDNA
c. supercoiled circular dsDNA
d. supercoiled circular ssDNA

89. The delayed early genes codes for which of the following enzymes?
a. phage enzymes
b. RNA polymerase
c. Nucleases
d. Oxidases

90. Which of the following enzymes transcribe late genes?
a. Ligases
b. Nucleases
c. RNA polymerase
d. restriction enzymes

91. In the growth curve of plaque-forming units, the time from infection until lysis is known as _____
a. eclipse period
b. rise period
c. burst period
d. latent period

92. The cocci which forms a chain is_____
a. *Streptococci*
b. *Diplococcic*
c. *Staphylococci*
d. *Tetracocci*

93. The common word for bacteria which are helically curved rods is_____
a. Cooci
b. Pleomorphic
c. Bacillus
d. Spirilla

94. Viroids are_____
a. Varuses are genetically deficient and so incapable of producing infections daughter virion
b. Infective agents with protein free, with low molecular weight RNA.
c. Protein infections particles, lack detectable nucleic acid.
d. Extrachromosomal genetic elements

95. The capsid is composed of_____
a. Peplomers
b. Nucleic acid
c. Capsomers
d. Envelope

96. Which of the following is not true about envelope?

a. Derived from hast cell membrane
b. Lipoprotein in nature
c. Has projecting spikes on the surface
d. Made up of nucleic acid

97. Naked viruses are_____
a. Enveloped
b. Nonenveloped
c. Varuses are genetically deficient and so incapable of producing infections daughter virion
d. Infective agents with protein free, with low molecular weight RNA

98. Capsid in nature is a_____
a. Protein
b. Lipid
c. Polysaccharide
d. Lipoprotein

99. For uncoating viruses use_____
a. Specific receptors
b. Lysozyme
c. The mechanism called viropexia
d. The synthetic machinery of host cell

100. For penetration viruses use_____
a. Specific receptors
b. Lysozyme
c. The mechanism called viropexia
d. The synthetic machinery of host cell