

PVVC

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- In Whittaker's system of classification, prokaryotes are placed in the kingdom
 - Protista
 - Monera
 - Plantae
 - Animalia
- In the five kingdom system of classification, which single kingdom out of the following can include blue-green algae, nitrogen fixing bacteria and methanogenic archaeobacteria ?
 - Monera
 - Fungi
 - Plantae
 - Protista
- Which of the following kingdom does not have nuclear membrane?
 - Protista
 - Fungi
 - Monera
 - Plantae
- What type of mode of nutrition is found in the kingdom Animalia?
 - Autotrophic and heterotrophic
 - Chemosynthetic and photosynthetic
 - Saprophytic and parasitic
 - Holozoic and saprophytic
- The separation of living beings into five kingdoms is based on –
 - Complexity of cell structure
 - Complexity of organism's body
 - Mode of obtaining nutrition
 - All of the above
- The chief component of bacterial cell wall is
 - Cellulose and chitin
 - Cellulose and pectin
 - Amino acids and polysaccharides
 - Cellulose and carbohydrates
- Bacteria whose cell has only a curve/comma is
 - Vibrio
 - Cocci
 - Spirilli
 - Bacilli
- The main difference between Gram positive and Gram negative bacteria lies in the composition of
 - Cilia
 - Cell wall
 - Nucleolus
 - Cytoplasm
- Helically coiled shaped bacteria are called
 - Spirilla
 - Coed
 - Bacilli
 - Vibrio
- Cell wall is absent in
 - bacteria
 - fungi
 - plants
 - animals
- Which one of the following organisms may respire in the absence of oxygen ?
 - Azotobacter*
 - Clostridium*
 - Rhizobium*
 - Lactobacillus*
- An organism having cytoplasm i.e. DNA and RNA but no cell wall is
 - Cyanobacterium
 - Mycoplasma
 - Bacterium
 - Virus
- Kingdom monera comprises the –
 - Plants of economic importance
 - All the plants studied in botany
 - Prokaryotic organisms
 - Plants of Thallophyta group
- The cell wall of green plants is made up of
 - Pectin
 - Suberin
 - Cellulose
 - Chitin
- Which of the following is not a blue-green algae ?
 - Nostoc*
 - Anabaena*
 - Lichen
 - Aulosiras*
- During rainy seasons, the ground becomes slippery due to dense growth of
 - Lichens
 - Bacteria
 - Green algae
 - Cyanobacteria
- Paramecium* is a
 - Protozoan
 - Bacterium
 - Virus
 - Annelid
- Protists are
 - single-celled eukaryotes
 - multicellular eukaryotes
 - single-celled prokaryotes
 - single-celled akaryote
- Total parasites belong to protozoan group
 - Sporozoa
 - Ciliata
 - Sarcodina
 - Zooflagellata
- The cilia in *Paramecium* are
 - All equal
 - All unequal
 - Longer at posterior end
 - Longer at anterior end
- Plasmodium*, the parasite, belongs to class
 - Sarocodina
 - Ciliata
 - Sporozoa
 - Dinophyceae
- Which of the following organisms were never included in protista ?
 - Bacteria
 - Red algae
 - Slime moulds
 - Mosses
- Which of the following does not contain chlorophyll ?
 - Fungi
 - Algae
 - Bryophyta
 - Pteridophyta
- Which of the following statements are true about bacteria?
 - They are the sole members of the kingdom Monera.
 - They live in extreme habitats such as hot springs, deserts, snow and deep oceans
 - They show the most extensive metabolic diversity
 - All of these

25. The cell wall of fungi is made up of
 (a) Chitin (b) Cellulose
 (c) Pectin (d) Suberin
26. The disease of potato responsible for famous famine of Europe was caused by or late blight of potato is caused by
 (a) *Colletotrichum falcatum*
 (b) *Phytophthora infestans*
 (c) Potato mosaic virus
 (d) *Alternaria solani*
27. Ergot is caused by
 (a) *Claviceps* (b) *Penicillium*
 (c) *Aspergillus* (d) *Rhizobium*
28. When fungi feed on dead organic matter, they are known as
 (a) Dimorphic (b) Parasites
 (c) Saprophytes (d) None of these
29. Which of the following divisions of fungi includes Club fungi ?
 (a) Zygomycota (b) Ascomycota
 (c) Deuteromycota (d) Basidiomycota
30. Which of the following fungi are edible ?
 (a) *Agaricus campestris* (b) *Morchella esculenta*
 (c) *Podaxon prodaxis* (d) All of these
31. Gametangial copulation (conjugation) is common in
 (a) Zygomycetes (b) Ascomycetes
 (c) Phycomycetes (d) Deuteromycetes
32. Dikaryon formation is characteristic of
 (a) Ascomycetes and basidiomycetes
 (b) Phycomycetes and basidiomycetes
 (c) Ascomycetes and phycomycetes
 (d) Phycomycetes and zygomycetes
33. Plasmogamy is fusion of
 (a) Two haploid cells including their nuclei
 (b) Two haploid cells without nuclear fusion
 (c) Sperm and egg
 (d) Sperm and two polar nuclei
34. Clamp connection is found in
 (a) Basidiomycetes (b) Ascomycetes
 (c) Saccharomycetes (d) Haplomycetes
35. Difference between virus and viroid is
 (a) absence of protein coat in viroid but present in virus
 (b) presence of low molecular weight RNA in virus but absent in viroid
 (c) both (a) and (b)
 (d) None of these
36. Common bread mould is
 (a) Yeast (b) *Rhizopus*
 (c) Bacteria (d) Virus
37. Branched, aseptate, coenocytic mycelium is present in
 (a) *Aspergillus* (b) *Albugo*
 (c) *Penicillium* (d) *Erysiphae*
38. In manufacture of bread, it becomes porous due to release of CO₂ by the action of
 (a) Virus (b) Yeast
 (c) Bacteria (d) Protozoans
39. Members of phycomycetes are found in
 (a) aquatic habitats (b) on decaying wood
 (c) moist and damp places (d) all of these
40. 'Mycorrhizae' are useful for plants mainly due to their following attribute
 (a) Fixing atmospheric nitrogen
 (b) Enhanced absorption of nutrients from soil
 (c) Killing insects and pathogens
 (d) Providing resistance against abiotic stresses
41. Red rot of sugarcane is caused by –
 (a) *Puccinia* (b) *Albugo*
 (c) *Ustilago* (d) *Colletotrichum*
42. Fungi are always –
 (a) Autotrophs (b) Heterotrophs
 (c) Saprophytes (d) Parasites
43. Which of the following option is true for methanogens?
 (i) They are eukaryotes.
 (ii) They live in marshy areas.
 (iii) They are also present in the guts of several ruminant animals such as cows and buffaloes.
 (iv) They are responsible for the production of methane (biogas)
 (a) (i) and (ii) (b) (ii) and (iii)
 (c) (i), (ii), (iii) and (iv) (d) None of these
44. Pseudomycelium is characteristic feature of –
 (a) Mushroom (b) Mucor
 (c) Bread mould (d) Yeast
45. Common form of food stored in a fungal cell is –
 (a) Glycogen (b) Starch
 (c) Glucose (d) Sucrose
46. Which of the following pigment present in cyanobacteria?
 (a) Chlorophyll 'a' (b) Chlorophyll 'b'
 (c) Chlorophyll 'c' (d) Chlorophyll 'd'
47. *Rhizopus* belongs to the class –
 (a) Ascomycetes (b) Phycomycetes
 (c) Basidiomycetes (d) Deuteromycetes
48. Which one of the following is smallest living cell and live without oxygen?
 (a) Mycoplasma (b) Mycorrhiza
 (c) *Euglena* (d) *Trypanosoma*
49. The Tobacco mosaic virus was crystallized for first time by
 (a) W. M. Stanley (b) E. C. Stackman
 (c) A. K. Smith (d) Ivanowski
50. The genetic material in viruses is
 (a) Only RNA
 (b) Only DNA
 (c) RNA and DNA both
 (d) RNA or DNA *i.e.* one nucleic acid in a virus
51. Which of the following pair comes under the group chrysophytes?
 (a) Diatoms and *Euglena*
 (b) *Euglena* and *Trypanosoma*
 (c) Diatoms and desmids
 (d) *Gonyaulax* and desmids

52. Which one is absent in viruses ?
 (a) Replication (b) Protein synthesis
 (c) Energy liberation (d) Mutation
53. Protists obtain food as
 (a) photosynthesisers, symbionts and holotrophs
 (b) photosynthesisers
 (c) chemosynthesisers
 (d) holotrophs
54. The part of the virus which gives to it the hereditary feature, is
 (a) Capsid (b) Capsomere
 (c) Nucleic acid (d) Nucleotide
55. A bacteriophage is
 (a) A virus attacking a bacterium
 (b) A bacterium attacking a virus
 (c) A stage in the life-cycle of bacterium
 (d) A virus attacking another virus
56. A few organisms are known to grow and multiply at temperatures of 100–105°C. They belong to
 (a) marine archaeobacteria
 (b) thermophilic sulphur bacteria
 (c) hot-spring blue-green algae (cyanobacteria)
 (d) thermophilic, subaerial fungi
57. The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the ones categorised as :
 (a) Cyanobacteria
 (b) Archaeobacteria
 (c) Chemosynthetic autotrophs
 (d) Heterotrophic bacteria
58. The cyanobacteria are also referred to as
 (a) protists (b) golden algae
 (c) slime moulds (d) blue green algae
59. Lichens are important in studies on atmospheric pollution because they –
 (a) can also grow in greatly polluted atmosphere
 (b) can readily multiply in polluted atmosphere
 (c) efficiently purify the atmosphere
 (d) are very sensitive to pollutants
60. The symbiotic association of fungi and algae is called –
 (a) Lichen (b) Mycorrhiza
 (c) Rhizome (d) Endomycorrhiza
61. Which one of the following is not true about lichens?
 (a) Their body is composed of both algae and fungal cells.
 (b) These grow very fast at the rate of about 2cm per year.
 (c) Some form food for reindeer in arctic regions.
 (d) Some species can be used as pollution indicators.
62. There exists a close association between the alga and the fungus within a lichen. The fungus
 (a) provides protection, anchorage and absorption for the alga
 (b) provides food for the alga
 (c) fixes the atmospheric nitrogen for the alga
 (d) releases oxygen for the alga
63. The thalloid body of a slime mould (Myxomycetes) is known as
 (a) plasmodium (b) fruiting body
 (c) mycelium (d) protonema
64. Which pair of the following belongs to Basidiomycetes ?
 (a) Puffballs and *Claviceps*
 (b) *Peziza* and stink borns
 (c) *Morchella* and mushrooms
 (d) Birds nest fungi and puffballs.
65. Which one of the following is a slime mould?
 (a) *Physarum* (b) *Thiobacillus*
 (c) *Anabaena* (d) *Rhizopus*
66. *Thermococcus*, *Methanococcus* and *Methanobacterium* exemplify:
 (a) Archaeobacteria that contain protein homologous to eukaryotic core histones
 (b) Archaeobacteria that lack any histones resembling those found in eukaryotes but whose DNA is negatively supercoiled
 (c) Bacteria whose DNA is relaxed or positively supercoiled but which have a cytoskeleton as well as mitochondria
 (d) Bacteria that contain a cytoskeleton and ribosomes
67. Mannitol is the stored food in:
 (a) *Porphyra* (b) *Fucus*
 (c) *Gracillaria* (d) *Chara*
68. Single-celled eukaryotes are included in:
 (a) Protista (b) Fungi
 (c) Archaea (d) Monera
69. Ringworm in humans is caused by :
 (a) Bacteria (b) Fungi
 (c) Nematodes (d) Viruses
70. Which one of the following organisms is not an example of eukaryotic cells ?
 (a) *Paramecium caudatum* (b) *Escherichia coli*
 (c) *Euglena viridis* (d) *Amoeba proteus*
71. In eubacteria, a cellular component that resembles eukaryotic cells is :
 (a) plasma membrane (b) nucleus
 (c) ribosomes (d) cell wall
72. Organisms called methanogens are most abundant in a :
 (a) sulphur rock (b) cattle yard
 (c) polluted stream (d) hot spring
73. The highest number of species in the world is represented by
 (a) Fungi (b) Mosses
 (c) Algae (d) Lichens
74. In the five-kingdom classification, *Chlamydomonas* and *Chlorella* have been included in
 (a) protista (b) algae
 (c) plantae (d) monera
75. Which one of the following pathogens causes canker disease ?
 (a) *Meloidogyne incognita*
 (b) *Anguina tritici*
 (c) *Xanthomonas citri*
 (d) *Pseudomonas rubilineans*

76. Which statement is true for dinoflagellates flagella ?
 (a) A single flagellum in the transverse groove between the cell plates.
 (b) A single flagellum in the longitudinal groove between the cell plates.
 (c) Two flagella, one lies longitudinally and one transversely in a furrow between the wall plates.
 (d) No flagella.
77. Which is the correct option for the all given characteristics of fungi ?
 I. It includes unicellular as well as multicellular fungi.
 II. In multicellular forms hyphae are branched and septate.
 III. Conidiophore produces conidia (spores) exogenously in chain.
 IV. Sexual spores are ascospores produced endogenously in chain.
 V. Fruiting body is called ascocarp.
 (a) Phycomycetes (b) ac fungi
 (c) Club fungi (d) ungi imperfecti
78. Which one of the following option does not belong to Ascomycetes ?
 (a) They are saprophytic, decomposer, coprophilous (growing on dung) and parasitic.
 (b) They include unicellular (*e.g.* yeast) and multicellular forms.
 (c) Their mycelium is coenocytic.
 (d) *Aspergillus*, *Claviceps*, *Neurospora* are important members of Ascomycetes.
79. In Whittaker's five kingdom classification, eukaryotes were assigned to
 (a) all the five kingdom
 (b) only four of the fivekingdoms
 (c) only three kingdom
 (d) only one kingdom
80. Mycorrhiza is
 (a) a symbiotic association of plant roots and certain fungi.
 (b) an association of algae with fungi.
 (c) a fungus parasite on root system of higher plants.
 (d) an association of *Rhizobium* with the roots of leguminous plants.
81. Which one of the following statements is true about Archaea?
 (a) Archaea resemble eukaryotes in all respects.
 (b) Archaea have some novel features that are absent in other prokaryotes and eukaryotes.
 (c) Archaea completely differ from both prokaryotes and eukaryotes.
 (d) Archaea completely differ from prokaryotes.
82. Two species of *Amoeba* X and Y were kept in fresh water and got adapted. Species X developed contractile vacuole. When both were transferred to sea water and got adapted, both X and Y lost their contractile vacuole. From these observation we conclude that
 (a) Both X and Y are marine species
 (b) Species Y is marine species and X is fresh water species
 (c) Species X is marine species and Y is fresh water species
 (d) Both X and Y are fresh water species
83. Yeast is not included in protozoans but in fungi because
 (a) it has no chlorophyll
 (b) some fungal hyphae grow in such a way that they give the appearance of pseudomycelium
 (c) it has eukaryotic organisation
 (d) cell wall is made up of cellulose and reserve food material is starch
84. All of the following statements concerning the Actinomycetes filamentous soil bacterium *Frankia* are correct except that *Frankia* :
 (a) Can induce root nodules on many plant species.
 (b) Cannot fix nitrogen in the free-livingstate.
 (c) Forms specialized vesicles in which the nitrogenase is protected from oxygen by a chemical barrier involving triterpene hopanoids.
 (d) Like *Rhizobium*, it usually infects its host plant through root hair deformation and stimulates cell proliferation in the host's cortex.
85. Which one of the following statements about mycoplasma is wrong ?
 (a) They are pleomorphic.
 (b) They are sensitive topenicillin.
 (c) They cause diseases in plants.
 (d) They are also called PPLO.
86. In the light of recent classification of living organisms into three domains of life (bacteria, archaea and eukarya), which one of the following statements is true about archaea?
 (a) Archaea resemble eukarya in all respects.
 (b) Archaea have some novel features that are absent in other prokaryotes and eukaryotes.
 (c) Archaea completely differ from both prokaryotes and eukaryotes.
 (d) Archaea completely differ from prokaryotes.
87. Which one is the wrong pairing for the disease and its causal organism?
 (a) Black rust of wheat - *Puccinia graminis*
 (b) Loose smut of wheat - *Ustilago nuda*
 (c) Root-knot of vegetables - *Meloidogyne sp*
 (d) Late blight of potato - *Alternaria solani*
88. Virus envelope is known as:
 (a) Capsid (b) Virion
 (c) Nucleoprotein (d) Core
89. Which of the following is a parasitic fungi on the mustard plant?
 (a) *Albugo* (b) *Puccinia*
 (c) Yeast (d) *Ustilago*
90. Which of the following is used extensively in biochemical and genetic work?
 (a) *Agaricus* (b) *Alternaria*
 (c) *Neurospora* (d) *Mucor*

Hints & Solutions

1. (b) 2. (a) 3. (c) 4. (d) 5. (d)
6. (c) 7. (a)
8. (b) In G⁺ (Gram-positive bacteria) cell wall is 200-300 Å thick, having mucopeptides 85% and lipids 1-2% while in G⁻ (Gram-negative bacteria) cell wall is 100-200 Å thick and mucopeptides are 10-12% and lipids are 80-90%.
9. (a) 10. (d) 11. (b)
12. (b) Mycoplasma are cell wall less cells but show multiplication like bacteria, so that they are termed as cell wall less bacteria.
13. (c) 14. (c) 15. (c) 16. (d) 17. (a)
18. (a) 19. (a)
20. (c) The cilia of extreme posterior end are longer and form a bunch called caudal tuft.
21. (c) 22. (d) 23. (a) 24. (d) 25. (a)
26. (b) Late blight of potato is a seed born disease which is caused by *Phytophthora infestans*. The disease is characterised by brownish to blackish dead areas on the tip and margin of the leaflet leading to blighting of the whole leaf. So the tuber formation is reduced.
27. (a) *Claviceps puerpurea* is a fungus which causes ergotism in rye (*Secale cereale*) and other plants. It also yields a hallucinogenic drug called LSD.
28. (c) All fungi are heterotrophs in their nutrition. Some depend upon organic matter known as saprophytes.
29. (d) The members of division basidiomycota (class basidiomycetes) are commonly called club fungi because the basidia are club shaped.
30. (d) *Agaricus campestris* is a common field mushroom, *Morchella esculenta* have apothecia type of edible ascocarp and *Podaxon prodaxis* is also edible.
31. (a) In gametangial copulation two gametangia come in contact and fuse completely to form a zygote or zygosporangium. It is found in members of *zygomycetes*, e.g., *Rhizopus* and *Mucor*.
32. (a)
33. (b) It is the first stage of sexual reproduction in which the cytoplasm of two sex cells fuse with each other. The nuclei of sex cells come close to each other but do not fuse. Thus the resulting cell becomes binucleate or dikaryon.
34. (a) In many members of basidiomycetes, cell division accompanied by clamp connection. These are bridge (hook) like connection. They function as bypass hyphae through which nuclei migrate to make all of mycelium dikaryotic.
35. (a)
36. (b) *Rhizopus* (pin mould or black mould) grows on bread and hence also called bread mould.
37. (b) 38. (b) 39. (d) 40. (b) 41. (d)
42. (b) 43. (c)
44. (d) Pseudomycelium is characteristic feature of yeast.
45. (a) 46. (a) 47. (b) 48. (a) 49. (a)
50. (d) 51. (b) 52. (c)
53. (a) Members of kingdom Protista have diverse mode of nutrition. They are photosynthetic, saprophytic parasitic and ingestive. They are major heterotrophs.
54. (d) 55. (a)
56. (a) These are archaeobacteria which can tolerate high temperature
57. (d) The most abundant prokaryotes helpful to humans in making curd from milk and in production of antibiotics are the heterotrophic bacteria. *Lactobacillus* bacteria convert milk into curd.
58. (d) Cyanobacteria are also referred to as blue green algae, they perform oxygenic photosynthesis. They are most successful autotrophic organisms on earth which are found in all types of environment - fresh water, sea water, salt marshes, moist rocks, tree trunks, moist soils, hot springs, frozen waters.
59. (d)
60. (a) The symbiotic association of fungi and algae is called lichen.
61. (b)
62. (a) Lichens (coined by Theophrastus) are composite or dual organisms which are formed by a fungus partner or mycobiont (mostly ascomycetes) and an algal partner (mostly blue green algae). Fungus forms the body of lichen as well as its attaching and absorbing structures. Algae performs photosynthesis and provides food to the fungus.
63. (a) The thalloid body of slime moulds is made up of multinucleated cell which lacks septa in between and hence it is a multinucleated single celled mass called plasmodium.
64. (d) The class Basidiomycetes includes those members that produce their basidia and basidiospores on or in a basidiocarp.
65. (a) *Physarum polycephalum* belongs to phylum Amoebozoa, infraphylum Mycetozoa, and class Myxogastrea. *P. polycephalum*, often referred to as the "many-headed slime," is a slime mold that inhabits shady, cool, moist areas, such as decaying leaves and logs.
66. (a) *Thermococcus*, *Methanococcus* and *Methanobacterium* exemplify archaeobacteria that contain protein homologous to eukaryotic core histones.

67. (b) Mannitol is a food stored in *Fucus*. *Fucus* is a genus of brown alga in the class Phaeophyceae found in the intertidal zones of rocky sea shores almost everywhere in the world. Primary chemical constituents of this plant include mucilage, algin, mannitol, beta-carotene, zeaxanthin, iodine, bromine, potassium, volatile oils, and many other minerals.
68. (a) Single celled eukaryotes are included in protista. Protista includes all unicellular and colonial eukaryotes except green and red algae. It is also known as kingdom of unicellular eukaryotes.
69. (b) Ring worm is a fungal disease caused by the dermatophyte fungi species of *Microsporum*, *Trichophyton* and *Epidermophyton*.
70. (b) *E. coli* is a prokaryotic celled gram negative bacterium.
71. (a) Eubacteria are prokaryotic but eubacteria are enclosed by plasma membrane like eukaryotic cells.
72. (b) Methanogens are archaeobacteria abundant in cattle yard and paddy fields.
73. (a)
74. (b) *Chlamydomonas* & *Chlorella* have been included in algae. Algae are chlorophyllous, thalloid avascular plants with no cellular differentiation. Algae belong to thallophyta of plant kingdom.
75. (c)
76. (c) 77. (b) 78. (c) 79. (b) 80. (a)
81. (b) 82. (c) 83. (b)
84. (b) *Frankia*, is a nitrogen fixing mycelial bacterium which is associated symbiotically (and not free living) with the root nodules of several non legume plants.
85. (b) While working at the Rockefeller Institute, Brown reported isolation of a PPLO from human arthritic joint tissue in 1938. In discussing the significance of this observation, Brown reported successful treatment of arthritic patients in 1949 with a new antibiotic called aureomycin (Clark, 1997).
86. (b) A domain of prokaryotic organisms containing the archaeobacteria including the methanogens, which produce methane; the thermoacidophilic bacteria, which live in extremely hot and acidic environments, & the halophilic bacteria, which can only function at high salt concentrations are abundant in the world's oceans.
87. (d) Late blight is caused by the fungus *Phytophthora infestans*. Late blight appears on potato or tomato leaves as pale green, water-soaked spots, often beginning at leaftips or edges.
88. (a) Virus envelope is known as capsid. The capsid is composed of protein subunits called capsomere.
89. (a)
90. (c)