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STD. XI Sci.

Triumph Biology

Based on Maharashtra Board Syllabus

Salient Features

- Exhaustive subtopic wise coverage of MCQs.
- Quick review provided for each chapter.
- Hints included for relevant questions.
- Various competitive exam questions updated till the latest year.
- Includes solved MCQs from AIPMT, CET 2015 and 2016.
- Evaluation test provided at the end of each chapter.

Solutions/hints to Evaluation Test available in downloadable PDF format at
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Preface


“Std. XI: Sci. Triumph Biology” is a complete and thorough guide to prepare students for a competitive level examination. The book will not only assist students with MCQs of Std. XI, but will also help them to prepare for AIIMS, AIPMT, CET and various other competitive examinations.

Quick review in the form of charts are provided at the beginning of every chapter. Topic – wise classification of the MCQ’s has been done to help the students understand each concept thoroughly.

MCQs in each chapter are divided into three sections:

 **Classical Thinking:** consists of straight forward questions including knowledge based questions.

 **Critical Thinking:** consists of questions that require some understanding of the concept.

 **Competitive Thinking:** consists of questions from various competitive examinations like AIIMS, AIPMT, MH CET, GUJ CET, K CET, EAMCET, BCECE, WBJEEM, CPMT, etc.

Hints have been provided to the MCQs which are broken down to the simplest form possible.

An **Evaluation Test** has been provided at the end of each chapter to assess the level of preparation of the student at a competitive level.

An additional feature of **pictorial representation** of a topic is added to give the student a glimpse of various interesting biological concept.

The journey to create a complete book is strewn with triumphs, failures and near misses. If you think we’ve nearly missed something or want to applaud us for our triumphs, we’d love to hear from you.

Please write to us on : mail@targetpublications.org

Best of luck to all the aspirants!

Yours faithfully

Authors

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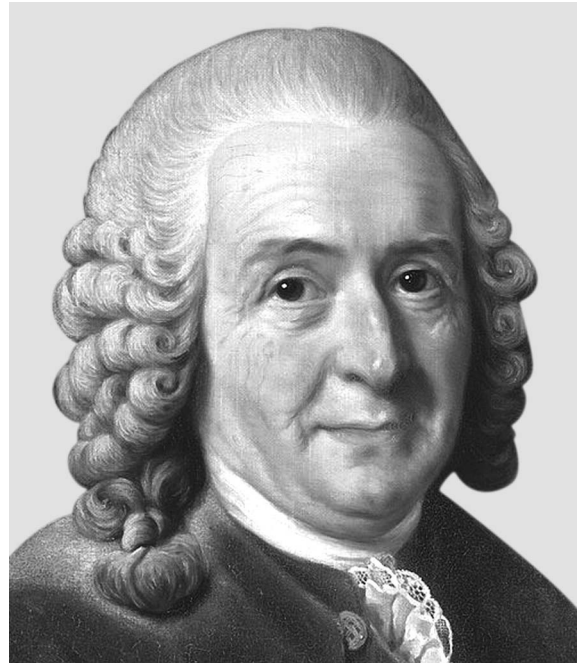
01

Diversity In Organisms

Subtopics

- 1.0 Introduction
- 1.1 Diversity in living organisms
- 1.2 Systematics: Taxonomy, Taxonomic hierarchy and Binomial Nomenclature
- 1.3 Five kingdom system of classification
- 1.4 Lichens
- 1.5 Viruses and Viroids

Carolus Linnaeus (1707-1778)



Carolus Linnaeus proposed the Binomial nomenclature system in 1758 which is a significant contribution to plant taxonomy and is widely accepted throughout the world.

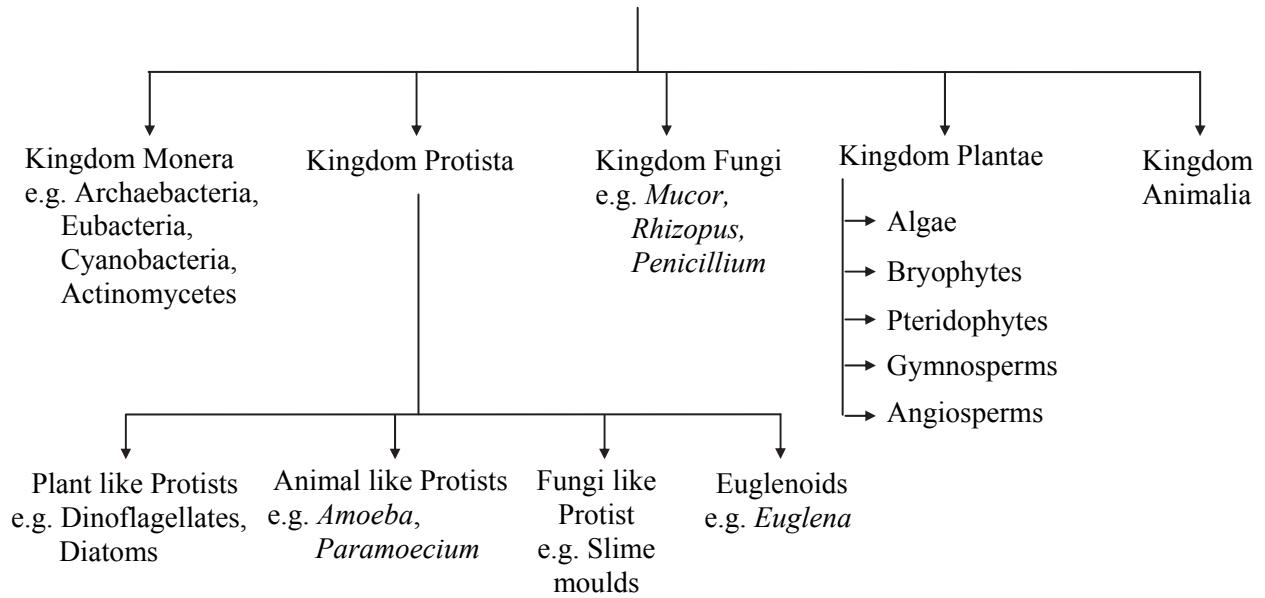


Quick Review

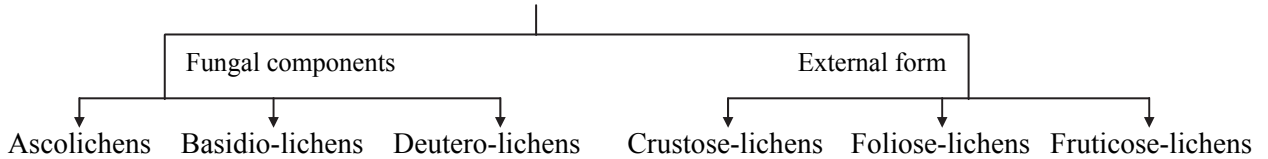
Taxonomic hierarchy

Kingdom → Division / Phylum → Class → Sub-class → Series → Order → Family → Genus → Species

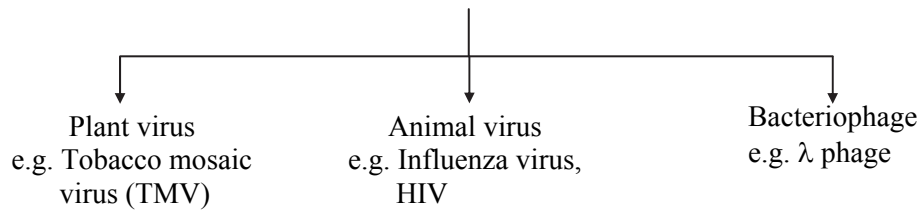
Five kingdom classification



Lichens



Viruses



**Classical Thinking****1.0 Introduction**

- Sum total of all the reactions occurring in the body of an organism is called
(A) Bioreaction (B) Metabolism
(C) Expansion (D) Regeneration
- _____ is the defining property of living organisms.
(A) Reproduction (B) Growth
(C) Consciousness (D) Increase in weight
- Living organisms are
(A) Self replicating
(B) Capable of responding to external stimuli
(C) Self regulating interactive systems
(D) All of above

**1.1 Diversity in living organisms**

- What is the approximate number of plant and animal species present on earth?
(A) 2 – 10 million (B) 3 – 20 million
(C) 4 – 30 million (D) 5 – 30 million

**1.2 Systematics: Taxonomy, Taxonomic hierarchy and Binomial Nomenclature**

- The study of diversity of organism is called as
(A) taxonomy (B) systematics
(C) classification (D) nomenclature
- Who among the following is associated with systematics?
(A) Watson (B) Robert Hooke
(C) Linnaeus (D) Dixon
- The term classification was coined by
(A) Linnaeus (B) A. P. de Candolle
(C) Darwin (D) R.H. Whittaker
- Branch of biology dealing with identification, nomenclature, description and classification is
(A) biogeography (B) eugenics
(C) ecology (D) taxonomy
- Three domain system was introduced by
(A) Carl Woese (B) Hackel
(C) Whittaker (D) H.J. Lam
- Three domain system includes
(A) Plantae, Animalia, Prokaryotes
(B) Monera, Protista, eukaryotes
(C) Archaea, bacteria and eukarya
(D) Bacteria, Plantae and Animalia

- Kingdom animalia is included under domain
(A) Archaeobacteria (B) Bacteria
(C) Eukarya (D) None of these
- The taxonomic hierarchy was established by
(A) John Ray (B) Lamarck
(C) Aristotle (D) Carolus Linnaeus
- In taxonomic hierarchy, various categories are arranged in
(A) descending order (B) ascending order
(C) no order (D) all of these
- Descending arrangement of categories is known as
(A) classification (B) taxonomy
(C) key (D) hierarchy
- The term 'taxon' was coined by
(A) Lamarck (B) H. J. Lam
(C) Linnaeus (D) John Ray
- The individual of a particular category is known as a/an
(A) rank (B) order
(C) taxon (D) genus
- Which is the CORRECT sequence in taxonomic hierarchy?
(A) Class–species–order–family–division
(B) Division–order–class–family–species
(C) Division–class–order–family–species
(D) Species–class–order–division–family
- In biological terminology, a group of similar organisms which are capable of inter-breeding and forming fertile offspring is called
(A) species (B) tribe
(C) genus (D) family
- The basic unit upon which the system of classification is constructed is the
(A) species (B) order
(C) family (D) class
- The species refers to a group of
(A) similar individuals only.
(B) similar individuals with common ancestry.
(C) interbreeding members.
(D) both (B) and (C).
- Concept of species was remodified as closely resembling interbreeding population by
(A) Theophrastus (B) Darwin
(C) Linnaeus (D) Ernst Mayr



22. Mayr's biological concept of species is mainly based on
 (A) morphological traits
 (B) reproductive isolation
 (C) modes of reproduction
 (D) morphology and reproduction
23. Morphological concept of species was given by
 (A) H.J. Lam (B) Charles Darwin
 (C) Carolus Linnaeus (D) A. P. de Candolle
24. A group of organisms that can interbreed under natural conditions is called
 (A) morphospecies (B) biospecies
 (C) polyspecies (D) indica
25. Which of the following is not a taxon but category?
 (A) Division (B) Dicotyledons
 (C) Angiosperms (D) Polypetalae
26. Basic unit of classification is
 (A) genus (B) class
 (C) species (D) order
27. In classification, the category present below family is
 (A) genus (B) species
 (C) order (D) class
28. Which one of the following covers a greater number of organisms?
 (A) Species (B) Family
 (C) Class (D) Kingdom
29. Dicotyledonae is a
 (A) category (B) taxon
 (C) both from above (D) kingdom
30. Taxonomic category 'order' comes in between
 (A) genus and species
 (B) genus and family
 (C) family and series
 (D) division and class
31. Which of the following is not a taxon but is a category?
 (A) Diapsida (B) Squamata
 (C) Malvales (D) Series
32. The smallest taxon is
 (A) class (B) order
 (C) species (D) genus
33. Which is not a category?
 (A) Species (B) Family
 (C) Genus (D) Elapidae
34. A group of closely related families which resemble in major characters are included under one
 (A) class (B) genus
 (C) order (D) division
35. A group of plants or animals with similar characters of any rank is
 (A) species (B) genus
 (C) order (D) taxon
36. Binomial nomenclature is published in
 (A) Philosophia Botanica
 (B) Species Plantarum
 (C) Systema Naturae
 (D) Historia Naturalis
37. Taxon '*Mangifera*' denotes
 (A) genus (B) species
 (C) division (D) class
38. Angiospermae and Gymnospermae are
 (A) kingdom (B) order
 (C) division (D) family
39. A binomial nomenclature has ___ words/parts.
 (A) five (B) two
 (C) one (D) three
40. In '*Solanum tuberosum*', *tuberosum* denotes
 (A) genus (B) species
 (C) family (D) tuber
41. The name of the scientist in binomial nomenclature can be written in
 (A) full (B) abbreviated form
 (C) italics (D) both (A) and (B)
42. Mention of authors name after the species name is called
 (A) citation (B) translation
 (C) recognition (D) publication
43. Which name is written correctly?
 (A) *Apis indica*
 (B) *Hibiscus esculentus*
 (C) *Mangifera indica*
 (D) *Ficus bengalensis*
44. Generic name is
 (A) an adjective (B) a noun
 (C) an adverb (D) a verb
45. Botanical name of potato is
 (A) *Ipomea batatas*
 (B) *Solanum tuberosum*
 (C) *Mangifera indica*
 (D) *Azadirachta indica*



46. Botanical name of sunflower is
(A) *Hibiscus rosa-sinensis*
(B) *Mangifera indica*
(C) *Helianthus annuus*
(D) *Sida acuta*
47. When a single species is described under different names by different authors, then these names are called as
(A) autonyms (B) synonyms
(C) holotype (D) variety
48. Which feature is CORRECT about common names for organisms?
(A) Easy to remember
(B) Universally accepted
(C) Different in different languages
(D) All of these
49. Which of the following is a WRONG statement?
(A) Vernacular names may be misleading
(B) Vernacular names are not universal.
(C) Vernacular names are short and easy to follow.
(D) Vernacular names indicate phylogeny, i.e. evolutionary history of organisms.
50. Which of the following is a heterogenous group?
(A) Family, Genus, Order
(B) Division, Class, Species
(C) *Hibiscus*, Genus, Species
(D) *Hibiscus*, *Sorghum*, *Cycas*
51. International code of Binomial nomenclature applies to
(A) viruses (B) plants
(C) animals (D) both (B) and (C)
52. Prior to the proposal of binomial, the plant names were
(A) Polynomials (B) Mononomials
(C) Trinomial (D) Tetranomials
53. Haeckel classified the organisms into _____ kingdoms.
(A) two (B) three
(C) four (D) five
54. Two kingdom classification was given by
(A) Carl Linnaeus (B) Huxley
(C) Whittaker (D) John Ray
55. Whittaker proposed the _____ system of classification.
(A) two kingdom (B) three kingdom
(C) four kingdom (D) five kingdom
56. Whittaker could not give place to one of the following in five kingdom classification.
(A) Cyanobacteria (B) Slime moulds
(C) Virus (D) *Amoeba*
57. In the five kingdom classification, the members in Kingdom Animalia are eukaryotic, heterotrophic and
(A) unicellular
(B) multicellular
(C) either unicellular or multicellular
(D) non motile
58. Out of the following, which system shows the phylogenetic relationship between organisms?
(A) Two kingdom classification
(B) Five kingdom classification
(C) Three kingdom classification
(D) All of these
59. The five kingdom classification is based on
(A) complexity in cell structure
(B) mode of nutrition
(C) complexity of organism's body
(D) all of these
60. Primitive nucleus, DNA without histone proteins, absence of membrane bound cell organelles are the characters of Kingdom
(A) Protista (B) Monera
(C) Fungi (D) Plantae
61. Blue green algae belong to kingdom
(A) Plantae (B) Protista
(C) Fungi (D) Monera
62. *Thiobacillus* is
(A) Photoautotroph
(B) Chemoautotroph
(C) Belongs to kingdom protista
(D) Both (B) and (C)
63. Organisms of kingdom Monera shows
(A) Chloroplasts (B) Mitochondria
(C) Rigid cell wall (D) All of these
64. In five kingdom classification, protista comprises of
(A) both uni and multicellular microscopic eukaryotes
(B) unicellular eukaryotes
(C) all prokaryotes
(D) all eukaryotes

 **1.3 Five kingdom system of classification**



65. In Kingdom Protista, the locomotory organs are
 (A) cilia (B) flagella
 (C) pseudopodia (D) all of these
66. Protists obtain their food as
 (A) photosynthesizers only
 (B) chemosynthesizers
 (C) heterotrophs only
 (D) both (A) and (C)
67. Which one of the following is a member of protista?
 (A) *Nostoc* (B) Frog
 (C) Slime moulds (D) Mushroom
68. Mode of reproduction in protista is
 (A) Sexual (B) Asexual
 (C) absent (D) both (A) and (B)
69. Desmids are also called as
 (A) Red algae (B) Golden algae
 (C) Ascocarps (D) Euglenoids
70. Chrysophytes include
 (A) diatoms (B) desmids
 (C) dinoflagellates (D) all of these
71. *Amoeba* and *Paramecium* are included in Kingdom
 (A) Animalia (B) Protista
 (C) Monera (D) Fungi
72. The Kingdom which is a link between prokaryotes and multicellular eukaryotes is
 (A) Protista (B) Monera
 (C) Plantae (D) Animalia
73. Some fungi have no cross walls in their hyphae. These hyphae are called
 (A) septate (B) non-septate
 (C) septum (D) all of these
74. Which cell organelle is absent in Kingdom fungi?
 (A) Chloroplast (B) Ribosome
 (C) Nucleus (D) Golgi body
75. Multicellular eukaryotic decomposers belong to kingdom
 (A) Animalia (B) Fungi
 (C) Plantae (D) Monera
76. _____ are also called as Sac fungi.
 (A) Ascomycetes (B) Basidiomycetes
 (C) Phycomycetes (D) Deuteromycetes
77. Deuteromycetes are also called as _____.
 (A) bracket fungi (B) algal fungi
 (C) ascocarps (D) imperfect fungi
78. Multicellular eukaryotic consumers belong to Kingdom
 (A) Fungi (B) Protista
 (C) Plantae (D) Animalia
79. The kingdom of true multicellular producers is
 (A) Animalia (B) Plantae
 (C) Monera (D) Protista
80. Plants are
 (A) unicellular, eukaryotic, photosynthetic organism
 (B) multicellular, eukaryotic, heterotrophic organism
 (C) multicellular, eukaryotic, photosynthetic organism
 (D) unicellular prokaryotic organism
81. Vascular tissues are absent in
 (A) algae and bryophyta
 (B) bryophyta and pteridophyta
 (C) algae and gymnosperm
 (D) bryophyta and gymnosperm
82. Which is not a correct match?
 (A) Fungi – *Penicillium*
 (B) Monera – bacteria
 (C) Protista – yeast
 (D) Plantae – moss



1.4 Lichens

83. _____ was first to use the word 'lichen'.
 (A) Theodor Diener
 (B) Theodor Schwann
 (C) Linnaeus
 (D) Theophrastus
84. The algal component of lichen is known as
 (A) phycobiont
 (B) photobiont
 (C) mycobiont
 (D) both (A) and (B)
85. _____ belongs to crustose lichen.
 (A) *Graphis* (B) *Parmelia*
 (C) *Usnea* (D) *Alectoria*
86. _____ belongs to foliose lichen.
 (A) *Graphis* (B) *Parmelia*
 (C) *Usnea* (D) *Alectoria*
87. Lichens contain a substance _____ which is similar to carbohydrate.
 (A) lichenin (B) lysin
 (C) lipase (D) lysogen



88. The symbiotic association of fungi and algae is called
(A) lichen
(B) endomycorrhizae
(C) mycorrhizae
(D) both (B) and (C)
89. Orcein is obtained from lichen
(A) *Orchrolechia androgyna*
(B) *Lobaria*
(C) *Parmelia*
(D) *Evernia*
90. Weathering of rocks takes place due to growth of lichen. This process is known as
(A) pedogenesis
(B) caulogenesis
(C) organogenesis
(D) ecological succession
91. The lichens which are dorsiventrally flattened, leafy and having rhizines for attachment are called as
(A) crustose lichens (B) foliose lichens
(C) fruticose lichens (D) shrubby lichens
92. Lichens are described as an indicator of
(A) air pollution
(B) soil pollution
(C) water pollution
(D) agricultural productivity
93. Foliose is a morphological type of
(A) virus (B) lichens
(C) basidiomycetes (D) bacteria
94. Out of the following, which lichens are sterile?
(A) Ascolichen (B) Basidiolichen
(C) Deuterolichen (D) All of these
95. Which is not true about habitat of lichens?
(A) Lichens grow on tree trunks, decaying logs and soil.
(B) Lichens grow on snow.
(C) Lichens grow on rocks.
(D) Lichens grow in cities.
96. _____ belongs to fruticose lichen.
(A) *Graphis* (B) *Rhizocarpon*
(C) *Usnea* (D) *Parmelia*
97. _____ is useful in hydrophobia.
(A) *Parmelia* (B) *Usnea*
(C) *Lobaria* (D) *Peltigera*
98. _____ is useful in epilepsy.
(A) *Parmelia* (B) *Usnea*
(C) *Lobaria* (D) *Peltigera*
99. _____ is useful in urinary disease.
(A) *Lobaria* (B) *Usnea*
(C) *Parmelia* (D) *Peltigera*
100. _____ species is useful in respiratory disease.
(A) *Lobaria* (B) *Parmelia*
(C) *Usnea* (D) *Peltigera*
101. Some _____ contain anticarcinogenic property.
(A) fungi (B) bacteria
(C) algae (D) lichens
102. _____ acid obtained from the *Usnea* and *Cladonia* species is used as an antibiotic against gram positive bacteria.
(A) Citric (B) Hydrochloric
(C) Usnic (D) Acetic
103. The lichen/s which is/are used in perfumery is/are
(A) *Evernia* (B) *Lobaria*
(C) *Ramalina* (D) Both (A) and (C)
104. Out of the following, which lichens are used in litmus paper preparation?
(A) *Rocella* (B) *Parmelia*
(C) *Lasallia* (D) Both (A) and (C)



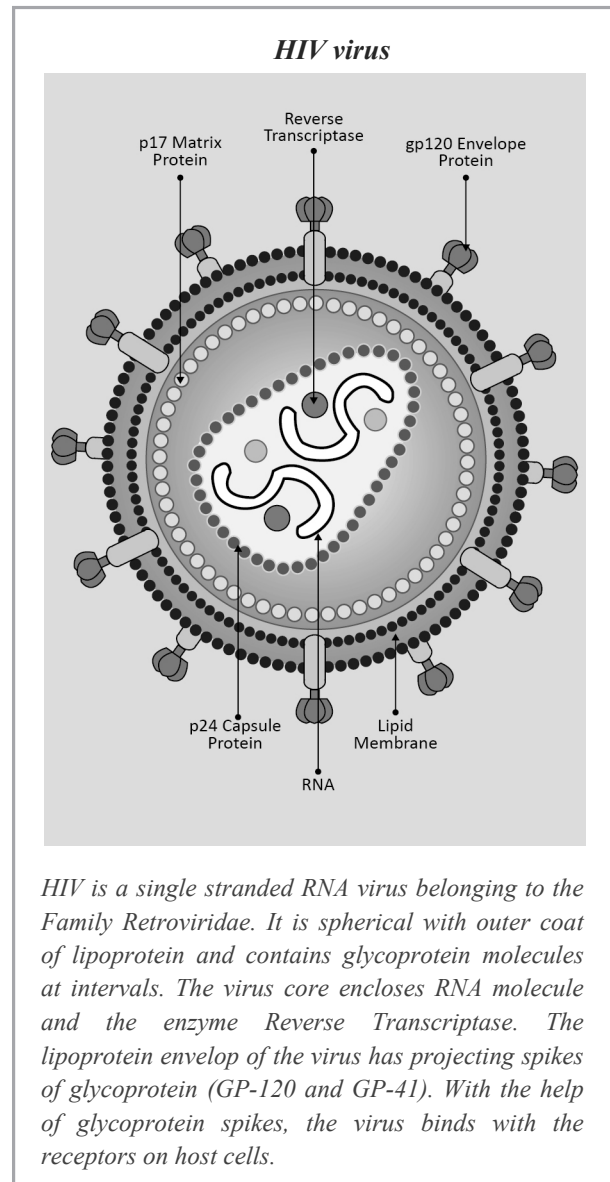
1.5 Viruses and Viroids

105. The term 'virus' was first used by
(A) M.W. Beijerinck (B) Stanley
(C) Louis Pasteur (D) Frederick Twort
106. The detailed structure of virus was studied only after the invention of
(A) light microscope
(B) compound microscope
(C) electron microscope
(D) X-ray photography
107. Which one from the following statement is correct about viruses?
(A) They have their own metabolic system.
(B) They contain either DNA or RNA.
(C) They are easily killed by antibiotics.
(D) They are facultative parasites.
108. Influenza is caused by
(A) Rhino virus (B) Myxo virus
(C) Variola virus (D) Flavi virus
109. Virus envelope is known as
(A) capsid (B) virion
(C) nucleoprotein (D) core



110. The group of viruses which attacks bacteria are called
 (A) phytophaginae (B) zoophaginae
 (C) bacteriophage (D) none of these
111. Plant viruses have
 (A) DNA (B) RNA
 (C) RNA or DNA (D) RNA and DNA
112. Animal viruses are
 (A) tadpole shaped (B) rod shaped
 (C) polyhedral shaped (D) any of these
113. Bacterial viruses were discovered by
 (A) Felix d Herelle (B) Twort
 (C) Stanley (D) Ivanowski
114. Viruses are
 (A) parasites (B) obligate parasites
 (C) saprophytes (D) autotrophs
115. Animal viruses show
 (A) helical symmetry (B) radial symmetry
 (C) bilateral symmetry (D) asymmetry
116. AIDS is caused by
 (A) Rhinovirus (B) Retrovirus
 (C) Flavi virus (D) H₁N₁ virus
117. _____ obtained TMV in crystalline form.
 (A) Stanley (B) Ivanowski
 (C) Smith (D) Carl Linnaeus
118. Potato spindle tuber disease is caused by
 (A) virus (B) bacteria
 (C) plant virus (D) viroids
119. Which of the following is a plant virus?
 (A) TMV (B) HIV
 (C) Retrovirus (D) Influenza virus
120. Which of the following is a viral disease?
 (A) Polio (B) Tetanus
 (C) Diptheria (D) All of these
121. Common symptoms due to viral infection include
 (A) necrosis
 (B) mosaic formation
 (C) chlorosis
 (D) all of these


122. Viroid was discovered and named by
 (A) Theodor Diener
 (B) Theodor Schwann
 (C) Linnaeus
 (D) Theophrastus
123. Viroids have
 (A) single stranded RNA not enclosed by protein coat
 (B) single stranded DNA enclosed by protein coat
 (C) double stranded DNA enclosed by protein coat
 (D) double stranded RNA not enclosed by protein coat



**Critical Thinking****1.2 Systematics: Taxonomy, Taxonomic hierarchy and Binomial Nomenclature**

- Organisms are classified to
 - know their distribution
 - know their characters
 - establish relationship
 - study evolution
- Need for a proper system of classification arises because
 - the organisms of the past cannot be studied without it.
 - classification helps in knowing the relationships among the different groups of organisms.
 - it is not possible to study every organism.
 - all of these.
- Systematics is
 - study of diversity of organisms and its causes.
 - same as taxonomy.
 - classification and nomenclature of organisms.
 - all the above.
- In three domain system of classification, each domain is divided into
 - Classes
 - Phyla
 - Kingdom
 - Genera
- Three domain system is primarily based on
 - differences in ribosomal RNA structure
 - differences in habitats of organisms
 - morphology of different organisms
 - mode of nutrition
- What is true about three domain system of classification?
 - fungi are included under domain Eukarya.
 - It states that Bacteria and Archaea are having different origin.
 - It is proposed by Carl Woese
 - All the three statements are true
- Common names are
 - non scientific
 - scientific
 - universal
 - morphology
- Binomial nomenclature is
 - not applicable to cyanobacteria.
 - not accepted by many countries.
 - universal with two specific names to each organisms.
 - universal with one scientific name to each organism.
- Which of the following statement is NOT TRUE?
 - Species name can be repeated when the genera are different.
 - There can be two same generic names in any kingdom.
 - Citation means to write authors name after the species.
 - Scientific names are in Latin.
- Scientific name of Mango plant is *Mangifera indica* L. Which special feature is indicated by the 'L'?
 - The name is printed in italics.
 - The name is written in Latin
 - The name is given by Linnaeus
 - The name is not derived from Latin
- Two morphologically similar population are intersterile. They belong to
 - one species.
 - two big species.
 - one genus.
 - none of these.
- Several genera resembling one another in their major anatomical and reproduced characters are placed together in
 - species
 - genus
 - family
 - order
- The species of the same genus show
 - similar structure of vegetative and reproductive parts.
 - similar vegetative but different reproductive structure.
 - similar reproductive structures but different vegetative structures.
 - different vegetative and reproductive structures.
- One of the four alternatives can be considered to include the remaining three. Which is that alternative?
 - Class
 - Order
 - Genus
 - Species



15. In the entire plant kingdom, the name used for a species
 (A) cannot be repeated in other genus.
 (B) can be repeated in another genus.
 (C) can be repeated in the same genus.
 (D) can be repeated in the same genus as well as another genus.
16. The biological concept of species in addition to morphology takes into consideration
 (A) ecology (B) genetics
 (C) cytology (D) all of these
17. Plants were given Latin names because
 (A) Latin is a simple language.
 (B) It is fashionable to talk in an ancient language.
 (C) Latin is an ancient language and it will not change in form or spelling.
 (D) none of these.
18. In a scientific name, the name of author is printed in
 (A) Italics (B) Bold
 (C) Roman (D) Bold and italic
19. At present, what criteria does one need to follow for naming a plant technically?
 (A) Name should not be too long
 (B) Name should not be difficult to pronounce
 (C) Name should be latinised
 (D) All the above
20. The evolutionary history of a group of organisms is called
 (A) taxonomy (B) phylogeny
 (C) ontogeny (D) evolution
-  **1.3 Five kingdom system of classification**
21. The demerit of two kingdom classification is
 (A) it divides the living organisms into only two kingdoms as plantae and animalia
 (B) it combines saprophytic fungi with autotrophic plants
 (C) system was found inadequate for classification of bacteria, fungi, *Euglena*
 (D) all of these
22. The filamentous bacteria are
 (A) Archaeobacteria
 (B) Eubacteria
 (C) *Actinomyces*
 (D) Cyanobacteria
23. Which kingdom includes photoautotrophs, chemoautotrophs and heterotrophs?
 (A) Monera
 (B) Protista
 (C) Plantae
 (D) Both (B) and (C)
24. In five kingdom classification, *Mycobacterium* is included in
 (A) Monera (B) Protista
 (C) Animalia (D) Fungi
25. 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?
 (A) Monera (B) Fungi
 (C) Plantae (D) Protista
26. Membrane bound organelles are absent in
 (A) *Saccharomyces*
 (B) *Streptococcus*
 (C) *Plasmodium*
 (D) *Chlamydomonas*
27. Peptidoglycan is a characteristic constituent of cell wall of
 (A) bacteria and unicellular eukaryotes
 (B) bacteria and cyanobacteria
 (C) archaeobacteria and eukaryotes
 (D) all members of monera and protista
28. Most of the unicellular organisms are kept under
 (A) Monera and protista
 (B) Monera and plantae
 (C) Protista and plantae
 (D) Protista and fungi
29. In Whittaker's classification, the unicellular organism having various cell organelles constitute the Kingdom
 (A) Monera (B) Protista
 (C) Plantae (D) Fungi
30. Multicellular life forms are evolved from
 (A) Monera (B) Fungi
 (C) Protista (D) None of these
31. Which of the following is not a character of Protista?
 (A) Protists are prokaryotes.
 (B) Some protists have cell wall.
 (C) Mode of nutrition is both autotrophic and heterotrophic.
 (D) Membrane bound cell organelles are present.



32. What of the following statement is NOT TRUE about *Euglena*?
- (A) *Euglena* is a multicellular organism
(B) *Euglena* shows photosynthetic mode of nutrition in the presence of light
(C) *Euglena* shows holozoic mode of nutrition in the absence of light
(D) *Euglena* has flagella as locomotory organs.
33. Which one of the following has characters of both plants and animals?
- (A) *Bacteria* (B) *Mycoplasma*
(C) *Euglena* (D) *Paramoecium*
34. Fungi differ from other kingdoms in being
- (A) unicellular decomposers
(B) unicellular consumers
(C) multicellular decomposers
(D) multicellular consumers
35. Fungi can be distinguished from algae because of
- (A) chitinous cell wall and presence of chloroplast
(B) cellulosic cell wall and presence of chloroplast
(C) chitinous cell wall and absence of chloroplast
(D) cellulosic cell wall and absence of chloroplast
36. Heterotrophic fungi can live as
- (A) saprophytes (B) parasites
(C) symbionts (D) all of these
37. The Fungi are separated from Plantae on the basis of
- (A) their living habitat
(B) their saprophytic mode of nutrition
(C) their unicellular structure
(D) none of these
38. Extracellular digestion is observed in kingdom
- (A) Animalia (B) Fungi
(C) Monera (D) Plantae
39. Find the odd pair from the following.
- (A) Algae: *Chara*
(B) Bryophyte: *Riccia*
(C) Pteridophyte: *Pinus*
(D) Angiosperm: Jowar
40. Multicellular, eukaryotic organisms with aquatic, terrestrial and aerial habitat are found in kingdom
- (A) Protista (B) Monera
(C) Fungi (D) Animalia



1.4 Lichens

41. Most of the lichens consist of
- (A) green algae and ascomycetes
(B) brown algae and higher plants
(C) blue green algae and basidiomycetes
(D) red algae and ascomycetes
42. Which one of the following statement is not true about lichens?
- (A) Some of its species produce dye.
(B) Some of its species can be used as pollution indicator.
(C) It is an association of fungi and a higher plant.
(D) Their body is composed of algae and fungi.
43. Lichen is
- (A) saprophytic (B) parasitic
(C) autotrophic (D) holozoic
44. Short twisted strands of hyphae which serve as anchors for lichen are
- (A) mycolium (B) rhizines
(C) roots (D) rhizoids
45. Which statement is NOT TRUE about lichens?
- (A) They can reproduce by fragmentation
(B) They make the environment more alkaline
(C) They contribute to soil formation.
(D) They are often the first colonists in a new area



1.5 Viruses and Viroids

46. Viruses are essentially made up of
- (A) starch and carbohydrates
(B) proteins and lipids
(C) proteins and nucleotides
(D) starch, proteins and lipids
47. Which of the following statement indicates that viruses are living?
- (A) They are made up of common chemicals.
(B) They cause disease.
(C) They can reproduce.
(D) All of these
48. Tobacco mosaic virus (TMV) is
- (A) rod shaped
(B) spherical
(C) thread like
(D) tadpole shaped



49. An interesting feature of virus is that
 (A) it is present inside the bacteria
 (B) it behaves as if it is a plant
 (C) it consists of proteins
 (D) it can only multiply in the body of a host cell
50. In some viruses, RNA is present instead of DNA indicating that
 (A) they cannot replicate
 (B) they are primitive
 (C) RNA can act as hereditary material
 (D) they do not have genetic material
51. Out of the following, which is not a correct statement with reference to viruses?
 (A) Viruses can be stored for long periods.
 (B) Viruses do not have their own metabolic machinery.
 (C) Viruses can be cultured on artificial nutrient medium.
 (D) Viruses are resistant to extreme climatic conditions.
52. Which of the following statement is not true about PSTV?
 (A) The full form of PSTV is Potato Spindle Tuber Viroid.
 (B) It is composed of 359 nucleotides.
 (C) It causes disease in potato plant.
 (D) It has ten times more genetic material than the smallest known virus.

Potato Spindle Tuber Disease (PSTD)



The Potato Spindle tuber disease is caused by Potato Spindle Tuber Viroid (PSTVD) which is a small circular RNA molecule. The affected potato plants appear spindly, dwarfed and may develop knobs and swellings.



Competitive Thinking



1.2 Systematics: Taxonomy, Taxonomic hierarchy and Binomial Nomenclature

- Branch connected with nomenclature, identification and classification is
[CPMT 1991; AMU (Med.) 2000; Kerala PMT 2002]
 (A) Ecology (B) Taxonomy
 (C) Morphology (D) Physiology
- The science of naming the plant is known as
[CPMT 1989]
 (A) Classification (B) Identification
 (C) Nomenclature (D) Taxonomy
- Who gave the nomenclature according to which humans are called Homo sapiens?
[BCECE 2015]
 (A) Darwin (B) Mendel
 (C) Aristotle (D) Linnaus
- 'Taxa' differs from 'taxon' due to
[DUMET 2010]
 (A) This being a higher taxonomic category than taxon.
 (B) This being lower taxonomic category than taxon.
 (C) This being the plural of taxon.
 (D) This being the singular of taxon.
- Taxon is a **[DPMT 2006]**
 (A) Group of same species
 (B) Any rank in taxonomic hierarchy
 (C) Group of similar genera
 (D) Sub-division of kingdom
- Taxonomic hierarchy refers to **[DUMET 2009]**
 (A) Stepwise arrangement of all categories for classification of plants and animals.
 (B) A group of senior taxonomists who decide the nomenclature of plants and animals.
 (C) A list of botanists or zoologists who have worked on taxonomy of a species or group.
 (D) Classification of a species based on fossil record.
- Biosystematics aims at **[CBSE PMT 2003]**
 (A) Identification and arrangement of organisms on the basis of their cytological characteristics.
 (B) The classification of organisms based on broad morphological characters.



- (C) Delimiting various taxa of organisms and establishing their relationships.
(D) The classification of organisms based on their evolutionary history and establishing their phylogeny on the totality of various parameters from all fields of study.
8. Nomenclature is governed by certain universal rules. Which one of the following is contrary to the rules of nomenclature?
[AIPMT 2016]
(A) The names are written in Latin and are italicised
(B) When written by hand, the names are to be underlined
(C) Biological names can be written in any language
(D) The first word in biological name represents the genus name and the second is a specific epithet
9. Which of the following is correct hierarchical order of taxonomic categories?
[Wardha 2002; BHU 2008; Orissa JEE 2010]
(A) Kingdom, phylum, class, order, family, genus, species
(B) Kingdom, phylum, class, family, order, genus, species
(C) Division, class, kingdom, order, species, family
(D) Division, kingdom, family, class, order, species
10. In a taxonomic hierarchy, the number of common characters will increase as we go from
[KCET 2016]
(A) Class to order
(B) Species to Kingdom
(C) Genus to Species
(D) Kingdom to Species
11. Identify the correct sequence of taxa in Linnaean hierarchy.
[KCET 2001]
(A) Species, genus, family, order, class
(B) Class, family, species, genus, order
(C) Phylum, class, family, species, order
(D) Species, genus, phylum, family, class
12. In a hierarchical system of plant classification, which one of the following taxonomic ranks generally ends in 'ceae'?
[DPMT 1982; AFMC 2003]
(A) Family (B) Genus
(C) Order (D) Class
13. The suffix-'phyta' indicates [RPMT 1985]
(A) Family (B) Order
(C) Class (D) Division
14. A group of related genera, with still less number of similarities as compared to the genus and species, constitutes
[AFMC 2009; DUMET 2010]
(A) Order (B) Class
(C) Family (D) Division
15. Which is highest in the hierarchy of taxonomic category?
[BCECE 2015]
(A) Genus (B) Family
(C) Order (D) Class
16. Family is placed between [Orissa JEE 2011]
(A) Order and genus
(B) Genus and species
(C) Class and order
(D) Phylum and class
17. Cohort is a group of correlated
[MH CET 2004]
(A) Species (B) Genera
(C) Families (D) Order
18. Species can be identified on the basis of
[MP PMT 2007]
(A) Interbreed
(B) Species diversity
(C) Reproductive isolation
(D) None of these
19. Which of the following is not taxon but a category?
[MH CET 2000]
(A) Division (B) Angiosperms
(C) Polypetalae (D) *Hibiscus*
20. Binomial nomenclature means writing the name of plant / animal in two words, which designate
CPMT 1979; CBSE PMT 1994;
RPMT 1995; APMEE 1995; DPMT 1996;
Pb. PMT 1999, 2000; BHU 1999, 2002;
PMT 2004]
(A) Genus and species
(B) Species and variety
(C) Order and family
(D) Family and genus
21. A scientist having made significant contribution in the field of classification is
[CPMT 1990]
(A) Pasteur (B) Oparin
(C) Darwin (D) Linnaeus



22. Carolus Linnaeus was from
[BHU 1988; Manipal 1997]
(A) Sweden (B) U.K.
(C) Holland (D) France
23. Who published the book *Species Plantarum* and provided a basis for classification of plants? [BHU 1990; AIEEE Pharmacy 2004]
(A) Charles Darwin
(B) Robert Hook
(C) Carolus Linnaeus
(D) Anton Leeuwenhoek
24. Linnaeus is credited for introduction of
CPMT 1982, 83; CBSE PMT 1993,
Haryana PMT 1995; BHU 1982, 92, 94, 99;
BVP 2002; MP PMT 2003]
(A) Binomial system of nomenclature
(B) The principle of independent assortment
(C) The concept of inheritance of acquired characters
(D) The law of limiting factors
25. Binomial nomenclature system of Linnaeus means that every organism has
[CPMT 1978, 95; DPMT 1981; CBSE PMT 1993; BHU 1994; AMU 1995; CET Chd. 2000]
(A) One name given by two scientist
(B) Two names one Latin and other of a person
(C) Two names one scientific and other popular
(D) One scientific name with generic and other with specific epithet
26. Binomial nomenclature means
[DPMT 1990; EAMCET 1995]
(A) Indication of the name by its order and family
(B) Indication of the name by its family and genus
(C) Indication of the name by its genus and species
(D) Indication of the name by its species and variety
27. In Botanical nomenclature of plants
[MP PMT 1993]
(A) Genus is written after the species
(B) Both in genus and species, the first letter is a capital letter
(C) Genus and species may be same name
(D) Both genus and species are printed in italics
28. In plants, Latin names are suggested because
[CPMT 1989]
(A) Latin is a simple language.
(B) In whole world there would be only one name for one plant.
(C) It is easy to write.
(D) Most of the names in other languages are not correct.
29. In zoological name of an organism, the first word will be [DPMT 1987, 92]
(A) Generic name
(B) Specific name
(C) Name of the order
(D) Family name
30. Binomial system of nomenclature for plants is effective from [JIPMER 1997]
(A) 5.8.1771 (B) 1.5.1753
(C) 1.8.1758 (D) 6.7.1736



1.3 Five kingdom system of classification

31. Five kingdom classification includes
[DPMT 2006]
(A) Monera, Protista, Fungi, Plantae, Animalia
(B) Algae, Fungi, Bryophyta, Pteridophyta, Gymnosperms
(C) Virus, Prokaryota, Fungi, Plantae, Animalia
(D) Monera, Protista, Animalia, Plantae, Algae
32. Which of the following organisms form the decomposers?
[BVP 2007]
(A) *Pteris* (B) Bacteria
(C) Saprophytic fungi (D) Both (B) and (C)
33. Five kingdom system of classification suggested by R.H. Whittaker is not based on
[AIPMT 2014]
(A) Presence or absence of a well defined nucleus
(B) Mode of reproduction
(C) Mode of nutrition
(D) Complexity of body organisation
34. In Whittaker's 'Five Kingdom Classification', eukaryotes were assigned to
[BHU 1994; KCET 1999; MH CET 2003; Orissa JEE 2005]
(A) Only two of the five kingdoms
(B) Only three of the five kingdoms
(C) Only four of the five kingdoms
(D) All the five kingdoms



35. The scientist who created the group Protista for both unicellular plants and animals is
[BHU 1982; AIIMS 1993]
(A) Haeckel (B) Pasteur
(C) Lister (D) Koch
36. The non-nucleated, unicellular organisms of Whittaker's (1969) classification are included in the kingdom
[MP PMT 1994; BHU 1997; Kerala PMT 2000]
(A) Protista (B) Monera
(C) Animalia (D) Plantae
37. The replacement of two kingdom grouping by five kingdom classification was proposed in the year
[Kerala CET 2003]
(A) 1859 (B) 1758
(C) 1919 (D) 1969
38. Nuclear membrane is absent in
[AMU (Med.) 2010]
(A) Monera (B) Protista
(C) Fungi (D) Plantae
39. Cell wall is absent in
[AIPMT Retest 2015]
(A) *Nostoc* (B) *Aspergillus*
(C) *Funaria* (D) *Mycoplasma*
40. A unicellular organism often considered connecting link between plants and animals is
[JIPMER 1985, 98; AFMC 1997]
(A) *Monocystis* (B) *Paramecium*
(C) *Euglena* (D) *Entamoeba*
41. In which group of organisms the cell walls form two thin overlapping shells which fit together?
[AIPMT Retest 2015]
(A) Slime moulds (B) Chrysophytes
(C) Euglenoids (D) Dinoflagellates
42. A student observed a water drop under microscope. He found a photosynthetic organism. Its cell walls form two thin overlapping shells, which fit together as in a soap box. Which of the following organism it is?
[EAMCET 2016]
(A) Euglenoid (B) Dinoflagellate
(C) Sporozoans (D) Diatom
43. The structure producing basidium in Basidiomycetes is formed by the fusion of
[MH CET 2014]
(A) two vegetative cells
(B) two male gametes
(C) two female gametes
(D) male and female gametes
44. Which one of the following natural polymers is found both in insects and fungi?
[WBJEEM 2015]
(A) Pectin (B) Chitin
(C) Cellulose (D) Suberin
45. An attribute found in plants but not in animals is
[MP PMT 1986]
(A) Metabolism
(B) Sexual reproduction
(C) Autotrophy
(D) Asexual reproduction
46. Chrysophytes, Euglenoids, Dinoflagellates and Slime moulds are included in the kingdom
[AIPMT 2016]
(A) Fungi (B) Animalia
(C) Monera (D) Protista
47. The imperfect fungi which are decomposers of litter and help in mineral cycling belong to
(A) Ascomycetes (B) Deuteromycetes
(C) Basidiomycetes (D) Phycomycetes
[AIPMT Retest 2015]
48. One of the major components of cell wall of most fungi is
[AIPMT 2016]
(A) Cellulose (B) Hemicellulose
(C) Chitin (D) Peptidoglycan
49. Match the following and select the correct combination from the options given below.
- | Column I
(Kingdom) | | Column II
(Class) | |
|-----------------------|----------|----------------------|-----------------|
| a. | Plantae | 1. | Archaeobacteria |
| b. | Fungi | 2. | Euglenoids |
| c. | Protista | 3. | Phycomycetes |
| d. | Monera | 4. | Algae |
- [Kerala PMT 2011]
(A) a-4, b-3, c-2, d-1
(B) a-1, b-2, c-3, d-4
(C) a-3, b-4, c-2, d-1
(D) a-4, b-2, c-3, d-1



50. Pick up the wrong statement. **[AIPMT Retest 2015]**
- (A) Nuclear membrane is present in Monera
 - (B) Cell wall is absent in Animalia
 - (C) Protista have photosynthetic and heterotrophic modes of nutrition
 - (D) Some fungi are edible
51. Which one of the following matches is correct? **[AIPMT 2015]**

(A)	<i>Alternaria</i>	Sexual reproduction absent	Deuteromycetes
(B)	<i>Mucor</i>	Reproduction by Conjugation	Ascomycetes
(C)	<i>Agaricus</i>	Parasitic fungus	Basidiomycetes
(D)	Phytophthore	Aseptate mycelium	Basidiomycetes



1.4 Lichens

52. Lichens are well known combination of an algae and a fungus, where fungus has **[AFMC 2007]**
- (A) a saprophytic relationship with the algae
 - (B) an epiphytic relationship with the algae
 - (C) a parasitic relationship with the algae
 - (D) a symbiotic relationship with the algae
53. Which of the following would appear as the pioneer organisms on bare rocks? **[AIPMT 2016]**
- (A) Mosses
 - (B) Green algae
 - (C) Lichens
 - (D) Liverworts
54. *Cladonia rangiferina* is a/an **[BVP 2007]**
- (A) algae
 - (B) Lichen
 - (C) fungus
 - (D) Angiosperm



1.5 Viruses and Viroids

55. Virus multiplies in **[BVP 2007]**
- (A) soil
 - (B) dead tissue
 - (C) living tissue
 - (D) culture medium
56. Viruses have **[AIPMT 2014]**
- (A) DNA enclosed in a protein coat
 - (B) Prokaryotic nucleus
 - (C) Single chromosome
 - (D) Both DNA and RNA

57. The viruses contain **[AFMC 1986; J & K CET 2008]**
- (A) Proteins only
 - (B) DNA only
 - (C) Nucleic acids only
 - (D) Proteins, DNA or RNA (nucleic acids)
58. Genetic material in TMV is **[EAMCET 1993; MP PMT 2001]**
- (A) DNA
 - (B) RNA
 - (C) Capsid
 - (D) Both DNA and RNA
59. Which of the following shows coiled RNA strand and capsomeres? **[AIPMT 2014]**
- (A) Polio virus
 - (B) Tobacco mosaic virus
 - (C) Measles virus
 - (D) Retrovirus
60. Viruses multiply in **[EAMCET 1995; BVP 2001; BHU 2004]**
- (A) Bacteria only
 - (B) All living cells
 - (C) Specific living cells
 - (D) Rotten food
61. Which of the following is true for viruses? **[DPMT 1992]**
- (A) They invariably contain DNA.
 - (B) They multiply only in host cell.
 - (C) They occur only inside bacteria.
 - (D) Their genetic material is RNA.

Cladonia rangiferina



Cladonia rangiferina is a fruticose lichen. It is used as fodder for Reindeers and Caribou in the Arctic regions. It is also recommended in case of intermittent fever.

**Answers Key****Classical Thinking**

1. (B) 2. (C) 3. (D) 4. (D) 5. (B) 6. (C) 7. (B) 8. (D) 9. (A) 10. (C)
 11. (C) 12. (D) 13. (A) 14. (D) 15. (B) 16. (C) 17. (C) 18. (A) 19. (A) 20. (D)
 21. (D) 22. (B) 23. (C) 24. (B) 25. (A) 26. (C) 27. (A) 28. (D) 29. (B) 30. (C)
 31. (D) 32. (C) 33. (D) 34. (C) 35. (D) 36. (B) 37. (A) 38. (C) 39. (B) 40. (B)
 41. (D) 42. (A) 43. (C) 44. (B) 45. (B) 46. (C) 47. (B) 48. (C) 49. (D) 50. (C)
 51. (D) 52. (A) 53. (B) 54. (A) 55. (D) 56. (C) 57. (B) 58. (B) 59. (D) 60. (B)
 61. (D) 62. (B) 63. (C) 64. (B) 65. (D) 66. (D) 67. (C) 68. (D) 69. (B) 70. (D)
 71. (B) 72. (A) 73. (B) 74. (A) 75. (B) 76. (A) 77. (D) 78. (D) 79. (B) 80. (C)
 81. (A) 82. (C) 83. (D) 84. (D) 85. (A) 86. (B) 87. (A) 88. (A) 89. (A) 90. (A)
 91. (B) 92. (A) 93. (B) 94. (C) 95. (D) 96. (C) 97. (D) 98. (A) 99. (B) 100. (A)
 101. (D) 102. (C) 103. (D) 104. (D) 105. (C) 106. (C) 107. (B) 108. (B) 109. (A) 110. (C)
 111. (B) 112. (C) 113. (B) 114. (B) 115. (B) 116. (B) 117. (A) 118. (D) 119. (A) 120. (A)
 121. (D) 122. (A) 123. (A)

**Critical Thinking**

1. (D) 2. (D) 3. (D) 4. (C) 5. (A) 6. (D) 7. (A) 8. (D) 9. (B) 10. (C)
 11. (C) 12. (C) 13. (C) 14. (A) 15. (B) 16. (D) 17. (C) 18. (C) 19. (D) 20. (B)
 21. (D) 22. (D) 23. (A) 24. (A) 25. (A) 26. (B) 27. (B) 28. (A) 29. (B) 30. (C)
 31. (A) 32. (A) 33. (C) 34. (C) 35. (C) 36. (D) 37. (B) 38. (B) 39. (C) 40. (D)
 41. (A) 42. (C) 43. (C) 44. (B) 45. (B) 46. (C) 47. (C) 48. (A) 49. (D) 50. (C)
 51. (C) 52. (D)

**Competitive Thinking**

1. (B) 2. (C) 3. (D) 4. (C) 5. (B) 6. (A) 7. (D) 8. (C) 9. (A) 10. (D)
 11. (A) 12. (A) 13. (D) 14. (C) 15. (D) 16. (A) 17. (C) 18. (C) 19. (A) 20. (A)
 21. (D) 22. (A) 23. (C) 24. (A) 25. (D) 26. (C) 27. (D) 28. (B) 29. (A) 30. (B)
 31. (A) 32. (D) 33. (B) 34. (C) 35. (A) 36. (B) 37. (D) 38. (A) 39. (D) 40. (C)
 41. (B) 42. (D) 43. (A) 44. (B) 45. (C) 46. (D) 47. (B) 48. (C) 49. (A) 50. (A)
 51. (A) 52. (D) 53. (C) 54. (B) 55. (C) 56. (A) 57. (D) 58. (B) 59. (B) 60. (B)
 61. (B)

**Hints****Classical Thinking**

6. Watson is related with the proposition of DNA structure. Robert Hooke is associated with discovery of cell. Dixon is associated with the transpiration pull theory of plants.
18. Tribe is a race or division of people. Genus is a group of closely related species, which resemble one another in certain characters. Family represents a group of closely related genera.

19. The term 'species' occupies a unique position in taxonomic hierarchy. It is not only a basic unit in taxonomy, but also in evolution.
21. Concept of species was remodified as closely resembling and potentially interbreeding population by Ernst Mayr. Theophrastus first proposed the artificial system of classification. Darwin proposed the selection theory and Linnaeus gave the concept of morphospecies.
28. Kingdom is the highest taxonomic category composed of different sub-kingdoms.



31. Series is a category used for the classification of plants.
33. Elapidae is a taxon.
43. The scientific name of any organism should always be written in italics.
50. *Hibiscus* is a taxon, i.e. a particular plant while genus and species are categories or ranks in a classification.
62. *Thiobacillus* is chemoautotroph and belongs to kingdom monera.
63. Organisms belonging to kingdom Monera are without membrane bound cell organelles like chloroplasts, mitochondria, etc. but rigid cell wall made up of peptidoglycan is present.
82. Yeast belongs to Kingdom – Fungi.
87. Lichenin or lichenan is a complex starch occurring in certain lichens. It is also known as moss starch.
105. M. W. Beijerinck called the extract of infected tobacco plant as virus-venom or poisonous fluid. Stanley obtained viruses in crystallized form. F. Twort discovered bacterial viruses.



Critical Thinking

2. Classification helps in understanding diverse varieties of organisms and also gives an idea about the origin and evolution of organisms which are morphologically similar.
3. Systematics is the study of classification of living organism with emphasis on their evolutionary relationships. It is an interdisciplinary study involving the different branches such as genetics, embryology, palynology, etc. It involves identification and nomenclature, so it is often considered synonymous with taxonomy.

4.

Domain	Kingdom
Archaea	Archaeobacteria
Bacteria	Eubacteria
Eukarya	Protista, Fungi, Plantae and Animalia

8. Binomial nomenclature is the system of nomenclature of plants and animals in which the scientific name consists of two words or parts or epithets.

14. Class is a higher category than order, genus and species, so it will include the remaining three.
15. A genus is an assemblage of related species. All the species, in genus have more features in common than in other closely related groups of species.
16. Biological concept of species by Darwin in addition to morphology, takes into consideration ecology, geography, genetics cytology, physiology, behaviours, etc.
23. Because Monera includes bacteria in which a few are photoautotrophs e.g. green sulphur bacteria, a few are chemoautotrophs e.g. *Nitrosomonas* and rest are heterotrophs e.g. *Bacillus* sp.
24. Because they are prokaryotes.
26. *Streptococcus* is a bacteria belonging to Kingdom Monera where there is absence of membrane bound organelles.
28. According to five kingdom classification, single cellular eukaryotes come under Protista and single cellular prokaryotes come under Monera. Thus, all single unicellular organisms belong to these two groups.
31. Protists are eukaryotes.
39. *Pinus* is a Gymnosperm.
42. Lichens are the association of algae and fungi.
43. Lichens are formed by close association of algae and fungi. In these, algae has autotrophic mode of nutrition.
46. The genetic material in viruses is either DNA or RNA and surrounded by a protein coat called Capsid.
52. PSTV has ten times less genetic material than the smallest known virus.



Competitive Thinking

1. Taxonomy is a branch of biology which deals with the study of principles and procedures of classification, nomenclature and identification.
2. Nomenclature (*Nomen* = name; *clature* = to call) is giving distinct scientific names to various structures, including living organisms, so they can be easily identified.



13. Division is a major group in the Linnean hierarchy used in the classification of plant (equivalent to phylum in animal classification). The suffix of division is ‘-phyta’.
17. Cohort is a group of correlated families.
20. According to binomial system of nomenclature, the name of plant and animal is composed of two latin or latinized word. e.g. Potato is *Solanum tuberosum*. The first word (*Solanum*) indicates the generic name and second word (*tuberosum*) denotes the specific name.
23. Carolus Linnaeus classification was published (1753) in a two volume book ‘Species Plantarum’ which include 7300 plant species.
24. The ‘Binomial system of nomenclature’ was explained by Carl Linnaeus in his book ‘Species Plantarum’ in 1753. According to this, system name of any organism/plant consist of two words. First represents its ‘genera’ and second its ‘species’.
27. In botanical nomenclature of plants, generic name always begin with capital letter and the specific name with a small letter and printed with italics.
29. Zoological name of an organism is made up of two words, first is generic name and second is specific name.
30. Binomial system of nomenclature was introduced in the book ‘Species Plantarum’, which was published in 1753.
33. The main criteria of Whittaker’s five kingdom system of classification are: Cell type, Thallus organisation, Nutrition, Reproduction and phylogenetic relationship.
34. In five kingdom classification of Whittaker, eukaryotes were assigned to only four of the five kingdom. Prokaryotes are included in kingdom – monera.
35. A German biologist Ernst Haeckel created a third kingdom protista in 1866 for unicellular organism such as bacteria, protozoans, Algae and fungi.
36. Monera contains the most primitive living forms which are basically unicellular prokaryotes.
37. R.H. Whittaker (1969), an American ecologist, divided all the organisms into five kingdoms.
39. Cell wall is not present in Mycoplasma.
41. Overlapping shells are present in Diatoms member of Chrysoophytes.
44. Chitin is a natural structural polysaccharide, which is found in both insects and fungi. In fungi it forms the cell wall while in insects it forms the protective covering.
45. Autotrophy is a characteristic of plants.
46. All single celled eukaryotes like Chrysoophytes (diatoms and desmids), Euglenoids (*Euglena*), Dinoflagellates and slime moulds are included in Kingdom Protista.
47. In deuteromycetes sexual reproduction is not known and so are termed fungi imperfectii.
48. Cell wall of most fungi is made up of chitin.
50. Monera (Prokaryotes) do not have well defined nucleus as they lack nuclear membrane and nucleolus.
53. Pioneer species are the species that invade a bare area. Lichens are able to secrete acids to dissolve rock, helping in weathering and soil formation.
56. Viruses are nucleoprotein particles.
58. Genetic material of TMV is single stranded RNA.



Evaluation Test

- The first step in taxonomy is
(A) Nomenclature (B) Classification
(C) Identification (D) Distribution
- Which of the following type of RNA serves as a molecular building block for ribosome?
(A) m – RNA (B) r – RNA
(C) t – RNA (D) Sr – RNA
- Prokaryotic nucleus is also called _____.
(A) nucleolus (B) nucleoplasm
(C) nucleosome (D) nucleoid
- Which of the following is a parasitic phycomycetes?
(A) *Albugo* (B) *Aspergillus*
(C) *Agaricus* (D) *Neurospora*
- Reserve food material in plants is in the form of
(A) Fats (B) Glycogen
(C) Starch (D) Glucose
- The pioneers of vegetation on rocks are
(A) Lichens (B) Bacteria
(C) Algae (D) Fungi
- Viruses are
(A) Multicellular (B) Unicellular
(C) Acellular (D) Eukaryotic
- Nuclear envelope is absent in
(A) Monera (B) Protista
(C) Plantae (D) Fungi
- In the modern system of classification, organisms are classified under _____ Kingdom's.
(A) 4 (B) 5
(C) 3 (D) 2
- In the hierarchical classification, division is interpolated between
(A) Series and Order
(B) Genus and Species
(C) Family and Genus
(D) Kingdom and Class
- The generic name of Neem is
(A) *Azadirachta Indica*
(B) *Indica Azadirachta*
(C) *Azadirachta indica*
(D) *Azadirachta*

- Find out the incorrect pair.

	Kingdom	Class
(A)	Protista	Amoeba
(B)	Monera	Cyanobacteria
(C)	Fungi	Actinomycetes
(D)	Plantae	Algae

- Which of the following is not a eukaryote?
(A) Rhizobium (B) Amoeba
(C) Euglena (D) Spirogyra
- Which of the following does not belong to Kingdom Protista?
(A) Desmids (B) Euglenoids
(C) Slime moulds (D) Ascomycetes
- Which of the following does not hold true for fungi?
(A) They can be multicellular.
(B) They can be anaerobic.
(C) They can be autotrophic.
(D) They can be symbiotic.
- Lichens are ecologically important because they
(A) Are slow growing and long living.
(B) Are symbionts of algae and fungi.
(C) Are associated with mycorrhiza.
(D) Are pioneers of vegetation on rocks.
- Which of the following is neither considered as a prokaryote nor a eukaryote?
(A) TMV (B) Fungi
(C) Algae (D) Bacteria
- Potato leaf roll disease is caused by
(A) Bacterium (B) Mycoplasma
(C) Virus (D) Microspores
- The protein coat of virus is called
(A) Capsomere (B) Capsid
(C) Cosmid (D) Cyanophage
- Which of the following combinations is correct for Hibiscus?
(A) Class : Malvales , Order : Dicotyledonae
Family : Malvaceae , Genus : Hibiscus
(B) Class : Malvaceae , Order : Thalamiflorae
Family : Dicotyledonae , Genus : Hibiscus
(C) Class : Thalamiflorae , Order : Malvales
Family : Malvaceae , Genus : Hibiscus
(D) Class : Dicotyledonae , Order : Malvales
Family : Malvaceae , Genus : Hibiscus



21. Ranales is
(A) Order (B) Class
(C) Sub – class (D) Series
22. Select the incorrect statements.
a. Division is the highest taxonomic category.
b. Polynomials are easy to understand and remember.
c. Binomial system of nomenclature was introduced by Linnaeus.
d. Two Kingdom system of classification was introduced by Haeckel.
(A) a and b (B) a, b and c
(C) a, b and d (D) b, c and d
23. The scientist who created Kingdom Protista to include unicellular plants and animals is
(A) Linnaeus (B) Haeckel
(C) Whittaker (D) Stanley

24. Find the incorrect match.

	Virus	Disease Caused
(A)	Flavi Virus	Yellow Fever
(B)	Paramyxo Virus	Influenza
(C)	Variola Virus	Small pox
(D)	Rhino Virus	Common cold

25. Viruses were referred as “contagium vivum fluidum” by
(A) Louis Pasteur (B) Adolf Mayer
(C) W. M. Stanley (D) M. W. Beijerinck



Answers to Evaluation Test

1. (C) 2. (B) 3. (D) 4. (A)
5. (C) 6. (A) 7. (C) 8. (A)
9. (B) 10. (D) 11. (C) 12. (C)
13. (A) 14. (D) 15. (C) 16. (D)
17. (A) 18. (C) 19. (B) 20. (D)
21. (A) 22. (C) 23. (B) 24. (B)
25. (D)