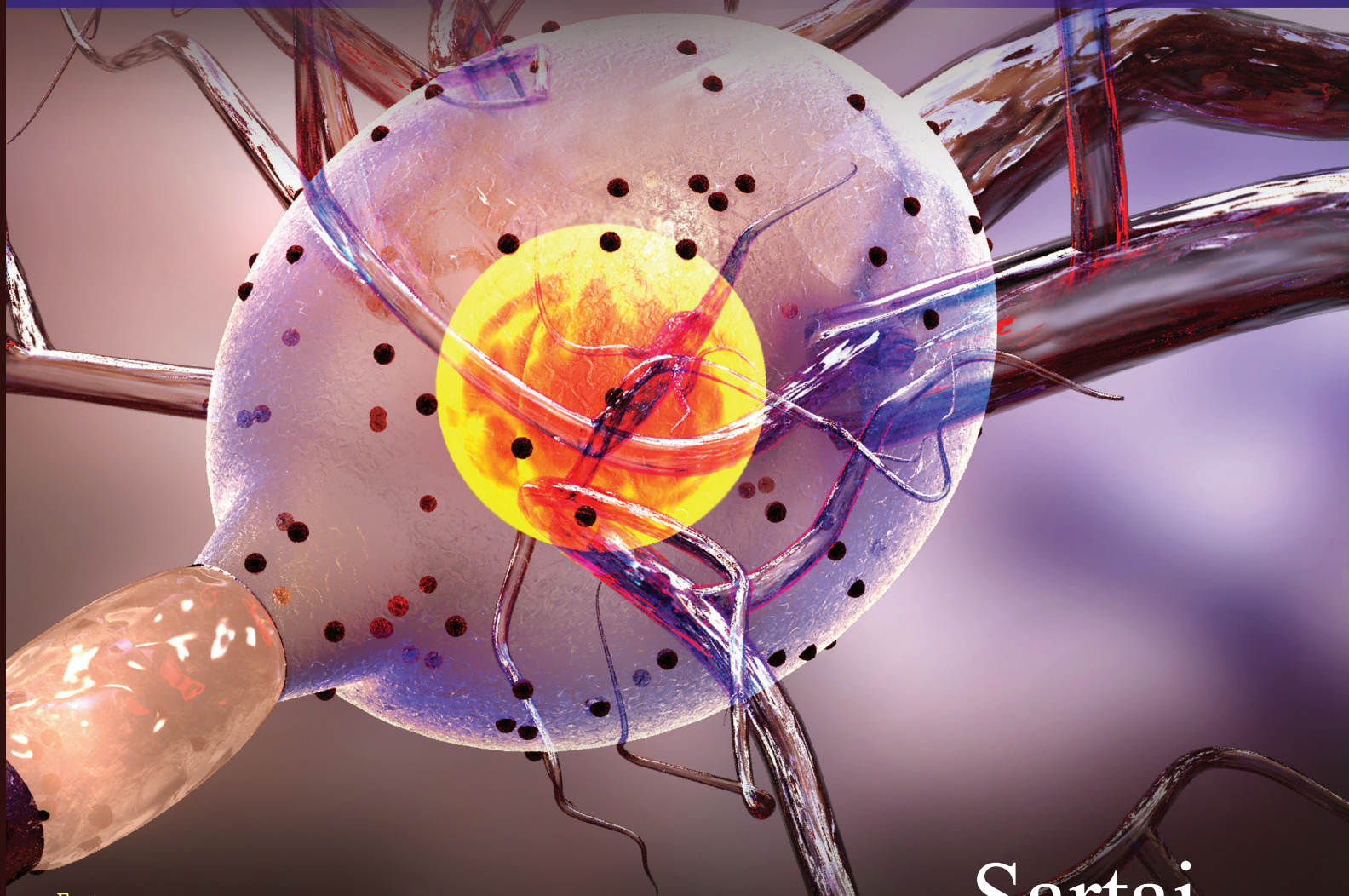
OBJECTIVE

Biology

For All India Medical Examinations



Features :

1st choice for NEET, AIPMT, AIIMS, MHTCET, KCET, AP EAMCET

9447 Questions with content wise sequence based and NCERT and All State boards syllabus of India

For sharp practice JAHAR-Q: Justification/Assertion/Hypothesis/ Authentic Reasoning Questions &

HI-BE- Q: Hi Impact Brain Exercise Questions

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VOLUME I

UNIT I

DIVERSITY IN LIVING WORLD

Chapter I

The Living world

Outline:

Dear **medical** aspirants well come to the living world, let us begin the journey of two years hard and smart work with **living world**, in this and subsequent chapter you will fill how dense and bulky is the diversity of living system based on their habitat, morphology, genetic system and other vital features and in regards for **research** on this living biota we have to place them in perfect place in a system of neat and correctly positioned called **classification** system, where you opt to study facts like importance of different classification system, comparatively different system of different **taxonomist**, different tools to study them luxuriously such as **museums**, gardens, zoos or herbaria etc. so **Best luck**.

Points to remember:

The Living World: The ability of any object to show reproducibility to carry his race to next generation either by **apomixis** or **amphimixis** is distinct feature that differentiate between **Living**/Biotic or Non living/ **Abiotic** objects in the nature along with certain accessory features like **organization**, **homeostasis**, metabolism, Development by physiological and biochemical way, certain environmental **adaptations** or features like **response** to prevailing conditions and an time log of entire **lifespan** that ends from birth to the **death**.

Biodiversity: The world in which we survive today is sequential evolution of several billion years, and the number organism live today may be of controversial number of debate to biologist since we have technology, research work that gives idea about approximate **8.7 billion** type of organisms, it is logical that these differences in different organism with habitat, niche, shape, size, color, behavior, position in ecosystem etc. Thus **biodiversity** is sum total of all living forms. The word was coined by **Walter** and **Rosen** in 1985. Each year several thausands of new species are reported.

Need of classification: Considering this huge number of organisms studying them properly require systematic arrangement into different orders and categories based on their similarities and dissimilarities. This oldest branch of science i.e. **taxonomy** or **systematic** or **classification** is of variable kinds i.e. artificial system, natural system and phylogenetic.

Artificial system was based on easily recognizable characters was introduced by Theophrastus (Father of Botany) classified plants into trees, shrubs, under shrubs and herbs.

Aristotle (Father of Biology) classified organisms into Anaima and Enaima i.e. organisms without RBCs (Invertebrates) and with RBCs (Vertebrates) respectively.

John Ray coined term species and divided plants into monocots and dicots firstly and wrote the book titled Historia Generalis Plantarum.

Carolus Linnaeus Father of Taxanomy wrote book **Species Plantarum**, was Swedish naturalist, kingdom Plantae and Animalea, introduced **Binomial Nomenclature**, **Systema Naturae** describes his work. His system of classification was artificial system based on morphological character.

Natural System by **Bentham** and **Hooker** in work called **Genera Plantarum**. This system was based on natural relationship between organisms and also includes phylogenetic relations.

In case of phylogenetic system classification was based on evolutionary relationship proposed by **Engler** and **Prantl** who modified the **Eichler** classification of Plant kingdom and Animal Kingdom into many groups

based on morphological, genetical and evolutionary relationship and proposed their work in **Die Naturlichen Pflanzen Familien** in 23 volumes.

Charles Darwin was also supporter of species classification based on **phylogeny**.

The Three Domains of Life: By Carl Woese and George fox includes **Archea, Eubacteria and Eukaryote** which is modification of five kingdom system of classification consist of Monera, into Archea and Eubacteria while remaining four kingdoms of **Whittaker's** five kingdom included in single large kingdom Eukaryotes.

1. Domain **Archea** includes **Archaebacteria** that live in extreme environments and show evolutionary differences in **16S rRNAgenes**.
2. Domain **Bacteria** includes all true bacteria, which are prokaryotes without well-developed nucleus cell organelle.
3. Domain **Eukaryotes** includes Eukaryotic organism with well-organized nucleus includes Protista, Fungi, Plantae and Animalea.

Taxonomy and Systematics:

Taxanomy mainly deals with identifying, naming and classifying organisms. It can be studied in **Nomenclature** i.e. Common name and scientific names and Systematics i.e. placing of organisms.

Here scientific names are based on rules designed by ICBN/ICZN/ICNB and ICVN.

Systematics consists of categories arranged in hierarchy called taxonomic hierarchy or **Linnaean hierarchy**. These are **Kingdom, Phylum, Class, Order, Family, Genus and Species** in descending order of size, **Division** is used in place of plant instead of phylum, Sub division for **subphylum** and **Cohort** instead of **Order** while remaining is alike.

Binomial nomenclature: Was proposed by Linnaeus with Generic name and species name and are written in Latin. It has following rules to be followed;

- Scientific names are in **Latin**
- First word is genus which is capital and second is species which is small letter
- In case of hand written they are underlined while typed should be in **Italics**
- The name of author at the end called **law** of **priority**
- If Original name is changed then **author** name is given priority

Concept of Taxonomic hierarchy:

Species: It is fundamental basic unit of classification; it is group of closely related organism which is capable of interbreeding and producing fertile offspring.

Genus: A group sum of two/three closely related species.

Family: Sum of several genera that share common characters, has suffix **dae** is added to name.

Order: A group of several related families in animals and Cohort in plants. Name ends with **ales**.

Class: Sum of organisms related with orders hence it is group of several related orders.

Phylum: For animals and Division for plants i.e. group of several numbers of classes.

Kingdom: Highest taxonomic rank and is group sum of all different phyla.

Taxonomic Aids:

Museum: Just like showroom, the academic gardens of botany or zoology are also included in this. First public museum was opened in 1683 by university of **Oxford**. **British** Museum in **London**, The**Louvre** in France and **National** Museum in India.

The **Zoo** are place where wild animals live as in their habitat which is artificially controlled mostly by man. The famous in India are **Alipore** Zoological Garden, Kolkata, Arignar Anna Zoological park Vandalur Tamil Nadu and **Mysore** Zoo Karnataka.

Herbarium: It is library or collection or museum of dried and stored plants on sheets for botanical study, Firstly the idea was given by Linnaeus. The first herbarium was credited to **Luca Ghini**, World's largest is Museum **National d'Histoire Naturelle** in Paris, The British Royal **Botanical Garden Kew** and New York Botanical Garden are famous, In India **Central** National Herbarium Kolkata.

Herbarium serves as tool for research, Biodiversity data store, Identification tool and Public outreach. The process of herbarium involve Collection and description, pressing, Preserving then mounting, labeling and Storage and conservation.

Botanical garden is scientific institution that help in plant collection, conservation and made available for education.

Key is a device helps to differentiate plants and animals based on similar and dissimilar features, firstly published by Lamarck with series of statement as **couplet**, the statement are called leads, for plants it includes Flora, **Monographs**, Manuals and Catalogues.

(**Note**: Since this chapter is based on classification issue, students are advised to go through standard references books of state board, NCERT, CBSE or other syllabus for medical entrance. there is immense curiosity to deal ancient names and scientist. Go ahead for MCQ practice. **BEST LUCK!**)

General MCQ's for practice

Living thing, Biodiversity and Classification needs:

1. The universal fact that object to be considered as living thing?
   a) Should be chemical b) Should be alive c) Should increase in size d) None of the above
2. The basic unit of life is?
   a) Tissue b) Cell c) Organs d) Microbes
3. A tissue is organized from?
   a) Bones b) Specialized cell c) Muscles d) Nerves
4. In case if several organs altogether performing function, they build?
   a) Nervous system b) Organs system c) Organism d) Renal system
5. In general sense functionally active system is seen to be in?
   a) Cell b) Tissue system c) Organism d) Multicellularity
6. Which among the following can be vital living character?
   a) Calcium content b) Presence of iron c) Body organization d) Absence of tail
7. Which among the following can be vital living character?
   a) Homeostasis b) Organization c) Both a & b d) Absence of tail
8. Thermoregulation is an example of?
   a) Healthy Individual b) Homeostasis c) Cold Blood d) Rise in temperature
9. The ability to maintain internal environment irrespective of outside condition is?
   a) Healthy Individual b) Homeostasis c) Cold Blood d) Rise in temperature
10. Which among the following can be vital living character?
    a) Homeostasis b) Organization c) Metabolism d) More than one option is correct

11. The one halve of phenomenon like Metabolism use to building up work is?
    a) Catabolism b) Homeostasis c) Anabolism d) Respiration
12. The one halve of phenomenon like Metabolism use to breaking down work is?
    a) Catabolism b) Homeostasis c) Anabolism d) Respiration
13. The phenomenon like Metabolism includes?
    a) Catabolism b) Homeostasis c) Anabolism d) Both a and c
14. The process like catabolism includes processes like?
    a) Respiration b) Digestion c) Excretion d) More than one option is correct
15. The growth like accretion is seen in?
    a) Only living thing b) Only nonliving thing c) Both a and b d) None of all
16. In case of living thing if growth is by cell division it is?
    a) Permanent b) Irreversible c) Both a and b d) None of the above
17. The sequential changes occurred during the life span of organism is?
    a) Catabolism b) Homeostasis c) Development d) Both a and c
18. Which of the following is example of adaptation?
    a) Thermoregulation b) Catabolism c) Anabolism d) Almost all of the above
19. Inability to adjust in prevailing condition will lead to?
    a) Genetic disorder b) Chromosomal damage c) Extinction d) Almost all of the above
20. The ability to give response external stimuli is seen in?
    a) Things like biotic b) Fossils c) Mountains d) Abiotic objects
21. The ability to give response external stimuli is called?
    a) Consciousness b) Adaptation c) Metabolism d) Anabolism
22. A plant like touch me not get shrink when we touch, it is example of?
    a) Consciousness b) Adaptation to touch c) Hydrothermal effect d) None of the above
23. The phenomenon like Apomixis and Amphimixis is seen in?
    a) Humans b) Plant Kingdom c) *E. coli* d) None of the above
24. The life process like asexual reproduction involves the phenomenon like?
    a) Fragmentation b) Budding c) Apomixis d) More than one option is correct
25. Which of the following is/are biotic feature?
    a) Consciousness b) Adaptation c) Accretion d) More than one option is correct
26. Cessation of life is called as?
    a) Rebirth b) Death c) Anniversary d) Recreation
27. Collection or sum total of different life form on earth is called?
    a) Kingdom b) Biodiversity c) Herbarium d) Monograph
28. Five kingdom system proposed by Whittaker is based on?
    a) Complexity of body organization b) Mode of reproduction
    c) Mode of nutrition d) More than one option is correct
29. The term biodiversity was coined firstly by?
    a) Walter b) Rosen c) Both a & b d) Engler and Prantl

30. On an average how many new species are nomenclature and found?
a) Around 15000 b) 1 lac c) 1 carore d) 1.2 million

31. The act of categorization is called as?
a) Hierarchy b) Classification c) Binomial d) Taxa

32. The act of categorization is called as?
a) Systematic b) Classification c) Both a & b d) Niche

33. Expert who specially study classification is refered as?
a) Taxonomist b) Systematist c) Both a & b d) Demologist

34. The scientific study of human population is called?
a) Demography b) Taxonomy c) Systematic d) Biologist

35. Which of the following is highest rank or category?
a) Division b) Phylum c) Kingdom d) Cohort

36. Which of the following is/are kind of classification system?
a) Natural b) Artificial c) Phylogenetic d) More than one option is correct

37. An ancient scientist called as father of botany?
a) Theophrastus b) Aristotle c) Darwin d) Lamarck

38. An ancient scientist called as father of biology?
a) Theophrastus b) Aristotle c) Darwin d) Lamarck

39. The name Enaima is equivalent to?
a) Vertebrates b) Invertebrates c) Mollusc d) Cold blooded

40. The word Anaima is equivalent to?
a) Vertebrates b) Invertebrates c) Mollusc d) Warm blooded

41. The following group considerable with Anaima?
a) Sponges b) Coelenterate c) Arthropoda d) Almost all of the above

42. The following group considerable with Enaima?
a) Egg laying b) Ovipary c) Vivipary d) More than one option is correct

43. Who of the following grouped animals into Anaima and Enaima?
a) Theophrastus b) Aristotle c) Darwin d) Lamarck

44. Who for the first time categorized plants into monocot into dicot?
a) Prantl b) Aristotle c) John Ray d) Lamarck

45. Who wrote the book Historia Generalis Plantarum?
a) Prantl b) Aristotle c) John Ray d) Theophrastus

46. John Ray is associated with?
a) Coined name Species b) Monocot & Dicot group
c) Historia Generalis Plantarum d) Both a b & c

47. Carolus Linnaeus is associated with?
a) Father of taxonomy b) Swedish naturalist
c) Species Plantarum d) Both a b & c

48. An ancient scientist called as father of Taxonomy?
a) Theophrastus b) Linnaeus c) Darwin d) Lamarck

49. Who classified living forms in Plantae and Animalea?
a) Theophrastus b) Linnaeus c) Darwin d) Lamarck

50. Who established binomial nomenclature?
a) Hooker b) Linnaeus c) Darwin d) Engler and Prantl

51. Which of the following book of title published in 1735 by Linnaeus?
a) Systema Naturae b) Historia Generalis Plantarum c) Both a & b d) None of the above

52. Natural system of classification was proposed by?
a) Engler & Prantl b) Aristotle c) Bentham & Hooker d) Theophrastus

53. Who wrote the book Genera Plantarum?
a) Engler & Prantl b) Aristotle c) Bentham & Hooker d) Theophrastus

54. How many volumes of book Genera Plantarum were released?
a) 1 b) 2 c) 3 d) 5

55. In phylogenetic system of classification of Eichler how many divisions were there?
a) 10 b) 24 c) 14 d) 50

56. The monograph named Die Naturlichen Pflanzen Familien was written by?
a) Engler & Prantl b) Aristotle c) Bentham & Hooker d) August Eichler

57. The name Eichler is associated with?
a) Phylogenetic classification b) Die Naturlichen Pflanzen Familien
c) Classification of bacteria to seed plants d) All a, b & c

58. In which year does Origin of Species from Darwin was published?
a) 1802 b) 1882 c) 1859 d) 1849

59. Darwin supported which of the following method of classification?
a) Natural b) Artificial c) Phylogeny d) Almost a, b & c

Domains of Life, Taxonomy, Systematics and Binomial Nomenclature:

60. Who is credited for work like 5 kingdom system of classification?
a) Engler & Prantl b) R. H. Whittaker c) Bentham & Hooker d) August Eichler

61. An organism distinctly living but without any nuclear boundary is/are?
a) Eukaryotes b) Protists c) Monera d) Protozoa

62. An organism distinctly living with nuclear boundary is/are?
a) Eukaryotes b) Protists c) Protozoa d) More than one option is correct

63. Which among the following living cells are more biodiverse?
a) Bacteria b) Plants like Coconut c) Climbers d) Amoeba

64. The method adopted to differentiate between Archea and Eubacteria was?
a) 16s rRNA b) Disinfection c) Staining d) Phenol coefficient

65. Which of the following is separate super kingdom?
a) Archea b) Cyanobacteria c) Anaerobes d) Actinomycetes

66. Who is credited for establishment of 3 domain system of classification?
a) Dr Carl Woese b) George fox c) Both a and b d) Engler & Prantl

67. The member of three domains of life?
a) Archea b) Bacteria & Eukaryotes c) Both a and b d) Kingdom only
68. Which of the following hold true for Super Kingdom Archaea?
a) Live in extreme b) Without true nucleus c) Has different 16s rRNA d) All of the above
69. Which of the following hold true for Super Kingdom Bacteria?
a) Don't bear true nucleus b) Are Eubicutous c) Has high adaptability d) All of the above
70. Which of the following hold true for Super Kingdom Eukaryota?
a) Includes Fungi & Plants b) Has true nucleus c) Includes Protist & Animals d) All of the above
71. The word taxonomy is sum of?
a) Nomenclature b) Systematics c) Organisms proper placing d) Almost a, b & c
72. The names acceptable in regional language since ancient time is/are?
a) Common names b) Vernacular names c) Both a and b d) Italics names
73. The truth about vernacular names includes?
a) Can be confusing & Unscientific b) Are not universal c) Both a and b d) Mostly universal
74. The truth about scientific names includes?
a) Given by taxonomist b) Are universal c) Either italic or Greek d) More than 1 option true
75. International names for plants are under the governance of?
a) ICBN b) ICZN c) ICNB d) ICVN
76. International names for animals are under the governance of?
a) ICBN b) ICZN c) ICNB d) ICVN
77. International names for bacteria are under the governance of?
a) ICBN b) ICZN c) ICNB d) ICVN
78. International names for viruses are under the governance of?
a) ICBN b) ICZN c) ICNB d) ICVN
79. The codes of names are updated on time to time by international congresses of?
a) Botany b) Zoology c) Both a and b d) It is not universal aspect
80. In systematic the placing of organisms based on?
a) Niche b) Deme c) Categories d) All a, b & c
81. Which of the following is largest group in Systematics?
a) Division b) Kingdom c) Cohort d) Family
82. Which of the following is phylum in case of plant systematic?
a) Division b) Rank c) Category d) Cohort
83. Which of the following is order in case of plant systematic?
a) Subdivision b) Rank c) Category d) Cohort
84. Which is truth about Binomial Nomenclature?
a) Single Latin names b) Genus in small letter c) Two name system d) All of the above
85. Law of Priority is given to?
a) Authors name b) Species name c) Genus name d) Cohort

86. Scientific names are underlined under circumstances if they are?
a) Hand written b) Confusing c) Local language d) In Italics

87. Scientific names are Italics under circumstances if they are?
a) Hand written b) Confusing c) Typed d) Novel

88. If original name is changed then what is considered?
a) Authors name b) Novel name c) Local name d) Kept aside from classification

89. Which of the following is permanently starts with small letter?
a) Authors name b) Species name c) Both a & b d) Genus name

90. Which of the following is permanently starts with capital letter?
a) Cohort name b) Species name c) Both a & b d) Genus name

91. According to binomial nomenclature the group of closely related organism with interbreeding is/are?
a) Authors b) Species c) Both a & b d) Genus

92. Which of the following are capable of trinomial names?
a) More common names b) Has distinct features c) Ancient only d) Neither a nor a & b

93. Which can be part of species?
a) Sub species b) Races c) Varities & Sub-varities d) Almost all of the above

94. Which of the following is/are different species?
a) Donkey and Horse b) Cat & Mouse c) Tiger & deer d) Almost in all above cases

95. A taxonomic rank next to species in ascending order is?
a) Cohort b) Genus c) Phylum d) Subdivision

96. A group of two/three closely related species forms?
a) Cohort b) Genus c) Family d) Subdivision

97. Which of the species of genus *Ficus*?
a) Pipal b) Rubber c) Banyan d) Any the above

98. Suffix dae ends with names of?
a) Cohort b) Genus c) Family d) Subdivision

99. In case of plants family name ends with?
a) Dae b) Die c) eae d) None of the above

100. A group of several related families of plants included in single?
a) Cohort b) Genus c) Species d) Phylum

101. A group of related orders is/are?
a) Class b) Genus c) Species d) Phylum

102. A cluster of different classes with few common characters is?
a) Phylum in animals b) Division in plants c) Both a and b d) Cohort in arthropods

103. The term taxon was firstly introduced by?
a) John Ray b) Hooker c) ICBN d) Both a and b

104. Which of the following is/are facts associated with concept of Kingdom?
a) 2nd highest category b) 1st rank c) Both a and b d) Consist of different subphyla

105. The categories used by Linnaeus were?
a) Phyla & Kingdom b) Class, order & Family c) Genus & Species d) All a, b & c

Tools for Study of Taxonomy:

106. The role of taxonomic aids is/are?
a) Storing specimen b) Preserving specimen c) Helping study of object d) All a, b & c
107. Select the beneficiary of taxonomic aids?
a) Agriculture b) Forestry c) Food & Pharmaceuticals d) More than 1 option is correct
108. Select the object that can be exhibited in museum?
a) Historic b) Artistic c) Scientific d) Any of the above
109. The first public museum was established by university of?
a) Oxford b) Cambridge c) Columbia d) Goa
110. The first public museum was established in year of?
a) 1983 b) 1683 c) 1783 d) 1663
111. The British Museum is located in?
a) London b) Paris c) New York d) Japan
112. The Louvre Museum is located in?
a) Germany b) Paris c) New York d) Japan
113. The museum in new Delhi is?
a) The Louvre b) The British Museum c) National Museum d) None of the above
114. Which among the following are considered as 'Honest information broker'?
a) Zoos b) Museum c) Herbarium d) All of the above
115. The functions associated with institutes like Museum includes?
a) Preserving organism b) Serve as tool of research venue
c) Serves as visual records of past d) All of the above
116. What will be the consequence if museum does not exist?
a) Good for education b) Increase in positivity for future
c) New generation will observe organisms only in photos or books d) All of the above
117. The place where wild animals live in captivity?
a) Zoos b) Museum c) Herbarium d) Permanent slides
118. The functionality associated with zoo include?
a) Garden or park b) An area resemble wild c) Both a & b d) Neither a nor b
119. Alipore National Garden is located in?
a) Vandalur b) Kolkata c) Vishakhapatnam d) Mysore
120. Arignar Anna Zoological park is located in?
a) Vandalur b) Kolkata c) Vishakhapatnam d) Mysore
121. Indira Gandhi Zoological Park is located in?
a) Vandalur b) Kolkata c) Vishakhapatnam d) Mysore
122. On international level which organization regulates trade in wildlife species?
a) CITES b) ICBN c) ICNV d) IUPAC
123. What is the functionality of zoo?
a) Entertainment source b) Conservation aid c) Collecting endangered d) All of the above

124. What is the functionality of zoo?
a) Education tool b) Captive Breeding c) Collecting endangered d) All of the above
125. The modern zoo can serve as?
a) Bioparks b) Living laboratory c) Both a & b d) Hot spots
126. An herbarium serves as?
a) Dry leaf museum b) Specimen library c) Source of pressed plants d) Both a, b & c
127. Information associated with pressed herbarium is?
a) Date & place of collection b) Latin & Local names c) Collectors name d) Both a, b & c
128. The creative idea such as mounting specimen on single sheet and storing them in drawers was initiated by?
a) Linnaeus b) Luca Ghini c) John Ray d) Leeuwenhoek
129. The first herbarium is credited to?
a) Linnaeus b) Luca Ghini c) John Ray d) Aristotle
130. The world's largest herbarium is located in?
a) London b) Paris c) New York d) Kew
131. The British Royal Botanical Garden is located in?
a) London b) Paris c) New York d) Kew
132. The world's largest herbarium is?
a) British Royal Botanical Garden b) Museum National d'Histoire Naturelle
c) New York Botanical Garden d) Central National Herbarium
133. The world's largest herbarium consist of collection of?
a) 9.8 Million b) 9.9 Million c) 8.9 Million d) 9.7 Million
134. Which of the following herbarium is located in India?
a) British Royal Botanical Garden b) Museum National d'Histoire Naturelle
c) New York Botanical Garden d) Central National Herbarium
135. The India's largest herbarium consist of collection of?
a) 9.2 Million b) 9 Million c) 2 Million d) 9.7 Million
136. The herbarium on large scale serves as?
a) Databank b) Taxonomic research tool c) Tool for horticulture d) All of the above
137. The herbarium on practical scale serves as?
a) Databank b) Education & research tool c) Guide for agriculture & Farmer d) All of the above
138. The first step in making herbarium is?
a) Collection b) Pressing at location c) Mounting d) Labeling
139. What is the last stage of making herbarium?
a) Conservation at low temperature b) Preservation c) Mounting d) Labeling
140. The labeling of herbarium consist of?
a) Rectangular label of 10–15 cm b) Collector information
c) Family, habitat & collection number d) All of the above
141. In case of herbarium storage, the fragment packet is for?
a) To hold seed b) To hold extra flower c) Both a & b d) Accident remedy

142. Which of the following is common pest?
a) Tobacco beetles/Cigarette b) Book lice c) Silverfish d) More than one option is correct
143. The protocol for conservation of herbarium include?
a) Sealed after final drying b) Freeze c) Applied pest control d) All above with comfort
144. Who is credited for establishing Botanical garden at Pisa?
a) Linnaeus b) Luca Ghini c) John Ray d) Aristotle
145. An arboretum is?
a) Botanical garden of wood plants b) Plant store c) Both a & b d) Research machine
146. A taxonomical aid for identifying plants & animals based on same feature or differences?
a) Herbarium b) Key c) Recreation d) Mount
147. The concept of key publication goes to?
a) Linnaeus b) Lamarck c) John Ray d) Aristotle
148. The series paired statement in key is called?
a) Couplet b) Leads c) Cohort d) Both a & b
149. The statement in key is called?
a) Couplet b) Leads c) Cohort d) Both a & b
150. The nature of botanical keys is generally?
a) Phylogenetic b) Evolutionary c) Analytical d) Ambiguous
151. Which is/are can be considered as botanical keys?
a) Flora & Monograph b) Manuals & Catalogues c) Both a & b d) Species & Genus
152. A plant species present in particular geographical area serving as Key is called?
a) Flora b) Manuals c) Monograph d) Catalogues
153. A book with all known species of particular genus serving as Key is called?
a) Flora b) Manuals c) Monograph d) Catalogues
154. The records helping to identify names of species in habitat and serving as Key is called?
a) Flora b) Manuals c) Monograph d) Catalogues
155. Records containing knowledge about studied organism, genera or family & serving as Key is called?
a) Flora b) Manuals c) Catalogues d) Monograph

Questions previously asked in AIPMT:

156. Which one of the following aspect is an exclusive characteristic of living thing?
a) Isolated metabolic reaction occur in vitro b) Increase in mass from inside only
c) Perception of event happening in the environment and their memory
d) Increase in mass by accumulation of material both on surface as well as internally
157. Archaebacteria differ from Eubacteria in?
a) Cell membrane structure b) Mode of nutrition c) Cell shape d) Mode reproduction
158. Which of the following shows isogamy with non-flagellated gametes?
a) Sargassum b) Ectocarpus c) Ulothrix d) Spirogyra
159. Five kingdom system proposed by Whittaker is not based on?
a) Presence or absence of true nucleus b) Mode of reproduction
c) Mode of nutrition d) Complexity of body organization

Answer keys to general MCQ:

1 b	2 b	3 b	4 b	5 c	6 c	7 c	8 b	9 b	10 d	11 c	12 a	13 d	14 d
15 c	16 c	17 c	18 a	19 c	20 a	21 a	22 a	23 b	24 d	25 d	26 b	27 b	28 d
29 c	30 a	31 b	32 c	33 c	34 a	35 c	36 d	37 a	38 b	39 a	40 b	41 d	42 d
43 b	44 c	45 c	46 d	47 d	48 d	49 b	50 b	51 a	52 c	53 c	54 c	55 c	56 d
57 d	58 c	59 c	60 b	61 c	62 d	63 a	64 a	65 a	66 c	67 c	68 d	69 d	70 d
71 d	72 c	73 c	74 d	75 a	76 b	77 c	78 d	79 c	80 c	81 b	82 a	83 d	84 c
85 a	86 a	87 c	88 a	89 b	90 d	91 b	92 b	93 d	94 d	95 b	96 b	97 d	98 c
99 c	100 a	101 a	102 c	103 c	104 b	105 d	106 d	107 d	108 d	109 a	110 b	111 a	112 b
113 c	114 b	115 d	116 c	117 a	118 c	119 b	120 a	121 c	122 a	123 d	124 d	125 c	126 d
127 d	128 a	129 b	130 b	131 d	132 b	133 c	134 d	135 c	136 d	137 d	138 a	139 a	140 d
141 c	142 d	143 d	144 b	145 c	146 b	147 b	148 a	149 b	150 c	151 c	152 a	153 c	154 b
155 c	156 c	157 a	158 d	159 a									

(**NOTE:** Dear students if you have solved **146+** correct questions from **MCQ's** then go for **JAHAR Q** question. Please go through reading of best subjective matter from your institutional books, Text books, notes and standard reference books of applied biology, NCERT, CBSE or State board before solving questions, so **BEST LUCK!**)

Justification/Assertion/Hypothesis/Authentic Reasoning-Questions = (JAHAR-Q)

1. Hypothesis: "Certain abiotic things can also show growth, increase in size or may consist of biological chemicals."

   Justification: The above hypothesis is scientific as we can grow any living thing in test tube.

   a) Both Hypothesis and Justification are correct

   b) Both Hypothesis and Justification are wrong

   c) Hypothesis is correct but Justification is ambiguous and not based on hypothesis

   d) Both Hypothesis and Justification are non authentic and baseless facts

2. Hypothesis: "Mammals showing character like thermoregulation is absent in cold blooded animals but still both are definite living things."

   Justification: The presence or absence of any character may be limited to particular class or subclass but the feature like adaptation is definitely a living thing character.

   a) Hypothesis is correct but Justification is fictional facts

   b) Both Hypothesis and Justification are correct, justification complete the hypothesis

   c) Hypothesis is scientific approach but Justification is incorrect answer

   d) Both Hypothesis and Justification are non authentic facts

3. Assertion: "A universal fact that abiotic objects of ecosystem are devoid of features like response, homeostasis, anabolism etc but can grow in size or body mass."

   Authentic Reasoning: True, because the above said features belong to biotic objects of ecosystem and fact like grow in size can be seen in sand dunes or water level where after additional deposition, the size rises.

   a) Both Assertion and Authentic Reasoning are correct

   b) Both Assertion and Authentic Reasoning are wrong

   c) Both Assertion and Authentic Reasoning are correct, are not interrelated

   d) Assertion is incorrect but Authentic Reasoning is correct

4. Hypothesis: "In three domain system of classification the two domains belongs to microscopic life where as for all visible organism only one domain was included."

Justification: Since all bacteria are microscopic and eukaryotes with true nucleus are larger in size Carl Woese showed soft corner towards microscopic life.

a) Both Justification and Hypothesis are correct

b) Both Justification and Hypothesis are correct but hypothesis is not based on Justification

c) Justification is unscientific and unclear but Hypothesis is authentic

d) Both Justification and Hypothesis are correct but Justification is not related to hypothesis

5. Hypothesis: "The taxonomic aids like herbarium or museum cannot show new research and discoveries happening."

Justification: Because if new research is kept at such places it will raise the issue of copy right.

a) Both Hypothesis and Justification are unauthentic and baseless

b) Both Hypothesis and Justification are correct but justification is not based on hypothesis

c) Hypothesis is correct statement but Justification is wrong

d) Both Hypothesis and Justification are authentic facts

6. Hypothesis: "The modern zoo functions as living laboratory."

Justification: Since it functions as proper medium to teach whole ecosystem and boost knowledge of society towards overlooked facts like biological conservation, they serve as Bioparks.

a) Both Hypothesis and Justification are correct and justification is based on hypothesis

b) Both Hypothesis and Justification are incorrect

c) Hypothesis is scientific but Justification is wrong

d) Both Hypothesis and Justification are fictionary facts may have some possibility

7. Hypothesis: "Certain taxonomic aids like museum are serving as 'honest information broker' by presenting authentic knowledge to visitor and also as a good academic tool."

Justification: Such things are non-legal and such places should be banned from public outreach.

a) Both Hypothesis and Justification are correct but justification is not based on hypothesis

b) Both Hypothesis and Justification are correct and Justification is based on hypothesis

c) Hypothesis is correct but Justification is wrong

d) Both Hypothesis and Justification are fictionary facts

8. Assertion: "Taxonomic aids like dried plant systematically preserved on sheets for long term botanical studies serve as excellent educational tool."

Authentic Reasoning:

Because-i. Because herbarium like in Paris consist of as many as 8.9 million sophisticated dried old plants with accurate information and classification.

ii. Such vast collection store serve as databank and pictorial databank for scientific study, Role in endangered analysis and gives idea about species conservation for research scholars.

a) Both Assertion and Authentic Reasoning i & ii are correct

b) Only Assertion is correct

c) Both Assertion and Authentic Reasoning are correct but are not correlated

d) Assertion and authentic reason i is correct

9. Assertion: "The five kingdom system of Whittaker consist of two domains of life in Monera what Carl Woese made classification of life into three domains."

Authentic Reasoning:

Because-i. It is almost true fact because these two scientists are contemporaries.

ii. This assertion does not hold true as basis of classification is different in both system of classification as former uses general characteristics while later based on 16s r RNA analysis.

a) Both Assertion and Authentic Reasoning i & ii are correct

b) Only Assertion is correct

c) Both Assertion and Authentic Reasoning are correct but are not correlated

d) Assertion and authentic reason ii are correct

10. Assertion: "Both Archea and Eubacteria are prokaryotic yet both are given status of super kingdom."

Authentic Reasoning:

Because-i. Although the nuclear boundary is absent in both kind of organisms but vast differences in cell wall and cell membrane exist among themselves.

ii. On phylogenetic scale 16s rRNA content is most preserved on evolutionary scale which has shown remarkable differences in both kingdoms hence their separate categorization is likely.

a) Both Assertion and Authentic Reasoning i & ii are correct

b) Only Assertion is correct

c) Both Assertion and Authentic Reasoning are correct but are not correlated

d) Assertion and authentic reason i is correct

Answers to JAHAR Q

1 c 2 b 3 a 4 c 5 c 6 a 7 c 8 a 9 d 10 a

(NOTE: Dear CET aspirants if you have solved correctly from **JAHAR Q** then only go for **HI BE Q**. So **Best luck!**)

High Impact Brain Exercise Questions HI-BE

1. Select the authentic facts about living being?

i. Governmental policies are based for goodliness of living things only

ii. Immunological memory is absent in abiotic constituents of ecosystem

iii. Population explosion also affects existence and role of non-living things also

iv. Specialized NGO work for protection of non-living monuments too

a) All above are correct b) Only ii and iv are authentic

c) Only i is incorrect d) Only i, ii and iii are correct

2. Among the following facts to be included in living things is/are?

i. Infrastructure in body system to give response to external stimuli

ii. Multicellularity is unique feature of eukaryotic objects

iii. Biotic component of ecology show act of body building up and breaking down

iv. Ecosystem completes only when biotic and abiotic component are present

v. Abiotic like sunlight or air serves as indispensible part of biotic ingredients of ecology

a) All above are correct b) Only i, ii and v are authentic

c) Only iii and v are correct d) Only i, ii and iii, v are correct

3. Select from the following statements authentic for biodiversity analysis?

i. Approximately it is sum of all living forms

ii. Firstly coined by Walter and Rosen in 1985
iii. Every year several thausands new species are to existing biodiversity
iv. More the increase in endangered and extinction of species more diverse become biodiversity
v. Terrestrial organisms make major constituents of biodiversity
vi. Aquatic organisms make major constituents of biodiversity

a) All above are correct
b) All above are incorrect
c) Only ii, iii and v are correct
d) Only ii, iii & v are correct

4. Select from following correct statements about "Need of Classification"?
i. Classification of organism aids in scientific and research work
ii. Scholars associated with classification work called taxonomist or Systematist
iii. Names associated with artificial system includes John Ray, Walter and Rosen
iv. John Ray was first person to be credited for classifying animals into monocot and dicots
v. Human population was slightly lesser than 6 billion during year 1900 Census
vi. In artificial system Anaima includes organisms with RBCs

a) All above are incorrect except point i and ii
b) Only i, ii and v are authentic
c) Only iii and vi are correct
d) Only ii, iii, and iv are correct

5. Select from following correct statements about "Classification" analysis?
i. John Ray described more than 18000 microbes in his book Historia Generalis Plantarum
ii. Carolus Linnaeus is father of taxonomy
iii. Theophrastus is credited as father of biology
iv. Aristotle is credited as father of botany

a) All above are correct except i
b) Onlyii are authentic
c) Only ii, iii and iv are correct
d) Only i and iv are correct

6. Select from the following statements authentic for artificial classification system analysis?
i. Carolus Linnaeus is father of taxonomy and classified life into kingdom Plantae and Animalia
ii. Carolus Linnaeus established non universal system of Binomial nomenclature.
iii. He considered morphological features into consideration
iv. Divergent organisms were also placed in same group in this system
v. John Ray published his work in Systema Naturae
vi. Aristotle classified plants into Anaima and Enaima

a) All above are authentic
b) Only i, iii and iv are authentic
c) Only iv, v and vi are authentic
d) Only i, ii, iii, v and vi are authentic

7. Select from following authentic facts regarding Natural and Phylogenetic classification system analysis?
i. Bentham and Hooker proposed the natural system of classification
ii. Engler and Prantl proposed phylogenetic system of classification
iii. Darwin though being naturalist was supporter of phylogenic classification system
iv. Eichler grouped organisms on the basis of morphology genetic and evolutionary analysis
v. The major limitation of phylogenetic system is based on fossils which are never complete
vi. All the three volumes of Genera Plantarum were based natural system of classification

a) All above are correct
b) Only ii is unauthentic
c) All above are incorrect except i, ii, v & vi
d) Only i, ii and iv are correct

8. Select the authentic facts from the following for "Three Domains of Life" in Taxonomy?
   i. The classification is based on 16s mRNA analysis
   ii. Archaebacteria is extreme organisms with ancient and photosynthetic characters
   iii. Archaebacteria posse's nuclear boundary
   iv. The five kingdoms of Whittaker include Monera, Eukarya, Prokarya, Archea and Eubacteria.
   a) All above are incorrect
   b) Only ii, iii and iv are correct
   c) Only i is correct
   d) Only iii and iv are incorrect

9. Select the authentic facts from the following for "Three Domains of Life" in Taxonomy?
   i. Archea belongs to super kingdom in three domains of life and are unique extreme organisms
   ii. Domain bacteria are without true nucleus and almost present everywhere
   iii. Domain Eukaryota is some of Protista, Fungi, Plantae and Animalia
   iv. Carl Woese used the idea 16s rRNA analysis as it is most conserved on evolutionary scale
   a) All above are correct
   b) Only ii and iv are authentic
   c) Only ii is correct
   d) Only i and iii are correct

10. Select the authentic facts for "Taxonomy" analysis?
   i. Number of names: Generic name and Species name
   ii. Rules for plant & animal from: ICBN & ICZN respectively
   iii. Language used: Latin or Greek as universal language
   iv. Law of Priority: Authors name
   a) All above are correct
   b) Only iii and iv are authentic
   c) Only ii is correct
   d) Only i and iii are correct

11. Select the authentic facts for "Binomial Nomenclature" analysis?
   i. Established by: John Ray
   ii. Codes for bacteria and viruses from: ICVN & ACBN respectively
   iii. Generic name: Comes first and always start with capital letter
   iv. Species name: Always start with smaller letter and is written before generic name
   a) All above are incorrect
   b) Only i, ii and iv are unauthentic
   c) Only ii is correct
   d) Only i and iii are correct

12. Match the pairs

Coloumn A	Coloumn B
A John Ray	I Concept of Anaima and Enaima
B Carl Woese	II Coined term Biodiversity
C Aristotle	III Historia Generalis Plantarum
D Walter & Rosen	IV 16s rRNA

a) A-III, B-IV, C-II, D-I
b) A-I, B-IV, C-II, D-III
c) A-III, B-IV, C-I, D-II
d) A-II, B-IV, C-I, D-III

13. Match the pairs

Coloumn A	Coloumn B
A Theophrastus	I Origin of Species
B Bentham Hooker	II Die Naturlichen Pflanzen Familien
C Eichler	III Historia Plantarum
D Darwin	IV Genera Plantarum

a) A-III, B-IV, C-II, D-I b) A-II, B-IV, C-III, D-I
c) A-III, B-IV, C-I, D-III d) A-II, B-IV, C-I, D-III

14. Match the pairs

Coloumn A	Coloumn B
A Archea	I Universal
B Prokaryota	II Virus
C Vernacular names	III Hindi language
D Scientific names	IV Primitive nucleus

a) A-III, B-IV, C-II, D-I b) A-II, B-IV, C-III, D-I
c) A-III, B-IV, C-I, D-II d) A-II, B-IV, C-I, D-III

15. Match the pairs

Coloumn A	Coloumn B
A ICVN	I Bacteria
B ICBN	II Viruses
C ICNB	III Animals
D ICZN	IV Plants

a) A-III, B-IV, C-II, D-I b) A-II, B-IV, C-III, D-I
c) A-III, B-IV, C-I, D-II d) A-II, B-IV, C-I, D-III

16. Match the pairs

Coloumn A	Coloumn B
A Cohort	I *bengalensis*
B Division	II Order
C Kingdom	III Animalia
D Species	IV Phylum

a) A-III, B-IV, C-II, D-I b) A-II, B-IV, C-III, D-I
c) A-III, B-IV, C-I, D-II d) A-II, B-IV, C-I, D-III

17. Match the pairs

Coloumn A	Coloumn B
A Genus	I Primates
B Class	II Homo
C Order	III Hominidae
D Family	IV Mammalia

a) A-III, B-IV, C-II, D-I b) A-II, B-IV, C-III, D-I
c) A-III, B-IV, C-I, D-II d) A-II, B-IV, C-I, D-III

18. Select the facts true from following for "Taxonomical hierarchy" analysis?
    i. Family: Suffix eae for plants and dae for animals written after species name
    ii. Order: A group of several related families
    iii. Cohort: Used as Order for Vertebrates
    iv. Kingdom: A group which includes all different phyla
    a) All above are correct
    b) Only i, iii and iv are authentic
    c) Only ii & iv is correct
    d) Only i and iii are correct
19. Select the authentic facts for "Taxonomical Aids"?
    i. Bioparks: Living laboratories
    ii. Herbarium: Databank
    iii. Arboretum: Woody plants animal garden
    iv. Luca Ghini: Botanical Garden Pisa
    a) All above are correct
    b) Only I, ii & iv are authentic
    c) Only ii is correct
    d) Only i and iii are correct
20. Select the authentic facts for "Living world" analysis for taxonomic aids?
    i. A botanical garden is scientific institution
    ii. Keys includes flora, Monograph, Manuals and Catalogues
    iii.Couplet are used in Herbarium
    iv. Museum, Zoo and Herbarium are excellent information center for taxonomic and research help
    a) All above are correct except iii
    b) Only i, ii and iv are authentic
    c) Only ii is correct
    d) Only i and iii are correct

Answers to HI BE

1 c 2 a 3 c 4 a 5 b 6 b 7 a 8 a 9 a 10 a 11 b 12 c 13 a 14 b
15 d 16 b 17 d 18 c 19 b 20 b

(NOTE: Dear students if you have solved **17+** correct questions from **HI BE Q** then only move for next chapter otherwise it will be conceptual mistake in understanding basics. **Best luck!**)