Cheat Sheet

Chapter 26 Questions

1. **What is *Ophisaurus apodus*?**
2. **What is phylogeny?**
3. **What is systematics?**
4. **What is taxonomy?**
5. **What is binomial and who implemented it?**
6. **What are the scientific names of jaguars, leopards, lions, and tigers?**
7. **How does the Linnaean system work (order of classification)?**
8. **What is a taxon?**
9. **What is the family of pines and firs?**
10. **What is a phylogenetic tree?**
11. **What is a dichotomy?**
12. **What are sister taxa?**
13. **What does it mean for a phylogenetic tree to be rooted?**
14. **What is a basal taxon?**
15. **What molecular homoplasies?**
16. **What is cladistics?**
17. **What are clades?**
18. **What are monophyletic, paraphyletic, and polyphyletic taxons?**
19. **What is a shared ancestral character?**
20. **What is a shared derived character?**
21. **What is an outgroup and ingroup?**
22. **What is the principle of maximum parsimony?**
23. **What is the maximum likelihood approach?**
24. **What is phylogenetic bracketing?**
25. **From what did birds descend?**
26. **What genetic info is used to investigate relationships between taxa that diverged hundreds of millions of years ago? What about taxons that diverged recently?**
27. **What are orthologous and paralogous genes?**
28. **What is a molecular clock?**
29. **What is the most widespread human strain of HIV?**
30. **What is horizontal gene transfer?**

Chapter 26 Answers

1. Legless lizard (European glass lizard)
2. The evolutionary history of a species or group of species
3. A discipline focused on classifying organisms and determining their evolutionary relationships
4. How organisms are named and classified
5. TWo-part format of the scientific name by Carolus LInnaeus. First part is the name of genus, second (called specific epithet) is unique for each species
6. Panthera onca, pardus, leo, tigris
7. Domains, kingdoms, phyla, classes, orders, families, genera, species (dumb kids playing catch on freeways get smashed)
8. The named taxonomic unit (e.g. *Panthera* is a taxon at genus level)
9. Pinaceae
10. Branching diagram that represents the evolutionary history of a group of organisms
11. Two way branch point (represents common ancestor of the two lineages coming from it)
12. Groups of organisms that share an immediate common ancestor not shared by any other group
13. A branch point within the tree represents the most recent common ancestor of all taxa in the tree
14. A lineage that diverges from all other members of its group early in the history of group
15. Coincidental matches in DNA sequences
16. Approach to systematics where common ancestry is the primary criterion to classify organisms
17. Groups that include an ancestral species and all of its descendants.
18. Consists of ancestral species and all of descendants
    Consists of ancestral species and some of its descendants (but not all)
    Includes distantly related species but does not include most recent common ancestor
19. a character that originated in an ancestor of the taxon
20. An evolutionary novelty unique to a clade
21. species/group of species that is closely related to but not part of the group of species that is being studied

    Group of species being studied
22. We should first investigate the simplest explanation that is consistent with the facts (called “Occam’s razor”)
23. Identifies the tree most likely to have produced a given set of DNA data
24. Predicting that features shared by two groups of closely related organisms are present in their common ancestor and all of its descendants
25. Theropods (bipedal saurischian dinosaurs)
26. rRNA because it changes slowly
    mtDNA because evolves rapidly

27. Homology between genes is result of speciation event
    Homology results from gene duplication (copies diverge from each other within species)
28. Approach for measuring the absolute time of evolutionary change based on the observation that some genes and other regions of genomes appear to evolve at constant rate
29. HIV-1 M
30. Process in which genes are transferred from one genome to another