UNIT B REVIEW QUESTIONS

CHECK YOUR UNDERSTANDING OF CONCEPTS:

The first FOUR questions refer to the following name for a vine maple tree:

Acer circinatum

1. The name as it is written is
   A. correct.
   B. incorrect; it should be underlined.
   C. incorrect; both words should be capitalized.
   D. incorrect; neither word should be capitalized.

2. The biological name of vine maple is
   A. *Acer.*
   B. *circinatum.*
   C. *Acer circinatum.*
   D. none of the above.

3. The genus name for vine maple is
   A. *Acer.*
   B. *circinatum.*
   C. *Acer circinatum.*
   D. none of the above.

4. The species name for vine maple is
   A. *Acer.*
   B. *circinatum.*
   C. *Acer circinatum.*
   D. none of the above.

5. The two-word naming system used in biology is called
   A. taxonomy.
   B. dichotomy.
   C. binomial taxonomy.
   D. binomial nomenclature.

6. Biologists who classify organisms are
   A. taxologists.
   B. taxonomists.
   C. taxidermists.
   D. taxorganists.

7. All taxons more general than "species" are
   A. written in italics.
   B. based on structure.
   C. biologically useless.
   D. determined by biologists.

8. Horses and zebras are not members of the same species because they
   A. do not interbreed.
   B. are different sizes.
   C. eat different foods
   D. have different markings.

9. Members of the same species
   A. are in the same genus.
   B. live in the same location.
   C. have equal survival chances.
   D. are all the same colour and shape.

10. To determine if two populations of birds living on different islands are members of the same species, one must consider
    A. physical similarity.
    B. embryological similarity.
    C. environmental requirement.
    D. mutual reproductive capability.

11. Which sequence of taxa is correct?
    A. species, genus, family, class, order, phylum, kingdom
    B. genus, class, order, kingdom, phylum, species, family
    C. class, genus, family, species, order, phylum, kingdom
    D. species, genus, family, order, class, phylum, kingdom

12. The taxon most clearly defined by natural biological barriers is
    A. class.
    B. genus.
    C. species.
    D. phylum.

13. The third smallest taxon is
    A. class.
    B. order.
    C. family.
    D. phylum.

14. The taxon that includes the others listed is
    A. class.
    B. order.
    C. genus.
    D. phylum.

15. Homologous structures have
    A. the same type of tissues and the same functions.
    B. different types of tissues and may have different functions.
    C. different types of tissues but may have the same functions.
    D. the same types of tissues, but may have different functions.

16. Embryos of different animals appear similar during various stages of their development. This suggests they are
    A. evolving.
    B. mutating.
    C. genetically related.
    D. analogous to each other.

17. A mushroom is a fungus. What do you know to be true of mushrooms?
    A. unicellular and eukaryotic.
    B. unicellular and prokaryotic.
    C. multicellular and eukaryotic.
    D. multicellular and prokaryotic.

18. Unlike a plant, a photosynthetic protist
    A. is unicellular.
    B. has a nucleus.
    C. uses mitochondria.
    D. does not contain chloroplasts.

19. Nucleated unicellular organisms with cilia are probably
    A. ingestive protists.
    B. absorptive protists.
    C. prokaryotic protists.
    D. photosynthetic protists.

20. Which set of criteria is generally used to classify organisms into kingdoms?
    A. size and colouration.
    B. habitat and adaptations.
    C. structures and mode of nutrition.
    D. social and reproductive behaviours.

BUILD YOUR UNDERSTANDING:

1. Summarize the guidelines for correctly writing biological names.
2. Use taxonomy to explain that a dog and a cat are more biologically related to each other than a human is related to either one.
3. Horses and donkeys can interbreed and have offspring, yet are considered to be members of separate species. Explain.
4. (Research) Cats and rabbits are both mammals. Does the genetic hybrid called a "cabbit" really exist?

UNIT B REVIEW QUESTIONS

CHECK YOUR UNDERSTANDING OF CONCEPTS:

1. A	5. D	9. A	13. C	17. C
2. C	6. B	10. D	14. D	18. A
3. A	7. D	11. D	15. D	19. A
4. B	8. A	12. C	16. C	20. C

UNIT B - TAXONOMY

B-1. CONCEPT CHECK-UP QUESTIONS

1. Taxonomy is the classification of organisms.
2. A dog's scientific name is *Canis familiaris*. *Canis* is the Genus name and *familiaris* is the species name. when these names are correctly written, the genus name is capitalized and the species name is not. Also the name is printed in italics or underlined to set it apart from the rest of the text.
3. There are several advantages to using Latin names in taxonomy as follows:
   a. Latin is the mother language of many modern-day languages, including English. This gives taxonomic names a certain familiarity (as opposed to languages that don't even use the same alphabet!). As a result, Latin is almost understandable in many countries where the language has Latin origins.
   b. Latin was used hundreds of years ago as the "language of science". To even suggest using another language would be ludicrous as thousands and thousands of organisms have been named and classified using Latin for hundreds of years.
   c. Latin is a language that is not spoken any more – so it is not an evolving language. In contrast, English has undergone many dialect and vocabulary changes in the past several hundred years.
4. a. Fewer. A taxon includes all the members of its subordinate taxons. In this case, "order" is subordinate to "class". A dog belongs to Class Mammalia along with all the other mammals. It is a member of Order Carnivora, which includes only those mammals with pronounced canine teeth such as cats, bears, and seals.
   b. Families, because "family" is the more subordinate taxon. Many families can belong to the same order.
5. a. evolution = a change in the physical characteristics of a species over a long period of time; consideration of these changes is important in taxonomy as taxonomy uses the physical characteristics as criteria for classification
   b. biochemistry = the study of the chemistry of living organisms; an understanding of the DNA of organisms helps one classify them as the more similar the DNA between organisms, the more closely they are related biologically
   c. embryology = the study of embryos; similarities among embryos of different species suggests a certain degree of relatedness
   d. homology = the study of homologous structures; anatomically corresponding structures that are structurally diverse suggest a certain degree of relatedness

B-2. CONCEPT CHECK-UP QUESTIONS

1. Prokaryotic cells lack membranous structures in their cytoplasm such as a nucleus, and many other organelles (though they have ribosomes, which are non-membranous). Eukaryotic cells have membranous organelles.
2. Organisms get nutrients by:
   a. ingestion (eating) – such as we do. Predators and most parasites get nutrients this way.
   b. photosynthesis – plants, some protists and some bacteria
   c. absorption – fungi and some protists

   [There is a fourth, much rarer method, namely chemosynthesis, which is a strategy used by some Bacteria.]