

## Key for Lecture Quiz #4

1. Define:

**Halophile** – Halophiles are organisms that grow best in high salt environments and range from extreme halophiles like *Halobacterium* (that inhabit salt precipitating sections of San Francisco Bay) to organisms capable of living on human skin surfaces (like *Staphylococcus*).

**Leghemoglobin** – Leghemoglobin is a red-colored, oxygen-absorbing protein made by plants called legumes (peas, beans, alfalfa, clover, vetch, etc.) within nodules on their roots. The root nodules support the growth of bacteria in the genus *Rhizobium*, and these fix nitrogen (take  $N_2$  from the air and make nitrogen available in a form plants can use). Leghemoglobin is believed to assist the *Rhizobium* in part by making oxygen more readily available to them, and in part by improving their ability to fix nitrogen.

**Mycology** – Mycology is the science or study of fungi and is derived from the root word Mykes meaning mushroom. People studying fungi were initially looking at macroscopic forms in order to know which were safe to eat, which caused hallucination, and which were toxic.

2. Serological

3. Nucleic acids (DNA and RNA)

4. Symbiosis

5. Archaea/ The cell membranes of Archaea contain lipids unlike those found within bacteria or eukaryotic cells, e.g., their glycerol molecules are mirror images of those found in other cells, and connect with lipid “tails” through ether linkages rather than ester linkages. The lipid “tails” in Archaeal membranes often have isoprenoid sidechains and sometimes carry cyclopropane or cyclohexane rings. In some species the lipid “tails” are fused within the membrane, thus changing the lipid bilayer into a monolayer with two polar “heads”. Also, the ribosomal-RNA (5S, 16S and 23S) nucleotide sequences of Archaea are unlike those of bacteria.

6. Bacteriorhodopsin

7. Matching letter sequence is – J, D, H, I, C, G, A, E, F and B.

8. Hyphae/ aerial mycelium

9. Haustoria

10. Karyogamy

11. The condition of the individual’s immune system; those with compromised or weakened immune systems are much more likely to develop life-threatening fungal infections.

12. Superficial mycoses

The etiological agents of botulism are identified as *Clostridium botulinum*.