Quiz #4 Key – 6:30 lab

1. Define:

Chemoheterotroph – Chemoheterotrophs are organisms capable of using chemicals as their energy source, but require preformed organic compounds for carbon. Animals, fungi, some protista, and many types of bacteria and archaea are chemoheterotrophs.

Thermophile – Organisms that grow best in environments with warm temperatures, i.e., those ranging from 45 to 60^{o} C, are thermophiles. Such organisms can live at the outer edges of hot springs, and near, but not inside the thermal vents found on the sea floor.

Luciferase – Luciferase is a type of enzyme made by bioluminescent organisms such as *Photobacterium*. This enzyme acts of proteins called luciferins, causing them to emit a pale bluish light.

2. Family

3. Protista/ The kingdom Monera is no longer valid because it included all prokaryotic organisms, and the work of Carl Woese and his associates demonstrated that the Bacteria and Archaea are so unlike one another that they are now placed into two different domains.

4. Saprotrophs

5. Obligate anaerobes/ fermentative

6. Methanogenic

7. Serological/ viruses called bacteriophages

8. Archaea/ The Archaea have cell membrane lipids unlike those found within other cells. Their glycerol molecules are mirror images of those found within bacteria and eukaryotic cells, and they bind with long chain lipids (isoprene chains) through ether-linkages. Archaea have 16S ribosomal-RNA nucleotide sequences unlike those found in bacteria, and often have histone proteins and introns (which most bacteria do not).

9. Leghemoglobin

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

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