****

**Subject: Soil Microbiology**

**Class: Second stage**

**Time: 2 hours**

**Question Banks**

**Salahaddin University - Erbil**

**College of Science**

**Environmental Science and Health Department**

**Water microbiology**

**1- Explain temperature effect on surface water pollution?**

**2-** **Relationship between autotrophs and heterotrophs? (only with equations)?**

**3- Draw and labeled The Sulfur Cycle.**

**4- Draw and labeled The Nitrogen Cycle.**

**5- Draw and labeled The carbon cycle.**

**6- Draw and labeled The process of eutrophication.**

7- **Compare between: Ammonification process& denitrification process? (only with equations).**

**8- What are the impacts of red tides?**

**9- Phosphorus is an essential element in biological systems?**

**10- Write the equation of ammonification?**

**11- Write the equation of denitrification ?**

**12- Epidemiology is considered a branch of microbiology?**

 **13- Define zoonoses diseases with example? What's various routes of spreading?**

**14- Draw and labeled The Sulfur cycle.**

 **15- Avoid touching and disturbing the bottom of a water body when taking a depth sample?**

**16- The ocean has been called a “high pressure refrigerator"?**

**17- Why eutrophication is a problem ?**

**18- How Sacchi disk work?**

**19- What are red tide impacts?**

-----------------------------------------------------------------------------------------20**) Write true or false and correct the false sentences: -**

**1- Bioremediation using of microbes to clean environmental pollutions.**

**2- Surveys are finite duration, intensive programmes to measure and observe the quality of the aquatic environment for a specific purpose.**

**3- Halophobic microorganisms: Intolerant of saline habitats, grow in freshwater habitat.**

**4- Viruses which infect bacteria, known as coliphages.**

**5- Morbidity rate is: the number of deaths due to a specific disease divided by the total population number.**

**6- Biological Control (Using microorganisms to control the growth of insects, or other microorganisms that cause diseases in plants).**

**7- Monitoring is long-term,standardized measurement and observation of the aquatic environment in order to define status and trends.**

**8- The inactive form of *Giardia lamblia* called a trophozoite.**

**9- The evolving of phages to coliforms, known as bacteriophages.**

**10- Mortality rate –the number of deaths due to a specific disease divided by the total population number**

**21) Fill the following blanks with suitable answers: -**

**1- Example of Green nonsulfur bacterium is** ------------ .

**2-** ----------------- **rate is number of new cases of a disease in a given area during a given period of time, while**--------------- **rate is number of total cases of a disease in a given area during a given period of time.**

**3- Excreta meaning** ------------- , -------------- **.**

**4- Categories of Epidemiology are:** -------------,--------------,---------------

**5-** ----------- **subjective characteristics of disease felt only by the patient.**

**6-** ------------ **transmission can occur through sneezing, coughing, and even**

**laughing, is seen in the transfer of respiratory diseases such as** ------------.

**7- The rocks that store and transmit groundwater are called** --------------**.**

**8- Water-based route is disease which the pathogen spends a part of its life-cycle in a water** ----------- **or other** -----------, **example** --------------.

**6- Metalimnion is middle layer of lake between-------------- and----------------**

**7- ……..… are finite duration, intensive programmes to measure and observe the quality of the aquatic environment for a specific purpose.**

**8- …………. The science which deal with the study of fungi.**

**9- Microorganisms according to oxygen requirement are……… & ........... .**

**10- The trophic levels in aquatic system including ….....&…....& …....& …....**

**11- ……… microorganisms, intolerant of saline habitats, grow in freshwater.**

**12- ….….….zone, is water below euphotic zone which contain ………….. of surface light**

**13- ………process, is using of microbes to clean environmental pollutions.**

**14- …………. is an organism grows best at temperatures between (45°C and 122 °C).**

**15- …………. Is middle layer of lake between epi- and hypolimnion that may change depth throughout the day**.

 **With my best wishes**

 **Dr. Lubna Ahmed**