I. Questions (50%)

1. Please describe the nutrient catabolism of microorganism 10%

2. What is the Enter-Doudoroff Pathway? 10%

3. What is the anaerobic respiration of bacteria? 10%

4. Please describe the assimilation of sulfur and nitrogen in bacteria 10%

5. What is glyoxylate cycle? 10%
II. Please choose one answer for each of the following questions. (40%)

1. Which of the following is (are) normally treated by topical application of antifungal drugs?
   a. systemic mycoses  
   b. superficial mycoses  
   c. subcutaneous mycoses  
   d. mycotoxicoses

2. Consider an antibacterial drug: in which of the following cases would the action of the drug be considered primarily bacteriostatic?
   a. The MLC is 20 times higher than the MIC  
   b. The MLC is lower than the MIC  
   c. The MLC is 2-4 times higher than the MIC  
   d. The MLC is equal to the MIC

3. Virion size ranges from
   a. 10-40 nm  
   b. 10-400 nm  
   c. 100-400 nm  
   d. 100-4000 nm

4. Which of the following is a function of early viral proteins?
   a. degradation of host DNA  
   b. replication of viral nucleic acid  
   c. alteration of host RNA polymerase  
   d. all of these

5. Progressive, degenerative diseases in which the symptoms build slowly over a period of years are called____
   a. slow virus  
   b. persistent  
   c. latent  
   d. none of these

6. Which of the following is useful against viral infections?
   a. acyclovir  
   b. amantadine  
   c. ribavirin  
   d. all of these

7. Body odor and acne vulgaris are caused by
   a. Streptococcus mutans  
   b. Propionibacterium acnes  
   c. Lactobacillus lactis  
   d. Corynebacterium diphtheriae

8. Bergey's Manual currently classifies bacteria
   a. phylogenetically  
   b. phenetically  
   c. numerically  
   d. none of these

9. The common bread mold Rhizopus stolonifer belongs to the division
   a. Ascomycota  
   b. Deuteromycota  
   c. Zygomycota  
   d. Basidiomycota
10. Diagnosis of candidasis is difficult because
   a. this fungus is a frequent secondary invader in other disease processes.
   b. a mixed microbiota is most often found in the disease tissue.
   c. no immunologic procedures for the identification of Candida currently exist.
   d. all of these

11. A treelike diagram summarizing the relatedness of organisms as determined by numerical taxonomy is called
   a. geneogram   b. taxogram   c. dendrogram   d. chromatogram

12. Which of the following represents a way in which animal viruses damage their host cells?
   a. disruption of lysosomes, releasing hydrolytic enzymes into the cell
   b. alteration of the plasma membrane so that the cell is attacked by the host immune system
   c. formation of inclusion bodies, causing direct physical disruption of cell structures
   d. all of these

13. Which of the following is the way that viruses cause cancer?
   a. They carry v-oncogene into the cell.
   b. They produce a regulatory protein to activate a cellular gene
   c. They insert a strong promoter next to cellular gene to cause abnormal expression
   d. All of these

14. When a competent bacterial cell acquires a piece of naked DNA from the environment, it is called
   a. conjugation   b. transduction   c. transposition   d. transformation

15. Which of the following is not true about transposable elements?
   a. They reproduce independently like plasmids
   b. A direct repeats flanking the insertion sites is generated in the transposition process
   c. They perform either a replicative transposition or direct cut-and-paste transposition
   d. The simple transposons are called insertion sequences
16. The ability of an antibody molecule to stimulate phagocytosis is called
a. apoptosis           b. opsonization         c. inflammation        d. complement

17. Which of the following statements is not true about the current studies of microbial genomes?
   a. bioinformatics helps to analyze the vast amounts of genome data
   b. DNA microarray can be used to follow gene expression and mRNA production
   c. annotation of genomes can be used to identify many genes and their functions
   d. proteomics is a totally different discipline from the genomics

18. Which of the following is not a desirable general characteristic of antimicrobial drugs?
   a. selective toxicity       b. broad-spectrum activity
   c. must be bacteriostatic not bactericidal d. minimal side effect

19. Which of the following contribute(s) to the differences between the archaeobacteria and the eubacteria?
   a. They can stain either G(+) or G(-)             b. The ribosomes are 70S
   c. They carry polygenic mRNA                    d. They possess nucleosome-like structure

20. Which of the following is true of Agrobacterium tumefaciens?
   a. It causes crown gall disease when it carries a tumor inducing (Ti) plasmid
   b. It has been used to introduce foreign DNA into plant cells
   c. It does not form root nodules of legumes
   d. All of the above are true

III. In stead of Coronavirus variants and Paramyxovirus, the SARS (severe acute respiratory syndrome) causing agent as the most recently reported by China is a Chlamydia. Please write down your working proposal in stepwise in case you are assigned by WHO (world health organization) to confirm the causing agent and to cure the disease. (10 %)