Single choice (50%)

1. The lungs are protected from microorganisms by
a. the mucocilliary blanket.
b. lysozyme in mucus.
c. phagocytic action of alveolar macrophage.
d. All of these.
e. None of above.

2. Which of the following areas of the human body is not normally free of microorganisms?
a. lower respiratory tract.
b. kidneys.
c. vagina.
d. urinary bladder.
e. all of these are normally free of microorganisms.

3. Molecules on the vascular endothelium to which neutrophils can attach during the inflammatory response are called
a. adhesins
b. selectins
c. defensins
d. ligandins
e. mucins

4. The term bacteremia indicates
a. bacteria in the bloodstream.
b. rapidly growing bacteria.
c. food contaminated with bacteria.
d. an insect carrying bacteria.
e. an instrument for measuring the growth of bacteria.

5. Which of the following lyses erythrocytes causing anemia?
a. hyaluronidase
b. collagenase
c. hemolysins
d. coagulase
e. neuraminidase

6. Which of the following is not a characteristic of an endotoxin
a. heat stable.
b. toxic at low doses.
c. weakly immunogenic.
d. generally the same regardless of source.
e. normally the lipid A portion of bacterial lipopolysaccharide.

7. Which of the following assay methods does not involve antigen-antibody reaction?
a. ELISA.
b. RIA.
c. Immunofluorescence assay.
d. Western analysis.
e. Kirby-Bauer's Disk diffusion assay.

8. T cells attack
a. host cells hat have been parasitized by bacteria.
b. transplanted tissue cells from one host to another.
c. cancer cells.
d. virus infected cells.
e. all of these.

9. T cells produce and secrete proteins which do not directly interact with invading microorganisms but which augment the body's defense mechanisms. These molecules are called
a. antibodies
b. cytokines
c. immunogens
d. augmentins
e. endorphins

10. The change from low affinity antibody to high affinity antibody during a secondary immune response is referred to as
a. isotype switching.
b. affinity maturation.
c. anamnestic response.
d. idiotype diversity.
e. oposonization.

11. β-lactamase is an enzyme produced by bacteria that causes resistance to
a. penicillins and cephalosporins.
b. tetracyclines.
c. chloramphenicol.
d. quinolones
e. sulfonamides.

12. The major role of capsule in bacterial pathogenesis is
a. It causes direct injury to host cells.
b. It causes injury of host cells indirectly by activating cytotoxic T cells.
c. It prevents the bacteria from phagocytosis.
d. It causes septic shock in the host.
e. It allows the acquisition of essential nutrients.

13. Which of the following statements about Japanese encephalitis virus is not correct.
a. It belongs to Flaviviridae.
b. It is transmitted through mosquito.
c. It is a close relative of yellow fever virus and dengue virus
d. Its genome contains 8 negative-stranded RNA segments.
e. It is an enveloped virus

14. Which of the following is normally used to detect spirochetes in skin lesions in early syphilis?
a. Bright field microscope, after acid fast staining.
b. Dark field microscope.
c. Culture on blood agar plates.
d. Inoculate embryonic eggs.
e. Citrate utilization and indole production tests.

15. Which one of the viruses has killed most people in history?
a. Ebola virus.
b. Adenovirus type 8.
c. Rabies virus
d. Influenza virus
e. Epstein-Barr virus

16. Diseases of animals that can be transmitted to humans are called
a. animal and human diseases.
b. zoonoses.
c. communicable diseases.
d. contagious diseases.
e. latent infections.

17. Hantavirus is normally transmitted through
a. arthropods.
b. fomites.
c. rodents.
d. fecal-oral route.
e. sexual activities.

18. MMR is a vaccine composed of viral antigens of measles, mumps and
a. rubella virus
b. rubeola virus
c. rotavirus
d. roseola virus
e. reovirus

19. Which of the following statements about rheumatic fever is **not** correct?
a. It is a kind of autoimmune disease.
b. It is associated with Streptococcus pneumoniae infection.
c. It involves heart.
d. It is generally benign.
e. It is predominantly occurred in school age children.

20. Which of the following statements about nosocomial diseases is **not** correct?
a. The diseases are normally acquired from community.
b. Bacteria are the leading cause of the infections.
c. Urinary tract is the most common site of the infections.
d. The diseases primarily involve immunocompromised individuals.
e. *Escherichia coli* is one of the leading agents that cause the infections.

21. The number of tuberculosis case diagnosed annually in Taiwan is
a. less than 100.
b. about 500.
c. about 2,000.
d. about 1,2000.
e. over 100,000.

22. *Candida albicans*
a. is normally present in various parts of human body.
b. usually causes a problem when bacterial competition is eliminated by antibiotic treatment.
c. infection is becoming less with the increased of living standard.
d. is a fungus and can be diagnosed by using the germ-tube test..
e. infection can be treated with fluconazole.

23. In humans, the major type of antigen presenting cell is
a. T lymphocytes.
b. mast cells.
c. dendritic cells.
d. B lymphocytes.
e. megakaryocytes.

24. For DNA viruses, transcription usually uses host RNA polymerase except for
a. parvovirus
b. herpesviruses
c. parpovaviruses
d: poxviruses
e. adenoviruses

25. Trichomoniasis is a
a. disease caused by a flagellated protozoa.
b. arthropod transmitted disease.
c. disease that can be treated with penicillin.
d. disease commonly involves eyes.
e. primarily found in developing countries.

簡答題（每小題 2.5 分）

說明：本簡答題共二十小題。每小題中的兩個術語(可能是某種細胞組成;可能是某種化學物質;可能是某種生物反應;也可能是某種前人提出的理論或假說)都蘊含某種重要的微生物學學理上或技術上的概念。這兩個專業術語之間存有某種重要的關連或差異，試扼要寫出該關連或差異以及該關連或差異所揭櫫的重要性。

注意一：答題力求簡潔扼要，每題使用字數不超過四十字。

注意二：:本題無唯一 '標準' 答案。答題時應稍做思考後盡快抓住重點，然後清晰表達出你(妳)想到的重點。

注意三：每小題中術語後之 '(　　)' 內為縮寫符號，答題時利用之，以節省時間。

1. cytoplasmic membrane (CM) ; outer membrane (OM)

2. nucleus (NS); nucleoid (ND)

3. crystal violet (CV); acridine orange (AO)

4. ATP; electrons (e)

5. adherence (AH); biofilm (BF)

6. anaerobe (AN); nitrate (NT)

7. mutagen (MG); carcinogen (CC)

8. **wild-type (WT); mutant (MT)**

9. **fluorescent *in situ* hybridization (FISH); optical tweezers (OT)**

10. **ultraviolet light (UV); DNA**

11. **exponential growth (EG); OD_{600}**

12. **plasmid (PM); cloning (CL)**

13. **viable counting (VC); agar plate (AP)**

14. **fermentation (FM); respiration (RP)**

15. **syntrophy (ST); catabolism (CB)**

16. **transposon (TP); mutagenesis (MG)**

17. **siderophore (SP); iron**

18. **wastewater (WW); BOD**

19. **biological control (BC); bacillus (BL)**

20. **feedback inhibition (FI); high-yielding strain (HS))**