

單複選題。答對一個答案得 1 分，答錯一個答案扣 0.5 分

1. 有關 *Shigella dysenteriae* 之敘述，何者為對？
  - (A) 為 Gram-negative bacilli
  - (B) oxidase positive
  - (C) urease positive
  - (D) Motility negative
  
2. 在實驗室中欲培養 Epstein-Barr 病毒，常使用何種細胞？
  - (A) RBC
  - (B) T<sub>4</sub> lymphocyte
  - (C) T<sub>8</sub> lymphocyte
  - (D) B lymphocyte
  
3. 下列蛋白何者為 HIV 病毒 Env gene 之產物？
  - (A) gp160
  - (B) p55
  - (C) gp41
  - (D) p66
  
4. 有關 *Pseudomonas* exotoxin A 之敘述，何者為對？
  - (A) 作用至宿主細胞 RNA
  - (B) 經由 LDL receptor 進入細胞
  - (C) 為一種蛋白
  - (D) 會進入細胞質
  
5. 有關 transposon 之敘述，何者為對？
  - (A) 又稱 jumping gene
  - (B) 常與細菌抗藥性有關
  - (C) 一個細菌體可有多個 transposon
  - (D) 只會位於 plasmid 不會位於 chromosome
  
6. 下列何種微生物沒有細胞壁？
  - (A) *Staphylococcus epidermidis*
  - (B) *Pseudomonas aeruginosa*
  - (C) *Ureaplasma urealyticum*
  - (D) *Streptococcus mutans*

(背面仍有題目,請繼續作答)

7. 下列何種黴菌可產生 germ tube ?
- (A) *Candida albicans*
  - (B) *Candida stellatoidea*
  - (C) *Candida tropicalis*
  - (D) *Saccharomyces*
8. 在受感染之細胞中發現 Negri body，常與何種病毒感染有關？
- (A) Adenovirus
  - (B) Rabies virus
  - (C) Reovirus
  - (D) Cytomegalovirus
9. 下列何種方法為常使用檢測病毒 RNA 的核酸融合法 (nucleic acid hybridization) ?
- (A) Eastern Blot
  - (B) Northern Blot
  - (C) Southern Blot
  - (D) Western Blot
10. 下列何種反轉錄病毒可於培養細胞中產生細胞融合現象？
- (A) HTLV-I
  - (B) HTLV-II
  - (C) HIV
  - (D) Human foamy virus
11. 下列有關 Adenovirus 之敘述，何者為對？
- (A) 具有套膜 (Envelope)
  - (B) DNA 病毒
  - (C) 病毒於細胞核中複製
  - (D) 病毒形態為立方體對稱構造
12. 酵母菌對於葡萄糖的利用其最終產物常是？
- (A) 丙酮
  - (B) 丙酮酸
  - (C) 乙烯
  - (D) 乙醇

13. 下列葡萄糖非發酵細菌中何者為 *Pseudomonas* 之 rRNA Homology group I?

- (A) *P. aeruginosa*
- (B) *P. cepacia*
- (C) *P. fluorescens*
- (D) *P. putida*

14. 下列何者為腸內桿菌之共同特性?

- (A) 發酵葡萄糖
- (B) 具有氧化酶
- (C) 可以還原硝酸鹽
- (D) 具有觸酶

15. 下列有關綠膿桿菌(*Pseudomonas aeruginosa*)之敘述，何者為對?

- (A) 革蘭氏陰性桿菌
- (B) 大多數具有單端鞭毛
- (C) 具運動性
- (D) 產生孢子

16. 一般細菌自然突變率大約為：

- (A)  $10^{-7}$
- (B)  $10^{-6}$
- (C)  $10^{-5}$
- (D)  $10^{-4}$

17. 最早使用 agar 加肉湯做成固態培養基，經畫線培養病原菌，是哪一位學者?

- (A) Robert Koch
- (B) Louis Pasteur
- (C) Elie Metchnikoff
- (D) Joseph Lister

18. 微生物侵入人體後，下列哪一種細胞會吞噬細菌?

- (A) Neutrophil
- (B) Macrophage
- (C) Lymphocyte
- (D) Monocyte

19. 下列有關白喉桿菌釋放 Diphtheria toxin 之敘述，何者為錯？

- (A) 含有  $\beta$ -phage 的白喉桿菌才會產生
- (B) 是一種內毒素(endotoxin)
- (C) 是一種脂質
- (D) 只會造成局部發炎

20. 有關 Botulinus toxin，哪四種型最常發現在人類身上？

- (A) B,D,E,F
- (B) B,C,D,H
- (C) A, B,E,F
- (D) A, D,E,F

21. 下列有關 Herpes virus 之敘述，何者為對？

- (A) 具有單股 DNA
- (B) 容易造成潛伏性感染
- (C) 大小約 120-200 nm
- (D) 不具有套膜

22. 有關淋病雙球菌特性之敘述，何者為對？

- (A) 能侵襲泌尿道與眼睛的黏膜
- (B) 僅能發酵葡萄糖
- (C) 對醣類僅能產酸不產氣
- (D) 具有四種抗原姓

23. 下列抗生素何者是作用於細菌細胞壁合成？

- (A) Ampicillin
- (B) Cefotaxime
- (C) Clindamycin
- (D) Cephalothin

24. 下列何者適合用紫外線消毒？

- (A) 空氣
- (B) 培養基
- (C) 抗生素
- (D) 飲水

25. 有關干擾素(Interferon)之敘述，何者為錯？
- (A) 干擾素可分為兩型  $\alpha$ ,  $\beta$
  - (B) 干擾素在 pH 2.0 時均具穩定性
  - (C) 雙股 RNA 為一強烈干擾素誘導因子
  - (D)  $\beta$  干擾素主要由纖維母細胞形成
26. Which reaction(s) are used by microorganisms only under anoxic conditions?
- (A)  $N_2 \rightarrow NH_4^+$
  - (B)  $NO_3^- \rightarrow N_2$
  - (C)  $NH_4^+ \rightarrow R-NH_2$
  - (D)  $H_2 + CO_2 \rightarrow CH_4$
  - (E)  $SO_4^{2-} \rightarrow H_2S$
27. "Sake" is a Japanese alcoholic drink produced from steamed rice (which is primarily starch) by the combined actions of *Saccharomyces cerevisiae* and one other organism. From this, we can deduce that:
- (A) The other organism is one that excretes amylases.
  - (B) Sake is a wine rather than a beer.
  - (C) The other organism is a species of *Acetobacter*.
  - (D) The other organism must act on the rice before *S. cerevisiae*.
  - (E) The other organism can be *Aspergillus oryzae*.
28. Which one of the following statements about genetic changes of viruses is correct?
- (A) Genome reassortment frequently occurs during replication of mumps viruses.
  - (B) Papilloma viral DNA genome often undergoes significant rearrangement.
  - (C) Parvoviruses mutate more frequently than polioviruses.
  - (D) Recombination occurs during the latent period of herpesvirus infection.
  - (E) Reverse transcription of retroviruses is often error-prone.

29. Which of the following statement(s) is (are) true?

- (A) Algae is most likely to have a flexible cell surface rather than a rigid cell wall
- (B) Hyphae are cells that have a peptidoglycan cell wall
- (C) Phospholipid bilayer membrane is characteristic of eukaryotic cells and not of prokaryotic cells
- (D) The 3-domain classification of life on earth is based on sequences of rRNA genes.
- (E) The 3-domain representation of life on earth does not include viruses

30. Which of the following statement(s) is (are) NOT true?

- (A) Pulsed-field gel electrophoresis can differentiate between different strains of bacteria
- (B) Gram stain can only be done on a pure culture
- (C) Agar medium is least likely to support the growth of a Virus.
- (D) The original attempts to quantify all of the microbes in the human intestine undercounted these microbes because they used only one atmospheric composition.
- (E) Lipopolysaccharide is most likely to be exposed on the surface of a gram-negative bacterium.

31. Which of the following statement(s) is (are) true?

- (A) In bacterial peptidoglycan, the strength of the structure resides primarily in the peptide cross-links.
- (B) A bacterium with pili is most likely to be capable of attaching to surfaces.
- (C) Both lipopolysaccharide (LPS) and lipoteichoic acid (LTA) contain sugars and lipids but not peptides.
- (D) Both vancomycin and penicillin inhibit peptidoglycan cross-linking.
- (E) The purpose of the RNA primers in bacterial DNA synthesis is to allow DNA polymerase subunits to form the enzyme complex.

32. which of the following statement(s) is(are) true?

- (A) Bacteria can become resistant to fluoroquinolones by producing a mutant DNA gyrase.
- (B) The most active DNA synthesis occurs during exponential phase of growth
- (C) Homologous recombination is used as a defense against radiation-induced breaks in DNA because it can introduce a new DNA segment into an organism's genome
- (D) RNA polymerase contains RNA as well as proteins
- (E) Aminoglycosides and tetracyclines interact with sigma factor to prevent it from binding DNA.

33. Which of the following statement(s) is(are) true?

- (A) A plasmid can be separated from chromosomal DNA by a chemical procedure.
- (B) A promoter is a DNA sequence that lies within an open reading frame.
- (C) Single-stranded DNA is transferred to a bacterial recipient in Artificial transformation
- (D) (+)-strand RNA virus is most likely to carry a pre-formed viral replicase in the viral particle
- (E) HDV requires the presence of HBV to infect humans

34. Which one of the following viruses is controlled with a killed virus vaccine?

- (A) Chickenpox
- (B) Enterovirus
- (C) Influenza
- (D) Mumps
- (E) Parvovirus B19

35. which of the following statement(s) is(are) true?

- (A) *Klebsiella pneumoniae* can produce ecthyma gangrenosum
- (B) *Francisella tularensis* can be acquired by ticks, contact with rabbits, and by inhalation
- (C) CMV can cause chorioretinitis in an acquired immunodeficiency syndrome (AIDS) patient
- (D) Herpes can be found Donovan Bodies be found
- (E) Hepatitis would see a positive Tzanck test

36. which of the following statement(s) is(are) true?

- (A) *Escherichia coli* is the most common cause of prostatitis
- (B) *Mycoplasma pneumoniae* is the most common cause of atypical pneumonia
- (C) *Streptococcus pneumoniae* causes of pneumonia will usually have a chronic onset
- (D) *Klebsiella pneumoniae* can produce a foul-smelling sputum in a patient with pneumonia
- (E) *Pseudomonas aeruginosa* produces alginate and is common cause of pneumonia in cystic fibrosis patients.

37. Which of the following is not a TORCH organism?

- (A) *Toxoplasma gondii*
- (B) *Treponema pallidum*
- (C) Rubella virus
- (D) Cytomegalovirus
- (E) Herpes simplex virus

38. A false positive diagnosis of an active viral infection by a serological test is most likely a consequence of

- (A) assay insensitivity.
- (B) fungal contamination of the serum sample.
- (C) presence of viral antibody titer due to prior vaccination.
- (D) serum sample taken before sero-conversion occurs.
- (E) storage of serum specimen at unsuitable temperature.

39. which of the following statement(s) is(are) true?

- (A) a. Curd-like discharge is a criteria for determining bacterial vaginosis
- (B) b. The presence of intracellular Gram-negative diplococci from a cervical smear is indicative of syphilis
- (C) c. *Pseudomonas aeruginosa* can produce a green colored sputum
- (D) d. Infection with Papilloma virus can result in cervical carcinoma
- (E) Gomori stain is used to visualize *Cryptosporidium parvum* in fecal smears.



40. Which of the following statement(s) is(are) true?

- (A) An antibiotic of choice in the treatment of Rocky mountain spotted is tetracycline
- (B) Passenger leukocytes are important in graft rejection
- (C) A bacterial cell without a k-antigen would lack a peptidoglycan cell wall
- (D) During antibody class-switching ,introns and unused exon are removed from DNA encoding heavy chain variable region genes
- (E) Antibodies are secreted by B cells

41. Which of the following statement(s) is(are) true?

- (A) A deficiency in complements C5-C8 could lead to recurrent infections by staphylococcus
- (B) Although disease caused by mycoplasma are usually self-limiting ,if an antibiotic is needed ,the drug of choice would be erythromycin
- (C) The organ or tissue where most antibodies are synthesized is thymus
- (D) The infectious unit of Chlamydis trachomatis is the elementary body
- (E) Penicillin G would exhibit the least efficacy in the treatment of primary a typical pneumonia.

42. Which of the following statement(s) is(are) true?

- (A) The most potent endogenous pyrogen is interferon gamma
- (B) The universal donors have the blood type O-
- (C) In general ,the most immunogenic substances are nucleic acids
- (D) The professional phagocytes include neutrophils
- (E) In general, immunity of shortest duration is afforded by infection

43. Which one of the following viral infections is not effectively prevented by vaccination?
- (A) Hepatitis B virus
  - (B) Poliovirus
  - (C) Rhinovirus
  - (D) Rubella virus
  - (E) Smallpox virus
44. Which one of the following statements correctly describes viral genome replication?
- (A) All DNA viruses synthesize their genomes by using the host cell DNA polymerases.
  - (B) All RNA viruses replicate in the cytoplasm except for influenza viruses.
  - (C) The genomes of all DNA viruses replicate as closed circular DNA.
  - (D) The proof-reading function of viral RNA polymerases prevents mutations in viral genomes.
  - (E) The replication of RNA viruses is accomplished by the host cell RNA polymerase II.
45. Which of the following statement(s) is(are) true?
- (A) Over 80% of the dry weight of a cell consists of polymeric molecules with very large molecular weights
  - (B) Lipopolysaccharide of the bacterial cell is both the most numerous and the most varied
  - (C) Bacteria are the most predominant organisms on earth, and a large number are human pathogens
  - (D) Chemical evidence suggests living organisms are actually older than that suggested by microfossil evidence
  - (E) Without nucleus is the Latin meanings of prokaryotes

46. Which of the following statement(s) is (are) true?

- (A) In enrichment culture, cells compete directly for nutrient, where as on solid media all cells have nearly equal access to nutrients
- (B) A pure culture is a culture in which all cells are identical
- (C) Microbiologists routinely study large populations of organisms (billions, in some cases), instead of individual organisms
- (D) The complex medium may typically contain unidentified chemical compounds
- (E) A cell is said to be Gram positive if it is stained with a positively charged stain.

47. which of the following statement(S) is(are) true?

- (A) The F-plasmid of E. coli has one origins of replication
- (B) Histones are concentrated at the interface of the nucleoid and cytosol
- (C) The eukayotic chromosome in the interphase nucleus is mainly a 30nm diameter helix of nucleosomes
- (D) Transformation in Gram positive cells is species-specific, competent cells will only take up DNA released by a close relative
- (E) When an F-containing (F+ or Hfr) conjugates with an F- cell, the result is usually the conversion of the recipient cell to the sex type of the donor (F+ or Hfr)

48. An HIV-infected homosexual man presents with Kaposi's sarcoma. Which viral genome is most likely to be present in his tumor biopsy?

- (A) Herpes simplex virus tupe 1
- (B) Human cytomegalvirus
- (C) Human herpesvirus type 6
- (D) Human herpesvirus type 8
- (E) Varicella-zoster virus

49. Which of the following statement(s) is(are) true?

- (A) Cellulose and chitin are commonly found as components of protistan cell walls
- (B) Penicillin interfere with cell wall biosynthesis both prokaryotic and eukaryotic
- (C) The two different groups of bacteria(bacteria and Archaea) have quite different cell walls
- (D) In addition to the flow of membrane vesicles from the golgi to the lysosome /vacuole and to the cell membrane, there is a continual flow of vesicles from these two membrane systems back to the golgi
- (E) Ciliates generally have many cilia on their surface that move in a coordinated fashion.

50. Which of the following statement(s) is (are) true?

- (A) Longitudinal fission, in which the division plane divides the cell along the long axis, occurs in some representatives of prokaryotic
- (B) Bacterial stationary growth is a result of contact inhibition
- (C) Segregation of the prokaryotic chromosome at the time of cell division depends on attachment of the chromosomes to sites in the cell membrane
- (D) The most thermosensitive protein necessary for growth will determine the highest allowable temperature for growth
- (E) In balanced growth, all cells are identical.