I. Type A (40)

1. Generation time of bacteria is about
   A. 2~3 min      B. 20~30 min      C. 2~3 h      D. 20~30 h

2. In order to harvest antibiotics from bacterial culture which phase is the best to prefered?
   A. lag phase  B. logarithmic phase  C. stationary phase  D. decline phase

3. Lysogenic bacteria are refered to bacteria, which is
   A. lysed by phage            B. transformed by prophage       C. integrated with prophage        D. auxotroph

4. F plasmid is only related to bacterial
   A. transformation    B. tranduction  C. Hfr    D. lysogenic conversion

5. The following condition may be met with sterilazation at
   A. 0.1 kg/cm^2 121ºC for 10 min   B. 0.5 kg/cm^2 121ºC for 30 min
   C. 1.0 kg/cm^2 121ºC for 10 min   D. 1.0 kg/cm^2 121ºC for 30 min

6. Following normal flora of bacteria sometimes may become opportunistic pathogen except
   A. E.coli        B. Bacteroid        C. Lactobacillus        D. P.aeruginosa

7. Which one is not member of prokaryote in following microbes?
   A. Bacteria        B. Rickettsia       C. Chlamydia       D. Fungi

8. Which component is shared by both G^+ and G^- bacteria?
   A. techoic acid       B. peptidoglycan      C. LPS      D. outmembrane

9. Which one in cell structures is not related to bacterial pathogenicity?
   A. endospore       B. LPS       C. capsule      D. ordinary pili

10. Usually flagella are not associated with virulence in most bacteria except
    A. S.typhi        B. ETEC.        C. V. cholera        D. P.aeruginosa

11. Highly resistance of bacteria endospore to heat is associated with
    A. DAP      B. DPA      C. lysozyme      D. mesosome

12. Bacteria are usually reproduced by
    A. replication       B. binary fission      C. budding      D. conjugation

13. R plasmid is responsible for bacterial
    A. virulence B. nutrition C. resistance to antibiotics  D. fertility
14. Genes encoding resistance of bacteria to antibiotics may be transferred from donor to recipient strain by following ways except
A. transformation     B. transduction     C. conjugation      D. lysogenic conversion

15. Following factors contribute invasiveness of bacteria except
A. capsule     B. pili     C. hyaluronidase     D. endotoxin

16. Spreading factor is referred to
A. coagulase     B. hyaluronidase     C. streptokinase     D. colleginase

17. Bacterial exotoxin is elaborated by
A. G+ bacteria only     B. G- bacteria only     C. Both G+ and G-     D. neither G+ nor G-

18. Exotoxin is characterized by following properties except
A. consisting of subunit A and B     B. converting to toxoid     C. stable in heating     D. All are proteins

19. Enterotoxins are synthesized by following bacteria except
A. S.aureus     B. S.pyogenes     C. V.cholera     D. ETEC

20. Facultative anaerobes are referred to
A. C.tetani     B. E.coli     C. C.botulinii     D. Bacteroides

21. Septicemia is often caused by following bacteria except
A. S.aureus     B. S.pyogenes     C. Shigella     D. P.aeruginosa

22. Toxemia is often caused by following bacteria except
A. C.tetani     B. C.botulinii     C. V.cholera     D. C.diphtheria

23. Following microbes induce NGU except
A. U.ruealyticum     B. Mycoplasma huminis     C. Chlamydia trechomatis     D. Mycoplasma pneumonia

24. Following microbes are able to grow on/in synthesized media except
A. Mycoplasma pneumonia     B. Chlamydia     C. Leptospira interrogans     D. Actinomyces israelii

25. Zoonosis does not include following diseases
A. epidemic typhus     B. endemic typhus     C. psittacosis     D. lyme disease

26. Besides viruses inclusion body is also found in a following microbe
A. Rickettsia prowazekii     B. Chlamydia trechomatis     C. Actinomyces bovis     D. Treponema pallidum

27. Which one statement about initial body is not correct in following
28. Trechoma is resulted from infection with following Chlamydia except
A. C.trechomatis C  B. C. trechomatis A  C. C.trechomatis L1  D. C.trechomatis B

29. The most important reservoir of Leptospira perhaps is
A. wild rodents  B. patients with leptospirosis  C. mosquito  D. tick

30. Which stain method is often used for Spirochaete observed under light microscope
A. Gram stain  B. Giemsa stain  C. Fontana silver stain  D. Machavelo stain

31. Korthof media is used for detection of
A. Leptospira interrogans  B. Rickettsia prowazekii  C. Treponema pallidum  D. Borrelia burgdorferi

32. Scrub typhus is an infection with
A. R. prowazekii  B. R.typhus  C. O.tsutsugamushi  D. Coxiella burnetii

33. If titre over 1:160 Weil-Felix reaction will be diagnostic except
A. OX\textsubscript{19}-epidemic typhus  B. OX\textsubscript{2}-endemic typhus  C. OX\textsubscript{1}-epidemic typhus  D. OX\textsubscript{k}-scrub typhus

34. Bartonellosis includes following disease except
A. Oroya fever-verruca peruviana  B. bacillary angiomatosis  C. cat-scratch disease  D. marsh fever

35. Pathogenic agent of LGV is
A. Leptospria interrogans  B. Rickettsia prowazekii  C. Treponema pallium  D. Chlamydia trechomatis

36. Culture media often used in mycology is
A. blood agar plate  B. nutrition agar plate  C. Sabouraud’s media  D. serum agar plate

37. Tinea are caused by following fungi except
A. Trichophyton  B. Epidermophyton  C. Microsporum  D. Aspergillus

38. Thrush is caused by
A. Candida albicans  B. Cryptococcus neoformans  C. Mucor  D. Sporotrichum schenckii

39. Which one is representation to virion in following structures?
A. envelope  B. capsid  C. dsDNA  D. nucleocapside

40. +ssRNA means the RNA acts
A. as template  B. as mRNA  C. as transcriptase  D. as primer
41. Which statement is not correct about infectious nucleic acid
A. with protein capsid  B. without capsid  C. lower infectivity  D. wide host range

42. Defective virus usually refers to virus lacking
A. envelope  B. glycoprotein spike  C. replication genes  D. polymerase or transcriptase

43. IFN functions against viral multiplication through
A. AVP  B. TNF  C. IL-2  D. IL-4

44. Following marks indicate viral multiplication in cell culture except
A. CPE  B. cell fusion  C. inclusion  D. HA and HI

45. Type-specific Ags of influenza virus are consisting of
A. NP  B. MP  C. NP+MP  D. NP+LP

46. Subtyping of influenza virus are based on
A. HA1  B. NA  C. HA2  D. HA+NA

47. SSPE is related to infection with
A. Influenza virus  B. parainfluenzae virus  C. respiratory syntial virus(RSV)  D. measles virus

48. Among following viral diseases inapparent infection is often found in
A. HAV  B. Japanese B encephalitis virus  B. HBV  D. influenzae virus

49. Which one is the most important infectious source in epidemic of Japanese B encephalitis virus
A. mosquitoes  B. patients  C. piglets  D. carrier

50. Nt Ab to promote virus multiplication in host cells is referred to
A. anti-Hantavirus  B. anti-Dengue virus  C. anti-XHFV  D. anti-ECHO virus

51. Which one is not correct in following matching between virus and their vector
A. Eastern equine encephatits-mosquitoes  B. XHFV-ticks  
C. Japanese B encephalitis virus-mosquitoes  D. Hantavirus-ticks

52. Viremia never occurs in following infection with
A. Influenza virus  B. Coxsackie virus  C. Hantavirus  D. HIV

53. High risk population group of HIV infections are following except
A. patients with haemophilia  B. drug-abuser  C. homosxer  D. Tiddler.

54. Syphilis is transmitted rarely by
A. coitus  B. transfusion  C. injection  D. placenta
55. Positive HBsAg and anti-HBc indicate
A. acute HB  B. chronic HB  C. after vaccination  D. carrier

56. HDV is a member of defective virus it needs one of following virus as a helper
A. HAV  B. HCV  C. HBV  D. HEV

57. Following viruses cause often congenital infection but rare in
A. HSV-1  B. CMV  C. rubella virus  D. VZV

58. Latent viral infection such as HSV-1 is characterized by following
A. with or without primary infection  B. as virus culture is negative  Nt.Ab turned to be positive
C. CPE appears in cell culture  D. clinical picture may appear repeatedly

59. papilloma is caused by
A. EBV  B. HHV-8  C. HPV  D. CMV

60. Rodents are involved in following infections except
A. Ebola disease  B. HFRS  C. Dengue  D. Rabies

61. The pathogenesis of tetanus
A. is initiated following introduction of Clostridium tetani vegetative cells into injured tissue
B. results from the activity of C.tetani produced hyaluronidase on the hyaluronic acid of connective tissue growed substance
C. is always the result of a major injury with a heavily contaminated abject
D. is the result of the blocking of presynaptic inhibition by tetanospasmin produced by C.tetani vegetative cells

62. Anthrax gives rise to an infection in human
A. often by inhalation of spores into the lung
B. acquired only by the entry of spores through injured skin
C. acquired by the entry of spores through mucous membrane or injured skin
D. transmitted by gastrointestinal tract absolutely

63. food poisoning caused by staphylococci and C.perfringens are similar in that
A. they are G+, spore-forming lods  B. diarrhea is from enterotoxin
C. they result in vomiting  D. they can be prevented by vaccination

64. A gram-positive, catalase positive, coccus was isolated from a bone spicule of a patient with osteomyelitis. The organism was identified as S.aureus on the basis of
A. yellow-orange pigment production  B. beta hemolysis
C. growth in 8% NaCl  D. positive coagulase test

65. The most important virulence factor of Stre. pneumonia is
A. its polysaccharide capsule  B. its peptidoglycan layer
C. an extracellular substance  D. its common pili

66. Yersinia pestis is usually transmitted to humans
A. by droplet nuclei from an infected rat  B. by flea sucking blood
C. as immune system impaired  D. by inhalation of spores

67. The virulence factors of N. meningitidis responsible for or thought to facilitate adherence to the nasopharyngeal mucosa are
A. pili and IgAase  B. outer membrane proteins(Omp)  C. capsules  D. lipo-oligosaccharide

68. One of the following statements relating to gonococcal conjunctivitis neonatorum is not true
A. newborn may be blind if untreated
B. gonococcal conjunctivitis can occur during delivery
C. The disease usually occurs through transplacental passage
D. The disease is prevented by 1% chloromycin and streptomycin

69. A young man presents to the Emergency department with fever, chills, headache, and abdominal pain for only 1 week. If it is suspected to be typhoid fever, what laboratory test will you order first?
A. detection of antibody  B. blood cultures  C. culture of feces  D. culture of urine

70. The Shiga toxin is a
A. cytotoxin  B. neurotoxin  C. enterotoxin  D. A, B and C

71. One of the following statement about M. leprae is not true
A. The organism have never been cultured in or on media
B. The organisms are obligate intracellular parasites
C. The organisms are acid-fast rods
D. The organisms can survive for years in nasal secretions due to their ability to form spores

72. Mycobacterium tuberculosis are
A. susceptible to disinfectants  B. never cultured in vitro
C. gram-negative  D. facultative intracellular parasites

73. What medium is suitable for cultivation of V. cholerae?
A. triple sugar iron agar  B. S-S agar  
C. common agar plate  D. blood agar with a pH8.4

74. One of the following statements about "Enteric Fever" is not true
A. The organisms include Salmonella enteritidis  
B. Serum agglutination test is diagnostic  
C. Reinfection may occur but is often milder than the first infection  
D. Duration of the disease may last several weeks

75. The most striking characteristic of H. pylori is
A. curved, corkscrew-shape  B. to survive in gastric acidity  
C. strongly urease activity  D. growth on selective medium

76. Diagnosis of H.pylori can be accomplished by
A. culturing from biopsy  B. strong urease activity  
C. curved & s-shaped bacteria on slide  D. all of the above

77. A positive tuberculin test with PPD
A. is a hypersensitivity and indicate infection with M.tuberculosis  
B. indicates high antibody levels in active tuberculosis  
C. never occurs following vaccination with BCG  
D. is an indicator of active tuberculosis in adults

78. An important virulent factor of Stre. pyogenes is
A. T protein  B. P protein  
C. M protein  D. polysaccharide of cell wall

79. Final diagnosis to active tuberculosis can be made by
A. tuberculin test  B. serological test  
C. the signs and symptoms  D. isolation of tubercle bacilli

80. Septicemia is rarely caused by
A. Shigella  B. Salmonella  
C. Stap. aureus  D. Strep.pyogenes

II. Type K(20) suggestion:  A. ①,② and ③  B. ① and ③  
 C. ② and ④  D. ④ only  E. ①,②,③ and ④
81. Synthetic products of bacteria include following except
①. pyrogen  ②. bacterial toxin  ③. bacteriocin  ④ lysozyme

82. R plasmid may transfer from donor into recipient by
①. transformation  ②. transduction
③. conjugation  ④. lysogenic conversion

83. Septicemia may be caused by

84. Live vaccines include
①. BCG  ②. HBV vaccine  ③. polio vaccine  ④. rabies vaccine

85. Vi gene encoding bacterial exotoxin may be located
①. chromosome  ②. prophage  ③. plasmid  ④. mesosome

86. STD is induced by
①. N.gonococci  ②. T.pallidum  ③. HSV-2  ④. HPV

87. Tumor viruses are referred to
①. HTLV  ②. HPV  ③. EBV  ④. CMV

88. Normal flora includes
①. bacteroids  ②. C.albicans in mouth
③. lactobacillus in vagina ④. M.tuberculosis in respiratory tract

89. Virus involved in diarrhea is
①. rotavirus  ②. enteroadenovirus  ③. Nowalk virus  ④. astrovirus

90. Etiologic agent of common cold is
①. Rhinovirus  ②. parainfluenza virus ③. Coxsakie virus ④. ECHOV

91. HIV is transmitted through
①. blood  ②. intercourse  ③. placenta  ④. saliva

92. Lentivirus is referred to
①. HIV  ②. rabies virus  ③. PrP sc  ④. HTLV-I

93. Pathogenesis of fungi is related to
①. Fungal infection  ②. hypersensitivity  ③. toxicity  ④. Tumor

94. Retrovirus includes
①. HIV  ②. HTLV  ③. HBV  ④. HCV
95. DNA viruses include
①. EBV  ②. CMV  ③. HBV  ④. HPV

96. The pathogenic staphylococci often produce a variety of extracellular enzymes and toxins, such as
①. leukocidin  ②. TSST  ③. enterotoxins  ④. fibrinolysin

97. Control measures for Anthrax include
①. burning animal body  ②. decontamination of animal products
③. vaccination of animals  ④. handling in clothes and gloves

98. Verotoxin-production E.coli has been associated with
①. rheumatic fever  ②. hemorrhagic colitis
③. food poisoning  ④. hemolytic uremia syndrome

99. What kinds of following infectious disease rest mainly on adequate active immunization?
①. whooping cough  ②. diphtheria  ③. tetanus  ④. Shigellosis

100. Recently, the most important etiologic agents of nosocomial infection are
①. E.coli and P. aeruginosa  ②. S.aureus and S.epidermidis
③. Legionella pneumonia  ④. all of above

III Definition (40)
1. plasmid  2. colony  3. sterilization
4. toxoid  5. Weil's disease  6. NGU
7. elementary body  8. hard chancre  9. sulfur granule  10. parenteral infection
11. TORCH syndrome  12. Dane particle
13. inclusion body  14. antigenic shift  15. CPE
16. E.coli O₁₅₇: H₇  17. SPA  18. prion
19. El Tor biotype  20. satellite phenomenon

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