

1. Antimicrobial agent which is least likely to be effective in treatment of systemic aspergillosis

- a) Amphotericin B
- b) Caspofungin
- c) Clotrimazole
- d) Voriconazole
- e) Itraconazole

2. Which of the following is NOT significant in pathogenicity of *Clostridium* species?

- a) Plasmids
- b) Spores
- c) Viability and multiplication in tissues without blood flow
- d) Endotoxin
- e) Enterotoxin

3. False positive results are less likely to occur in

- a) Rapid reagin test
- b) *Treponema Pallidum* Haemagglutination Assay
- c) Venereal disease Research laboratory test
- d) Kahn test
- e) Wasserman's test

4. Microscopic structure associated with *Paracoccidioides brasiliensis* is

- a) Sporangia
- b) Tuberculate macroconidia
- c) Arthrospores
- d) Yeast cell with multiple buds
- e) Spherule

5. Significant feature of human leptospirosis is

- a) Generalized lymph node enlargement
- b) Extensive scars from superficial lesions
- c) Febrile and afebrile periods
- d) Gummatous lesions on the skin
- e) Septicaemia

6. Enzyme which is detectable in strict anaerobes

- a) Catalase
- b) Superoxide dismutase
- c) Coagulase
- d) Phospholipase
- e) Urease

7. Manifestations of food associated botulism are as a result of

- a) Effects of cyclic AMP
- b) Lack of inhibitory mediator in neurotransmission
- c) Consumption of food containing *Clostridium botulinum* strains which release enterotoxin in the intestine
- d) Effects of haemolysin produced by ingested organism
- e) Consumption of food containing botulinum toxin ✓

8. Normal flora spirochaetes may be detected in the

- a) Skin
- b) Intestinal tract
- c) Blood ✓
- d) Mouth ✓
- e) Upper respiratory tract

9. Rickettsia species in the Spotted Fever Group include all the following except

- a) *Rickettsia akari*
- b) *Rickettsia africae*
- c) *Rickettsia rickettsi*
- d) *Rickettsia prowazekii* ✓
- e) *Rickettsia felis*

10. Not useful in the laboratory diagnosis of *Rickettsia* species

- a) Vancomycin-containing Blood Agar
- b) OX-19 strains of *Proteus vulgaris* ✓
- c) Giemsa stain ✓
- d) Tissue cultures
- e) Latex agglutination ✓

11. *Orientia tsutsugamushi*

- a) Causes epidemic typhus ✓
- b) Transmitted to humans by the bite of the larva of chiggers
- c) Facultative intracellular bacteria
- d) Amoxicillin/clavulanic acid is the drug of choice
- e) Causes a chronic febrile illness

12. In the pathogenesis of *Coxiella burnetii*

- a) Attaches to host cells using filamentous haemagglutinin
- b) Large cell variant is the infective form
- c) Active entry into the phagosome
- d) Delays fusion of the phagosome with lysosomes to transform from small cell variant to large cell variant
- e) Intracellular multiplication is initialised in the cytoplasm ✓

13. Virulence factors of *Haemophilus influenzae* include all the following except

- a) IgA₁ protease ✓
- b) Outer membrane proteins ✓
- c) Adhesion proteins ✓
- d) Capsule ✓
- e) Type 3 secretion system

14. False about HACEK infections

- a) Normal flora in the oral cavity ✓
- b) Responsible for 30% of cases of infective endocarditis ✗
- c) Blood is the specimen of choice
- d) *Haemophilus parainfluenzae* only requires the accessory V factor for growth
- e) Caused by fastidious organisms ✗

15. *Yersinia pestis*

- a) Gram-positive rods
- b) Obligate intracellular pathogen
- c) The vector *Xenopsylla cheopis* is found worldwide
- d) Pneumonic plague is the classic form of the disease
- e) Catalase negative

16. Not useful in the laboratory diagnosis of *Bordetella pertussis*

- a) Cephalexin ✓
- b) Ammonia
- c) Oxidase strips
- d) Haemolytic strain of *Staphylococcus aureus* ✓
- e) Crystal violet

17. The following agent evades the host's immune system through antigenic variation of its pili protein

- a) *Staphylococcus epidermidis*
- b) *Streptococcus pneumoniae*
- c) *Haemophilus influenzae* type b
- d) *Neisseria gonorrhoeae*
- e) *Bacillus anthracis*

18. A false statement on the Eijkmann test used in water analysis

- a) It is a non-differential test
- b) Uses McConkey media
- c) Incorporates a Durham tube
- d) The test is incubated at 44°C
- e) Specific for thermo tolerant *E. coli*

(3)

19. The most common fungal causative agent of meningitis in immunocompromised patients

- a) *Candida albicans*
- b) *Malassezia furfur*
- c) *Cryptococcus neoformans*
- d) *Coccidioides immitis*
- e) *Microsporium canis*

20. The most suitable media for antimicrobial susceptibility assay tests

- a) Blood agar
- b) Nutrient agar
- c) Muller Hinton Agar
- d) Thayer Martin agar
- e) MacConkey agar

21. Tissue biopsy revealing brown pigmented branching septate hyphae would be observed in

- a) Lobomycosis
- b) Chromomycosis
- c) Pheohyphomycosis
- d) Rhinosporidiosis
- e) Aspergillosis

22. Causative agents of eumycotic mycetom include the following organisms except

- a) *Madurella grisei*
- b) *Pseudallescheria boydii*
- c) *Leptosphaeria senegalensis*
- d) *Acremonium spp*
- e) *Actinomadura madurae*

23. The following specimen is normally sterile

- a) Throat swab
- b) Urethral swab
- c) Cerebrospinal fluid
- d) Stool
- e) Skin scrapings

24. In urinary tract infections

- a) *Staphylococcus aureus* is the predominant causative agent of bacterial UTI
- b) The bladder is fairly resistant to colonization due to the wide array of present commensal
- c) Infection by *E. coli* is predominantly by hematogeneous spread
- d) Chocolate Blood Agar is the medium of choice for culture of urine specimen
- e) Quantitative culture technique enables determination of significance of culture isolates

25. The following is not true of Enterotoxigenic *E. coli*

- a) Occurs due to an elevation in cellular cAMP level
- b) Is a common cause of traveler's diarrhea
- c) Pili facilitate the binding of the organism to the intestinal mucosa
- d) Attaching and effacing lesions seen in the small intestine are due to the destruction of the microvilli
- e) Colonize the small intestines ✓

26. Which of the following is not a characteristic of actinomycetes

- a) Gram-positive bacteria with branching filaments
- b) Possess a polysaccharide capsule
- c) Mainly soil saprophytes
- d) Cause chronic granulomatous infections in humans and animals ✓
- e) Their cell wall contains muramic acid ✓

27. *Klebsiella pneumoniae*

- a) Possess a H-antigen on their surface
- b) Are oxidase positive ✗
- c) Serotypes are based on the somatic antigen
- d) Synthesise siderophores that take-up iron bound to host proteins
- e) Express protein A that form pores on the cell membrane of the bacteria

28. Enterobacteriaceae that express extended-spectrum β -lactamases (ESBL) hydrolyze the following antibiotics EXCEPT

- a) Ceftazidime
- b) Cefotaxime
- c) Ceftriaxone
- d) Meropenem
- e) Aztreonam

29. Infections caused by *Proteus mirabilis*

- a) Are confined to the abdomen
- b) Predispose to systemic inflammatory disease syndrome
- c) Are mainly endogenous
- d) Catheter-associated urinary tract infections are often polymicrobial
- e) Multidrug-resistant isolates are rare.

30. The following risk factors put individuals at risk of developing invasive candidiasis EXCEPT

- a) Low birth weight premature neonates ✓
- b) Gastrointestinal tract perforation ✓
- c) Parenteral nutrition ✓
- d) Central venous catheters
- e) Existing microbiome ✓

31. Stain used in routine diagnosis of cryptococcal meningitis

- a) Albers stain
- b) Methylene blue stain
- c) India ink
- d) ZN-stain
- e) Spore stain

32. *Pytiriasis versicolor* is caused by

- a) *Trichosporon beigeli*
- b) *Trichophyton mentagrophytes*
- c) *Microsporum canis*
- d) *Malassezia furfur*
- e) *Piedra hortae*

33. A case of leprosy with poor cell-mediated immunity and numerous number of bacilli usually presents as the following form of disease:

- a) Lepromatous
- b) Tuberculoid
- c) Indeterminate
- d) Tubercles
- e) Leproid

34. Causative agents of watery diarrhea include all the following except

- a) Enterotoxigenic *E. Coli* ✓
- b) *Vibrio Cholerae* ✓
- c) *Yersinia enterocolitica*
- d) Enteroinvasive *E. Coli* ✓
- e) Enteroaggregative *E. Coli* ✓

35. Enzyme produced by *Helicobacter pylori* whose presence is tested in biopsy specimens?

- a) Coagulase
- b) Urease
- c) Hyaluronidase
- d) DNase
- e) Catalase

36. The following are characteristics of *Vibrio cholera* except

- a) Gram negative curved rods
- b) Oxidase negative
- c) Motile
- d) Produces yellow colonies on TCBS
- e) The serogroups are based on the H antigen

37. Rapidly growing mycobacteria include

- a) *M. Scrofulaceum*
- b) *M. Chelonei*
- c) *M. Kansasii*
- d) *M. Microti*
- e) *M. Africanum*

38. Otomycosis

- a) Mostly occurs in adults
- b) Can result from chronic antibacterial use
- c) Most common organisms are *Epidermophyton* and *Penicillium* spp
- d) Responsible for 10% of acute otitis externa
- e) Common in cold, dry climates

39. Not true regarding Bacterial Vaginosis

- a) *Gardnerella vaginalis* is a causative agent
- b) Pungent Fishy odour is one of the symptoms
- c) Clue Cells are the most reliable predictor of infection
- d) A soft papular lesion that breaks down into a painful bleeding ulcer is observed
- e) Nugent Score is often used in diagnosis

40. The main virulence factor in TB pathogenesis is:

- a) Bacteria's ability to survive inside the bronchi
- b) Bacteria's ability to destroy the macrophage
- c) Bacteria's ability to destroy the pulmonary tissue
- d) Bacteria's ability to survive inside the macrophage
- e) Bacteria's ability to survive inside the Ghon complex

41. Which of these media is used for culture of *Entamoeba histolytica*?

- a. Macconkey
- b. Robinson's
- c. Novy-MacNeal-Nicolle medium
- d. Sebaroud's
- e. None of the above

3

PARASIT

42. The pathogenic form of *Trypanosoma brucei rhodesiense* is

- a. Tachyzoite
- b. Trypomastogote
- c. Trophozoite
- d. Microfilaria
- e. Coracidium

43. Which of the following is a non-motile protozoon?

- a. *Trypanosoma cruzi*
- b. *Leishmania donovani*
- c. *Giardia lamblia*
- d. *Cryptosporidium parvum*
- e. *Balantidium coli*

44. Which of the following drugs is conventionally used in the treatment of Fascioliasis?

- a. Suramin
- b. Ivermectin
- c. Pyrimethamine
- d. Triclabendazole ✓
- e. Metrifonate

45. Which of these statements is true regarding *Giardia lamblia*?

- a. It is largely transmitted sexually
- b. Albendazole is the drug of choice for treatment of infection
- c. Is transmissible feco-orally
- d. Only exists in a trophozoite stage
- e. Intermediate host is Man

46. Which of these is useful in diagnosing *Taenia solium* infection?

- a. Identification of cysticerci in stool ✗
- b. Identification of proglottids in blood
- c. Identification of trophozoites in enterotest ✗
- d. Identification of cysticerci in tissues ✓
- e. None of the above ✓

47. The following features are associated with African Trypanosomiasis except

- a) Hepatosplenomegaly
- b) Chancre
- c) Kerandel's sign
- d) Winter bottom sign ✓
- e) Arch 5 test

48. The following are larval stages of Cestodes **except**
- a) Proceroid
 - b) Coracidium
 - c) Miracidium
 - d) Onchosphere
 - e) Cysticercoids
49. Which of the following parasitic infections may cause severe travellers' diarrhoea?
- a) *Entamoeba coli*
 - b) *Giardia lamblia*
 - c) *Trichomonas hominis*
 - d) *Chilomastix mesneli*
 - e) *Balantidium coli*
50. Autoinfection usually occurs in infection with
- a) *Taenia saginata*
 - b) *Balantidium coli*
 - c) *Taenia solium*
 - d) *Hymenolepis diminuta*
 - e) *Ascaris lumbricoides*
51. Mode of infection of *Dracunculus medinensis* is:
- a. Ingestion
 - b. Inhalation
 - c. Skin penetration
 - d. Inoculation by Cyclops
 - e. Inoculation by Chrysops
52. The dog is a definitive host of which of these parasites?
- a. *Hymenolepis diminuta*
 - b. *Hymenolepis nana*
 - c. *Taenia saginata*
 - d. *Dipylidium caninum*
 - e. None of the above
53. Oncospheres of the eggs of all these parasites have 3 pair of hooklets **except**?
- a. *Taenia saginata*
 - b. *Taenia solium*
 - c. *Echinococcus granulosus*
 - d. *Hymenolepis nana*
 - e. *Dipylidium caninum*

54. Which of these drugs is used for intermittent presumptive treatment of malaria in pregnancy?

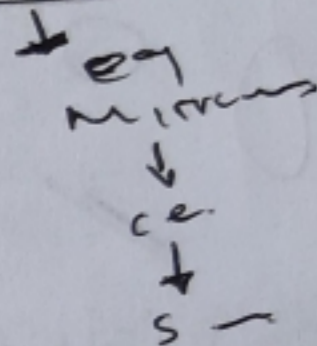
- a. Chloroquine ✓
- b. Quinine ✓
- c. Amodiaquine
- d. Sulphadoxine-Pyrimethamine
- e. Artemesinin-Halofantrine

55. Which of these statements about Babesiosis is not true:

- a. Is caused by a non-motile protozoal parasite
- b. Clindamycin is useful for treatment of the infection
- c. Is transmitted by ticks ✓
- d. Trophozoites are found in human blood ✓
- e. All of the above

56. What is the correct sequence of the stages in the life cycle of *Schistosoma haematobium*?

- a. Egg - schistosomulum - miracidium - cercaria - adult
- b. Egg - cercaria - schistosomulum - miracidium - adult
- c. Egg - miracidium - cercaria - metacercaria - adult
- d. Egg - miracidium - cercaria - schistosomulum - adult
- e. Egg - miracidium - metacercaria - schistosomulum - adult



57. Which of these statements about *Schistosoma haematobium* is true?

- a. Adults are hermaphrodites ✓ to ♀
- b. Has two intermediate hosts in its life cycle
- c. Adults attach to the host using hooks
- d. Adult males have trabeculations
- e. None of the above

58. Which of these have microfilaria that may exhibit nocturnal periodicity?

- a. *Loa loa*
- b. *Onchocerca volvulus* *
- c. *Mansonella perstans*
- d. *Wuchereria bancrofti*
- e. None of the above

59. For which of these parasites do hyraxes act as the animal reservoir?

- a. *Leishmania donovani*
- b. *Leishmania tropica*
- c. *Leishmania major*
- d. *Leishmania ethiopia*
- e. All of the above

60. Infection with which of these parasites is self-healing?

- a. *Leishmania donovani* and *Leishmania major*
- b. *Leishmania major* and *Leishmania ethiopia*
- c. *Leishmania donovani* and *Leishmania tropica*
- d. *Leishmania tropica* and *Leishmania ethiopia*
- e. *Leishmania tropica* and *Leishmania major*

61. Each of the following statements concerning malaria is correct **except**:
- The female anopheles mosquito is the vector ✓
 - In early infection, sporozoites enter hepatocytes ✓
 - Has both sexual and asexual reproduction in its life cycle ✓
 - Principal site of gametocyte formation is the human gastrointestinal tract
 - May cause severe anaemia

62. In malaria, what stage is transmitted from mosquito to humans

- Sporozoite
- Gametocyte
- Merozoite
- Hypnozoite
- None of the above

63. Which of the following statements regarding *Plasmodium falciparum* is true?

- Is associated with relapses after treatment because of liver hypnozoites
- Can be transmitted by female *Aedes* mosquitoes ✗
- Can be treated with primaquine ✓
- Schizonts are rarely seen in blood ✗
- None of the above

64. Which of these parasites has a tachyzoite as one of its developmental forms?

- Plasmodium vivax*
- Balantidium coli*
- Toxoplasma gondii*
- Mansonella perstans*
- Trichinella spiralis*

65. Swimmers itch may be present during infection with:

- Necator americanus*
- Strongyloides stercoralis*
- Enterobius vermicularis*
- Schistosoma japonicum*
- Oncocerca volvulus*

66. The second intermediate host for *Fasciolopsis buski* is

- Crab
- Watercress
- Water chestnut
- Brackish water fish
- Snail

67. Which of the following does not infect the liver?

- Schistosoma japonicum* ✓
- Fasciolopsis buski* ✓
- Opisthorchis viverrini*
- Fasciola hepatica* ✓
- Schistosoma mansoni* ✓

68. Which one of the following is **not** a clinical presentation of Strongyloidiasis?
- a. Dermatitis ✓
 - b. Cough
 - c. Abdominal pain ✓
 - d. Weight loss ✓
 - e. Periorbital oedema

69. Which of the following drugs is useful in the treatment of infection caused by Trichinella spiralis?
- a. Metronidazole
 - ~~b. Albendazole~~
 - c. Diethylcarbamazine
 - d. Praziquantel
 - e. All of the above

70. Which one of the following strategies is **not** useful in the prevention and control of Entamoeba histolytica?
- a. Hand washing before handling food
 - b. Use of pit latrines for disposal of fecal matter
 - c. Screening and treatment of food handlers
 - d. Treatment of cyst passers using albendazole
 - e. Water treatment

71. The parasite that causes tungiasis is the
- a. Flea
 - b. Mite
 - c. Louse
 - d. Tick
 - e. Screw worm fly

72. Which one of the following is **not** a clinical presentation of Onchocerciasis?
- a. Blindness
 - b. Hanging groin ✓
 - c. Winter bottom sign ✓
 - d. Skin pruritus
 - e. Leopard-like skin appearance

73. Which of the specimens below are useful in the diagnosis of toxoplasmosis in humans?
- a. Blood and stool
 - b. Urine and blood *
 - c. Stool and amniotic fluid
 - d. Amniotic fluid and blood
 - e. Muscle biopsy and blood

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74. The tick is an intermediate host for

- a. *Ascaris lumbricoides*
- b. *Diphyllobothrium latum*
- c. *Hymenolepis diminuta*
- d. *Babesia microti*

75. The Chrysops fly is a biological vector for

- a. *Loa loa*
- b. *Onchocerca volvulus*
- c. *Wuchereria bancrofti*
- d. *Brugia malayi*
- e. *Trypanosoma gambiense*

76. Which one of the following is a complication diphyllobothriasis?

- a. Amoeboma
- b. Megaloblastic anaemia
- c. Pneumonitis
- d. Liver abscess
- e. Hepatoma

77. Which of the following is the **most** useful in the diagnosis of infection with *Capillaria hepatica* in humans?

- a. Urine
- b. Liver biopsy
- c. Stool
- d. Cerebrospinal fluid
- e. None of the above

78. Which of these statements is true regarding *Toxoplasma gondii*

- a. It is largely transmitted sexually
- b. Albendazole is the drug of choice for treatment of infection
- c. Only exists in a tachyzoite stage
- d. Infection may present with pruritus of the vagina
- e. Washing of hands prior to meals is useful in its prevention
- f. None of the above

79. The intermediate host for *Diphyllobothrium latum* is

- a. *Mansonia*
- b. Cyclops
- c. Copepod
- d. Snail
- e. Chrysops

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80. In which of the following parasitic infections is proper cooking of fish before consumption useful in its control?
- a. Capillaria philipinensis
 - b. Trichinella spiralis
 - c. Capillaria hepatica
 - d. Necator americanus
 - e. All of the above
81. One of the following statements is FALSE about influenza viruses.
- a. Replication occurs in the nucleus
 - b. They have a segmented genome
 - c. Rarely undergo antigenic variation
 - d. Can infect chicken, ducks and horses
 - e. Vaccines are an important part of prevention and control ✓
82. About uncoating inhibitors used in treatment of influenza:
- a. Include Rimantadine, amantadine and peramivir
 - b. Include Zanamivir and Oseltamivir
 - c. Are active against Influenza A, not B or C
 - d. Resistance against them is rare
 - e. They block viral release
83. One of the following malignancies is associated with an RNA virus
- a. Cervical cancer
 - b. Hepatocellular carcinoma
 - c. Burkitt Lymphoma
 - d. Nasopharyngeal Cancer
 - e. Kaposi sarcoma
84. One of the following conditions is CURABLE using antiviral agents
- a. HIV
 - b. Herpes labialis
 - c. Hepatitis C
 - d. Yellow fever
 - e. Genital herpes
85. Paramyxoviridae includes the following viruses EXCEPT:
- a. Measles ✓
 - b. Mumps
 - c. Rubella
 - d. Parainfluenza viruses
 - e. Metapneumovirus

86. A rash that lasts three days is characteristic for:

- a. Rubella
- b. Dengue
- c. Measles
- d. HIV
- e. Rocky mountain spotted fever

87. The following viruses are usually associated with maculopapular rash EXCEPT:

- a. Measles virus
- b. Herpes simplex virus I
- c. Mumps virus
- d. Rubella virus
- e. Parvovirus B19

88. One of the following antiviral agents is wrongly matched with its target virus:

- a. Lamivudine – Hepatitis B
- b. Dolutegravir – HIV
- c. Oseltamivir – Influenza
- d. Ribavirin – Hepatitis C
- e. Acyclovir – Cytomegalovirus

89. One of the following is an emerging virus is:

- a. MERSCoV that was identified within 6 years ago
- b. Zika that is now affecting an area where it wasn't before
- c. One that is causing clinical symptoms different from previous episodes
- d. One that is infecting a new population of people that was not affected previously
- e. All of the above

90. The following are characteristics of abnormal prion proteins EXCEPT:

- a. They induce a strong immune response
- b. They are resistant to proteases
- c. They reproduce through conversion of normal Pr^C into Pr^{SC}
- d. They can be transmitted by cooked beef
- e. They accumulate in neurons

91. One of these viruses is associated with infection of respiratory tract and is a member of the picornaviridae family

- a. Coronavirus
- b. Influenza virus
- c. Rhinovirus
- d. Measles virus
- e. Adenovirus

92. Insertional mutagenesis is a strategy used by these viruses to induce cancer in infected individuals

- a. Adenoviruses
- b. Parvoviruses
- c. Hepadnaviruses
- d. Papillomaviruses
- e. Retroviruses

93. This virus test is referred to as a "Direct Detection" test.

- a. PCR
- b. Antigen ELISA
- c. Electron microscopy
- d. Immunofluorescence assay (IFA) test
- e. All of the above

94. Rotaviruses (associated with diarrhea) replicate and mature using this process

- a. Budding
- b. Lysis
- c. Endosome formation
- d. Exocytosis
- e. None of the above

95. Viroids are

- a. Infectious proteins *✗*
- b. Infect humans *✗*
- c. Circular DNA molecules *✗*
- d. Cause central nervous system infections
- e. None of the above

→ *small circular ssRNA without protein*

96. Influenza and parainfluenza viruses

- a. Belong to different families
- b. Contain segmented RNA genomes
- c. Replicate in the cytoplasm
- d. Cause systemic infections
- e. None of the above

97. Infection with this virus within the 1st three months of pregnancy can result in developmental defects such as cataracts, deafness, and mental retardation

- a. Rubella virus
- b. Measles virus
- c. CMV
- d. HIV-1
- e. All of the above

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Registration No. H31/37730/2016

98. Nucleoside reverse-transcriptase inhibitors (NRTIs) can be used to treat infections with this virus

- a. Herpesviruses
- b. Rhinovirus
- c. Paramyxovirus
- d. Influenza virus
- e. Hepatitis B virus

99. Latency and reactivation is an important characteristic of this virus

- a. Human T-Lymphotropic Virus type 1 (HTLV-1)
- b. Measles virus
- c. Varicella-zoster virus (VZV)
- d. Adenovirus 21
- e. Poliovirus

100. During the "window" period in HIV-1 infection, exposed persons should be tested for infection using

- a. Microscopy
- b. Antibody ELISA
- c. Western blot
- d. Polymerase-chain reaction
- e. Rapid tests

2

RNA