



KENYATTA UNIVERSITY
UNIVERSITY EXAMINATIONS 2007/2008
SUPPLEMENTARY EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICINE AND BACHELOR OF SURGERY

HPA 200: PATHOLOGY I

DATE: Tuesday, 17th June, 2008

TIME: 2.00 p.m. – 3.30 p.m.

INSTRUCTIONS: MULTIPLE CHOICE QUESTIONS: CIRCLE THE CORRECT ANSWER(S) IN EACH QUESTION. HALF A MARK WILL BE DEDUCTED FOR EACH WRONGLY CIRCLED ANSWER.

1. Bacterial capsule is:
 - a) An organelle for sexual reproduction
 - b) A virulence factor
 - c) An organelle for motility
 - d) A target for antimicrobial agent action
2. Crystal Violet Blood Agar is a selective medium for:
 - a) Enterohaemorrhagic *Escherichia coli*.
 - b) *Bacillus anthracis*
 - c) *Streptococcus pneumoniae*
 - d) *Streptococcus agalactiae*
 - e) *Streptococcus pyogenes*
3. Which antigen of *Neisseria gonorrhoea* is primarily associated with edotoxicosis?
 - a) Lipoteichoic acid
 - b) Peptidoglycan
 - c) "Vi" antigen
 - d) Lipopolysaccharide
 - e) Flagellar (H) antigen
4. Spore – forming gram positive anaerobic bacillus is a description of:
 - a) *Pseudomonas aeruginosa*
 - b) *Clostridium perfringens*
 - c) *Corynebacterium diphtheriae*
 - d) *Bacillus cereus*
 - e) *Bordetella pertussis*
5. Which term refers to the use of certain chemicals like soaps or detergents to bring down the microbial load to "Safer" levels?
 - a) Antibiotics

- b) Antimicrobials
 - c) Sanitation
 - d) Sterilization
 - e) Sterilants
6. The earliest process during the development dental caries or periodontal disease is:
- a) Acquired pellicle
 - b) Acid release
 - c) Enamel destruction
 - d) Plaque accumulation
 - e) Pus formation
7. *Chlamydia trachomatis* is associated with the following except:
- a) Endemic trachoma
 - b) Inclusion conjunctivitis
 - c) Lymphogranuloma venerum
 - d) Community acquired pneumonia
 - e) Reiter's syndrome
8. The following statement (s) are true regarding *Clostridium perfringens* except:
- a) It is the commonest cause of gas gangrene
 - b) It is normally present in human faeces
 - c) Its principal toxin is the alpha toxin
 - d) It causes food poisoning
 - e) Gas gangrene producing strains of *C. perfringens*
9. The following bacteria are most often associated with acute neonatal meningitis except:
- a) *Escherichia coli*
 - b) *Streptococcus agalactiae*
 - c) *Neisseria meningitidis*
 - d) *Listeria monocytogenes*
 - e) *Ureaplasma urealyticum*
10. All of the following organisms are known to survive intracellularly except:
- a) *Neisseria gonorrhoeae*
 - b) *Legionella pneumophila*
 - c) *Mycobacterium tuberculosis*
 - d) *Brucella abortus*
 - e) *Streptococcus pyogenes*
11. The capsule of *Cryptococcus neoformans* in a CSF sample is best seen by:
- a) Gram's stain
 - b) India Ink preparation
 - c) Giemsa stain
 - d) Gomori methanamine silver stain

- e) LCB met mount
12. Viruses cannot be cultivated in which of the following?
- Tissue culture
 - Embryonated eggs
 - Animals
 - Chemically defined media
13. A bacterial disease that has been associated with the 3 "Rs", - rats, racefields and rainfall is:
- Leptospirosis
 - Plague
 - Melioidosis
 - Rodent – bite fever
 - Undulant fever
14. Virus mediated transfer of host DNA from one cell to another is known as
- Transduction
 - Transformation
 - Transcription
 - Integration
 - Conjugation
15. Identify the statement (s) which is (are) untrue about *Staphylococci*.
- 23 – lactamase production in staphylococci is under plasmid control
 - Coagulase negative staphylococcal infections are mostly due to *Staphylococcus epidermidis*
 - Most *Staphylococcus aureus* strains are DNase producers
 - Methicillin resistance in *Staphylococcus aureus* is independent of β – lactamase production
16. The antistreptolysin O titre is raised in infections caused by
- Streptococcus pneumoniae*
 - Streptococcus pyogenes*
 - Streptococcus bovis*
 - Streptococcus sanguis*
 - Streptococcus mutans*
17. Which of the following is not a cause of gas gangrene in man:
- Clostridium histolyticum*
 - Clostridium septicum*
 - Clostridium sporogenes*
 - Clostridium novyi*

e) *Clostridium perfringens*

18. With reference to *Escherichia coli* infections the following statement (s) is not true:

- a) Enteraggregative *E. coli* is associated with persistent diarrhea
- b) Enterohemorrhagic *E. coli* can cause haemolytic uremic syndrome
- c) Enteroinvasive *E. coli* produces a disease similar salmonellosis
- d) Enterotoxigenic *E. coli* is a common cause of traveler's diarrhea

19. Which is (are) not the virulence factor(s) for *Neisseria meningitidis*?

- a) Polysaccharide capsule
- b) Exotoxin
- c) Pili
- d) Endotoxin
- e) Flagellin

20. Which of the following fungi are not dimorphic?

- a) *Candida tropicalis*
- b) *Histoplasma capsulatum*
- c) *Blastomyces dermatitidis*
- d) *Coccidioides immitis*
- e) *Sporothrix schenckii*

21. Properly (ies) possessed by chlamydiae and viruses is /are:

- a) Filterable nature of infectious
- b) Multiplication by binary fission
- c) The ability to elicit immediate hypersensitivity
- d) Existence as obligate intracellular parasites
- e) Formation of inclusion bodies in infected cells

22. Laboratory identification of *Candida albicans* cannot be performed by

- a) Positive urease test
- b) Presence of chlamydospores
- c) Positive germ tube test
- d) Fluorescence under wood's lamp
- e) Presence of a capsule

23. Which of the following listed antiviral drugs act at the protein synthesis level?

- a) Ribavirin
- b) Indinavir
- c) Nevirapine
- d) Lamivudine
- e) Rimantadine

24. The aetiological agent for chickenpox is :
- Varicella –zoster virus
 - Vaccinia virus
 - Rubella virus
 - Rubeola virus
 - Variola virus
25. A common cause of infection of pulmonary cavities is
- Saccharomyces cerevisiae
 - Smallpox virus
 - Bacillus subtilis
 - Aspergillus fumigatus
 - Corynebacterium diphtheriae
26. Sterilization cannot be achieved by
- All cocci are gram negative
 - They are unicellular
 - Some are acid fast
 - They may inhabit humans
27. The following are correct concerning bacteria except:
- All cocci are gram negative
 - They are prokaryotes
 - They are unicellular
 - Some are acid fast
 - They may inhibit humans
28. *Mycobacterium leprae* bacilli are not:
- Demonstrated by Albert's stain
 - Acid – alcohol fast
 - Demonstrated by Ziehl – Neelsen staining
 - Long slender bacilli
 - Spread by respiratory droplets
29. The following is wrong about the common routes of viral infections
- Genital mucosa
 - Respiratory mucosa
 - Alimentary canal
 - Blood stream
30. Examination of paired sera to demonstrate a four – fold rise in antibody level is useful in the diagnosis of
- Bubonic plague
 - Bacillary dysentery
 - Typhoid fever

- d) Lymphogranuloma venereum
 - e) Gonococcal urethritis
31. The following is/are pathogenic in humans
- a) *Clostridium sordelli*
 - b) *Clostridium difficile*
 - c) *Clostridium perfringens*
 - d) *Clostridium sporogenes*
 - e) *Clostridium botulinum*
32. Which of the following does not involve arthropod vectors in their spread?
- a) Endemic typhus
 - b) Bubonic plague
 - c) Wool – sorter's disease
 - d) Scrub typhus
 - e) Ceptospirosis
33. Which of the following is not required for bacterial conjugation?
- a) Sex pili
 - b) Virulent bacteria ophage
 - c) F factor
 - d) Recipient (F -) bacteria cell
34. *Staphylococcus aureus* may be a causative agent for the following except
- a) Scalded skin syndrome
 - b) Bacterial food poisoning
 - c) Endocarditic
 - d) Toxic shock syndrome
 - e) Acute osteomyelitis
35. Which of the following mycobacteria is/are photochromogens?
- a) *Mycobacterium kansasii*
 - b) *Mycobacterium scrofulaceum*
 - c) *Mycobacterium bovis*
 - d) *Mycobacterium leprae*
 - e) *Mycobacterium tuberculosis*
36. Nocardia organisms are
- a) Non – acid fast organisms
 - b) Causative agents of eumycotic mycetoma
 - c) Endospore forming bacteria
 - d) Salt loving bacteria
 - e) Saprophytic bacteria

37. Which of the following is/are anaerobic gram negative bacilli?
- a) *Bacteriodes fragilis*
 - b) *Peptostreptococcus spp*
 - c) *Moraxella catarrhalis*
 - d) *Veillonella parvula*
 - e) *Neisseria gonorrhoeae*
38. which of the following is/are non specific treponemal tests
- a) Rapid plasma Reagin test
 - b) VDRL test
 - c) Unheated serum reaction
 - d) Treponema Pallidum Haemagglutination Assay
 - e) Fluorescent Treponemal Antibody test
39. One statement about *Mycoplasma pneumoniae* is true. Which is it?
- a) It is not a human pathogen
 - b) It is susceptible to penicillins
 - c) It is susceptible to penicillins
 - d) It is cell wall contains peptidoglycan
 - e) It is motile my peritrichyous flagella
40. *Bordetella pertussis* are not known to
- a) Grow on special media
 - b) Be grow positive rods
 - c) Grow aerobically
 - d) Cause whooping cough
 - e) Spread by aerosolized droplets
41. Fungi can play the following beneficial roles except:
- a) Preparation a Russian tea
 - b) Production of alcohol
 - c) Alleviating localized vascular disorders e.g. migraine
 - d) Synthesis of Hepatitis B vaccine
 - e) Cleaning of oil spills
42. The following virus (es) can grow in the amniotic cavity of embryonated eggs
- a) Influenza virus
 - b) Vaccinia virus
 - c) Mumps virus
 - d) Herpes viruses

43. The capsid of Herpes viruses is
- Spherical in shape
 - Icosahedral, enveloped
 - Icosahedral, naked
 - Complex and very large in size
 - Square in shape
44. Which statement (s) is false about cytomegaloviruses? They
- Are excreted in urine of certain individuals
 - Have oncogenic potential
 - Can cause intrauterine infection
 - Are treated with Gancyclovir (IV)
 - Are responsible for Kaposi's Sarcoma
45. The only motile gram positive cocci are
- Micrococci
 - Pneumococci
 - Gonococci
 - Planococci
 - Meningococci
46. an example (s) of enrichment medium is (are)
- Stuart's medium
 - Amie's medium
 - Alkaline peptone water
 - Nutrient broth
 - Brain heart infusion broth
47. Typical *Streptococcus pneumoniae* colonies on blood agar after 48 hours are:
- Large and dome shaped
 - Gamma haemolytic when grown aerobically
 - Carvited (draughtsman form)
 - Dry and brittle
 - Filled with sporulating cocci
48. The dull green fluorescence under Wood's lamp is diagnostic of the presence of
- Microsporum gypseum*
 - Malassezia furfur*
 - Trichophyton schoenleinii*
 - Epidermophyton floccosum*
49. *Vibrio cholerae* bacilli are

- a) Environmental bacteria
 - b) Animal pathogens
 - c) Pathogenic by capsule activity
 - d) Virulent by enterotoxin activity
 - e) Normal flora of the gut
50. contamination of specimens/culture of *Haemophilus influenzae* is prevented by
- a) Fildes's agar
 - b) Addition of antibiotics
 - c) Growth at 35°C
 - d) Addition of 10% CO₂
 - e) Use of blood agar
51. Auto-infection is usually caused by:
- a) *Ascaris lumbricoides*
 - b) *Taenia solium*
 - c) *Hymenolepis nana*
 - d) *Echinococcus granulosus*
52. Which of the following are tissue parasites?
- a) *Ancylostoma duodenale*
 - b) *Wucheria bancrofti*
 - c) *Trichuris trichiura*
 - d) *Trichinella spiralis*
53. Which of the following arthropods feed at twilight?
- a) Reduviid bugs
 - b) Tsetsefly
 - c) Sandflies
 - d) Mosquitoes
54. Flatulence is usually associated with:
- a) *Endolimax nana*
 - b) *Trichomonas tenax*
 - c) *Trichomonas hominis*
 - d) *Blastocystis hominis*
55. Which of the following are intracellular blood protozoa?
- a) *Trypanosoma gambiense*
 - b) *Plasmodium vivax*
 - c) *Trypanosoma rhodesiense*
 - d) *Leishmania tropica*
56. Extra – intestinal amoebiasis is usually caused by:
- a) *Entamoeba polecki*
 - b) *Entamoeba histolytica*
 - c) *Entamoeba coli*

- d) *Entamoeba mushkovski*
57. Tuberculosis - like symptoms are usually associated with:
- a) *Hymenolepis nana*
 - b) *Schistosoma haematobium*
 - c) *Necator americanus*
 - d) *Paragonimus westermanni*
58. Blood in stool is associated with:
- a) *Ancylostoma duodenale*
 - b) *Necator americanus*
 - c) *Schistosoma mansoni*
 - d) *Trichuris trichiura*
59. Which of the following are human fleas:
- a) *Xynopsylla Cheopis*
 - b) *Tunga penetrans*
 - c) *Pulex irritans*
 - d) *Echdinophaga gallinaceum*
60. Atrial protozoa include:
- a) *Blastocystis hominis*
 - b) *Trichomonas hominis*
 - c) *Trichomonas vaginalis*
 - d) *Acanthamoeba luciliae*
61. Red blood cells are inclusions in:
- a) *Iodamoeba bustchlii*
 - b) *Naegleria gruberi*
 - c) *Entamoeba coli*
 - d) *Entamoeba histolytica*
62. Diarrhea may be caused by:
- a) *Trichomonas tenax*
 - b) *Balantidium coli*
 - c) *Plasmodium ovale*
 - d) *Giardia lamblia*
63. Which of the following parasite is transmitted by an arthropod?
- a) *Trichuris trichiura*
 - b) *Dracunculus medinensis*
 - c) *Ancylostostonia duodenale*
 - d) *Trichinella spiralis*

64. Which of the following helminthes are usually associated with anaemia?

- a) Hookworms
- b) Whipworm
- c) Tapeworms
- d) Flukes

65. "Ball – knee" is a characteristic feature in:

- a) Trichuriasis
- b) Ancylostomiasis
- c) Ascariasis
- d) Schistosomiasis

66. Which of the following are soil- transmitted helminthes?

- a) *Schistosoma haematobium*
- b) *Onchocerca volvulus*
- c) *Dracunculus medinensis*
- d) *Trichuris trichiura*

67. Mosquito with white specks on the body is:

- a) Anopheles
- b) Mansonia
- c) Aedes
- d) Culex

68. Leishmania tropica is responsible for:

- a) Visceral leishmaniasis
- b) Cutaneous leishmaniasis
- c) Blurred vision
- d) Acute abdominal pains

69. Cerebral malaria is caused by

- a) *Plasmodium ovale*
- b) *Plasmodium vivax*
- c) *Plasmodium malariae*
- d) *Plasmodium falciparum*

70. Cilia is used as organelle of movement by:

- a) *Entamoeba coli*
- b) *Balantidium coli*
- c) *Giardia lamblia*
- d) *Trichomonas hominis*

71. Transmission of malaria is influenced by:

- a) Occupation of person

- b) Height of person
 - c) Feeding habits of a person
 - d) Location of person
72. A mature cyst with eight nuclei is characteristic of:
- a) *Blastocysts hominis*
 - b) *Endolimax nana*
 - c) *Entamoeba coli*
 - d) *Iodamoeba bustchlii*
73. Spotted wings is characteristic of:
- a) *Anopheles*
 - b) *Culex*
 - c) *Aedes*
 - d) *Mansonia*
74. Myiasis may be caused by:
- a) *Phlebotomus martini*
 - b) *Musca domestica*
 - c) *Glossina palpalis*
 - d) *Fannia canicularis*
75. Myalgia is a condition associated with:
- a) *Taenia saginata*
 - b) *Necator americanus*
 - c) *Trichiuris trichiura*
 - d) *Trichinella spiralis*
76. Elephantiasis of the upper limbs is caused by:
- a) *Loa loa*
 - b) *Brugia malayi*
 - c) *Wuchereria bancrofti*
 - d) *Onchocerca volvulus*
77. Mechanical transmission of parasites may be effected by:
- a) mosquitoes
 - b) sandflies
 - c) houseflies
 - d) ticks
78. Regular fever alternating with chills is characteristic of:
- a) trypanosomiasis
 - b) malaria
 - c) leishmaniasis

d) filariasis

79. Which of the following parasites infects the liver?

- a) *Paragonimus westermani*
- b) *Fasciolopsis buski*
- c) *Clonorchis sinensis*
- d) *Heterophes heterophyes*

80. Vagabond's disease is through:

- a) lice
- b) fleas
- c) ticks
- d) tsetseflies

81. Which of the following is the odd one out?

- a) Macrophages
- b) Dendritic cells
- c) B- cells
- d) Natural killer cells

82. The following is an effector function of lymphocytes except:

- a) Killing of injected cell
- b) Activation of macrophages
- c) Neutralization of microbes
- d) Trapping of particulate antigens

83. The following are myeloid cells except

- a) Natural killer cells
- b) Basophils
- c) Monocytes
- d) Monocytes

84. Recognition to foreign antigens by Naïve T- cells occurs at all the following except:

- a) Thymus
- b) Lymph nodes
- c) mucosal Associated lymphoid Tissue
- d) Peyer's Patches

85. All antibodies:

- a) Have equal distribution in serum
- b) Can be divided into distinct classes and subclasses
- c) Have hypervariable regions for antigen binding
- d) Do not have a symmetrical core structure

86. The following are functions of antibodies except:
- a) Opsonisation
 - b) Inflammation
 - c) Neutralization
 - d) Mucosal Protection
87. CD4 cells recognize antigens in association with
- a) MHC class I
 - b) MHC class II
 - c) MHC class III
 - d) Macrophages
88. Which of the following are immuno pathological diseases?
- a) Leprosy
 - b) Malaria
 - c) Schistosomiasis
 - d) Hepatitis
89. The following factors influence Immunogenicity except:
- a) Location antigen
 - b) Molecular weight
 - c) Chemical complexity
 - d) Origin of antigen
90. Which of the following factors are associated with tolerance?
- a) Short lived antigens
 - b) Intravenous administration
 - c) Subcutaneous administration
 - d) Antigens without adjuvants
92. Which of the following is the principal site of B cell tolerance?
- a) Bone marrow
 - b) Spleen
 - c) Lymph nodes
 - d) Thymus
93. Which of the following define the functional roles of cytokines
- a) Antibodies
 - b) Mediators and regulators of innate immunity
 - c) Stimulators of haemopoiesis
 - d) Natural killing agents

94. Which of the following is the principal mediator of acute inflammation to gram negative bacteria?
- a) Tumor Necrosis Factor (TNF)
 - b) Interleukin – z
 - c) Transforming Growth Factor (TGF)
 - d) Interleukin 4
95. Which of the following cytokines synergize to cause isotype switching to IgE?
- a) Interleukin – 2 and Interleukin 13
 - b) TNF and TGF
 - c) TNF and Interleukin 2
 - d) IL – 4 and IL – 5
96. The following Mechanisms are used by tumours to escape Immune defenses
- a) Lack of T cell recognition of tumor
 - b) Inhibition of neutralization by antibodies
 - c) Down regulation of MHZ class I expression
 - d) Loss of expression of Innate responses
97. Which of the following are memory immunoglobulins?
- a) IgG
 - b) IgM
 - c) IgD
 - d) IgE
98. Primary lymphoid organs include:
- a) bone marrow
 - b) thymus
 - c) spleen
 - d) kidney
99. Which of the following is an immunological privileged organ?
- a) blood
 - b) bones
 - c) placenta
 - d) liver
100. Type I sensitivity is associated with:
- a) IgD
 - b) IgE
 - c) IgG
 - d) IgM