



KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2008/2009

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF
MEDICINE & BACHELOR OF SURGERY

(MBChB) 2007 GROUP

HPA 200 PATHOLOGY PART 1

SECTION A

MULTIPLE CHOICE QUESTIONS

PARASITOLOGY/ IMMUNOLOGY

Student Reg. No: _____

DATE: THURSDAY, 10TH SEPTEMBER 2009,

TIME: 2.00 P.M. – 3.30 P.M.

Instructions: Attempt ALL questions. Circle the correct answer. Write your student identification number on all answer pages. Half a Mark will be subtracted for each wrong response.

1. The Fc portion of Immunoglobulin
 - a. is required for placental transmission
 - b. is important for triggering IgE mediated hypersensitivity
 - c. confers biological activity on the various immunoglobulin classes
 - d. contains both heavy and light chains
2. MHC class I molecules
 - a. are highly polymorphic
 - b. are only expressed on professional antigen presenting cells
 - c. associate preferentially with pathogen-derived peptides
 - d. accommodate peptides in an open-end peptide binding groove
 - e. associate with β 2-microglobulin
3. Which one of the following is not a component of human tears?
 - a. IgA
 - b. IgG
 - c. Lysozyme
 - d. Hydrochloric acid

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4. Which ONE of following is TRUE of the complement system activation
 - a. classical pathway is best activated by IgE
 - b. C2 is the first enzyme complex in the classical pathway
 - c. both the alternative and classical pathway converge at C3
 - d. the membrane attack complex is made up of C3a and C5a
5. Which ONE of the following clinical features is NOT usually associated with HIV infection?
 - a. Persistent generalized lymphadenopathy
 - b. A glandular fever-like illness
 - c. Cardiac failure
 - d. Decreased CD4 T cell counts
6. Which ONE of the following is TRUE of epitopes associated with antigens from an exogenous source? They are:
 - a. presented in association with Class I MHC
 - b. presented to T helper lymphocytes
 - c. presented to T cytotoxic lymphocytes
 - d. associate with MHC molecules within the ER
7. Which ONE of the following cells can give rise to eosinophils:
 - a. The common lymphoid progenitor.
 - b. The megakaryocyte
 - c. The erythroblast.
 - d. The granulocyte/macrophage progenitor.
8. The majority of cells found in the paracortical area of lymph nodes are:
 - a. Plasma cells.
 - b. T cells
 - c. B cells
 - d. Macrophages
9. Antigens from sites of infection reach lymph nodes via:
 - a. Afferent lymphatic vessels.
 - b. Efferent lymphatic vessels.
 - c. Lymph node arteries.
 - d. Lymph node veins.
10. Which ONE of the following cells are known to contain granules:
 - a. Immature dendritic cells.
 - b. T cells.
 - c. B cells.
 - d. Mast cells.

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11. Which ONE of the following cells are NOT myeloid cells:
 - a. Neutrophils.
 - b. Granulocytes
 - c. Basophils.
 - d. N.K cells

12. Which ONE of the following is NOT an examples of autoimmune disease
 - a. Type 1 insulin-dependent diabetes mellitus
 - b. Rheumatoid arthritis
 - c. Adrenal hyperplasia
 - d. Systemic lupus erythromatosus

13. The heavy chain variable region of all classes/subclasses of Immunoglobulin are encoded by:
 - a. V & C gene segments
 - b. V & J gene segments
 - c. V gene segments only
 - d. V, D, & J gene segments

14. The antigen binding specificity of an antibody is due to:
 - a. The constant regions of the light chains
 - b. The variable framework regions of the heavy & light chains
 - c. The variable regions of the heavy chains
 - d. The hypervariable regions of both heavy & light chains

15. Which ONE of the following is the primary defect in chronic granulomatous disease?
 - a. Neutrophil production in the bone marrow
 - b. Neutrophil chemotaxis
 - c. Opsonization
 - d. Cytotoxic T-cell activity

16. Pathology of malaria DOES NOT include
 - a. Anaemia due to red cell destruction
 - b. Red blood cell sequestration
 - c. Fever correlated with synchronous parasite growth
 - d. Cerebral inflammation due to overproduction of TNF-alpha

17. Central tolerance takes place in
 - a. Thymus
 - b. lymph nodes
 - c. spleen
 - d. liver

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18. Recurrent bacterial pneumonia is UNLIKELY to complicate
- Prolonged immunosuppression following transplantation
 - Secondary immunodeficiency
 - Complement C3 deficiency
 - Hypogammaglobulinaemia
19. Which ONE of the following cell types is NOT found in a granuloma
- B lymphocyte
 - Macrophage
 - Epithelioid cell
 - Giant cells
20. With regard to rheumatoid factor, which ONE of the following statements is TRUE?
- Rheumatoid factor is an acute phase protein
 - A positive rheumatoid factor is diagnostic of rheumatoid arthritis
 - A positive rheumatoid factor suggests a poor prognosis in rheumatoid arthritis
 - Rheumatoid factor is an autoantibody directed against Fab region of IgG
21. Which of the following agents are NOT immunosuppressive
- Cyclosporine
 - Azathioprine
 - Corticosteroids
 - Salicylic acid
22. Which ONE of the following is a live vaccines
- Tetanus vaccine
 - Diphtheria vaccine
 - BCG
 - Oral polio vaccine
23. Which ONE of the following survival mechanism is LEAST likely to occur in parasitic infections?
- Immunosuppression
 - Antigenic disguise
 - Antigenic variation
 - Resistance to macrophage killing
24. Auto infection is usually caused by:
- Ascaris lumbricoides*
 - Taenia solium*
 - Hymenolepis diminuta*
 - Echinococcus granulosus*

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25. Which ONE of the following is a tissue parasites?

- a) *Ancylostoma duodenale*
- b) *Wuchereria bancrofti*
- c) *Trichuris trichiura*
- d) *Trichinella spiralis*

26. Which ONE of the following arthropods feed at twilight?

- a) Reduviid bug
- b) Tsetse flies
- c) Sandflies
- d) Mosquitoes

27. Flatulence is usually associated with:

- a) *Trichomonas tenax*
- b) *Endolimax nana*
- c) *Trichomonas hominis*
- d) *Blastocystis hominis*

28. Which ONE of the following is an unicellular blood protozoa?

- a) *Trypanosoma gambiense*
- b) *Plasmodium vivax*
- c) *Trypanosoma rhodesiense*
- d) *Leishmania tropica*

29. Which ONE of the following helminths is associated with iron deficiency anaemia?

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

30. Which ONE of the following are soil-transmitted helminth?

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

31. Mosquito with white specks on the body is:

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

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32. *Leishmania tropica* is responsible for:
- a) Blurred vision
 - b) Visceral leishmaniasis
 - c) Cutaneous leishmaniasis
 - d) Acute abdominal pains
33. Cerebral malaria is caused by:
- a) *Plasmodium ovale*
 - b) *Plasmodium vivax*
 - c) *Plasmodium malarie*
 - d) *Plasmodium falciparum*
34. Kerandel's sign in trypanosomiasis refers to:
- a) Delayed sensation to pain
 - b) Anemic signs
 - c) Kidney disease
 - d) Blurred vision
35. *Phlebotomus spp* is associated with transmission of:
- a) Leishmaniasis
 - b) Sleeping sickness
 - c) Chagas disease
 - d) Filariasis
36. Cilia is used as organelle for movement by:
- a) *Entamoeba coli*
 - b) *Balantidium coli*
 - c) *Giardia lamblia*
 - d) *Trichomonas hominis*
37. Which of the following is a facultative parasite?
- a) *Plasmodium falciparum*
 - b) *Entamoeba coli*
 - c) *Ancylostoma duodenale*
 - d) *Trichomona vaginalis*
38. Transmission of malaria is influence by:
- a) Occupation of a person
 - b) Location of a person
 - c) Personal hygiene
 - d) Feeding habits of a person
39. Tuberculosis-like symptoms are usually associated with:
- a) *Hymenolepis nana*
 - b) *Schistosoma haematobium*
 - c) *Necator americanus*
 - d) *Paragonimus westermanni*

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40. *Leishmania donovani* causes:

- a) Cutaneous leishmaniasis
- b) Kala-azar
- c) Diffuse cutaneous leishmaniasis
- d) Mucocutaneous leishmaniasis

41. Blood in stool is associated with:

- a) *Ancylostoma duodenale*
- b) *Necator americanus*
- c) *Schistosoma mansoni*
- d) *Ascaris lumbricoides*

42. Which ONE of the following is a human flea?

- a) *Xynopsylla cheopis*
- b) *Tunga penetrans*
- c) *Ctenocephalides canis*
- d) *Echdinophaga gallinaceum*

43. Which ONE of the following protozoa inhabits the body openings?

- a) *Blastocyst hominis*
- b) *Trichomonas hominis*
- c) *Trichomona vaginalis*
- d) *Acanthamoeba luciliae*

44. Red blood cells are an inclusion in:

- a) *Iodamoeba butschlii*
- b) *Naegleria gruberi*
- c) *Entamoeba coli*
- d) *Entamoeba histolytica*

45. Diarrhoea may be caused by:

- a) *Trichomonas tenax*
- b) *Balantidium coli*
- c) *Plasmodium ovale*
- d) *Entamoeba coli*

46. Which ONE of the following parasite is transmitted by an arthropod?

- a) *Trichuris trichiura*
- b) *Dracunculus medinensis*
- c) *Ancylostoma duodenale*
- d) *Trichinella spiralis*

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47. Which ONE of the following parasite infects the liver.

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

48. Vagabonds's disease is associated with:

- a) Lice
- b) Fleas
- c) Ticks
- d) Tsetse flies

49. Mature cyst with eight nuclei is a characteristic of:

- a) *Blatocysts hominis*
- b) *Endolimax nana*
- c) *Entamoeba coli*
- d) *Iodomoeba bustchlii*

50. Myiasis may be caused by:

- a) *Phlebotomus martini*
- b) *Musca domestica*
- c) *Glossina palpalis*
- d) *Amblyoma gemma*

51. Myalgia is a condition associated with:

- a) *Taenia saginata*
- b) *Necator Americana*
- c) *Trichuris trichiura*
- d) *Trichinella spiralis*

52. Mechanical transmission of parasites may be effected by:

- a) Mosquitoes
- b) Sandflies
- c) Cockroaches
- d) Ticks

PATHOLOGY PART I
SECTION B
MICROBIOLOGY

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Instructions: Attempt ALL questions. Circle the correct answer. Write your student identification number on all answer pages. Half a Mark will be subtracted for each wrong response.

53. Which ONE of the following is NOT a bacterial structure(s)?
- a. Babes Ernst granules
 - b. Axial filaments
 - c. Glycocalyx
 - d. Contractile vacuoles
54. Which ONE of the following colony characteristics CANNOT be observed on blood agar medium?
- a. Swarming growth
 - b. β – haemolysis
 - c. Consistency
 - d. Translucency
55. Which ONE of the following media is selective for isolation of *Neisseria gonorrhoeae*?
- a) Chocolate agar
 - b) Thayer Martin Medium
 - c) Mannitol salt agar
 - d) Tellurite blood agar
56. Antistreptolysin O titre is raised in infections caused by:
- a) *Streptococcus sanguis*
 - b) *Streptococcus mutans*
 - c) *Streptococcus pyogenes*
 - d) *Streptococcus bovis*
57. A bacterial mesosome is:
- a) Used for motility
 - b) Made up of nucleic acids
 - c) Used in cell division
 - d) Helps in adherence to host cells

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58. In tetanus toxinosis death occurs due to
- Germination of spores in the nervous tissues
 - Breakage of bones by titanic spasms
 - Respiratory failure
 - Neural damage of the brain tissues
59. The site most commonly affected by nosocomial infections is:
- The respiratory system
 - The urinary tract
 - The gastrointestinal tract
 - The genital tract
60. Physician induced infections are called _____ infections
- Anthropophilic
 - Zoonotic
 - Iatrogenic
 - Gnotobiotic
61. Identify the mismatched pair
- β – propiolactone : virucidal
 - Chlorhexidine : tuberculocidal
 - Iodine : fungicidal
 - Chloramines : sporocidal
62. The identification of bacteria by serologic tests is based on the presence of specific antigens. Which one of the following bacterial components is LEAST likely to contain useful antigens?
- Capsule
 - Flagella
 - Cell wall
 - Ribosomes
63. Which ONE of the following is an anaerobic bacterium?
- Peptostreptococcus spp*
 - Streptococcus agalactiae*
 - Corynebacterium diphtheriae*
 - Staphylococcus saprophyticus*
64. Acute glomerulonephritis is a nonsuppurative complication which follows an infection by?
- Enterococcus faecalis*
 - Streptococcus pneumoniae*
 - Chlamydiae trachomatis*
 - Streptococcus pyogenes*

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65. Which ONE of the following statements concerning epidemic typhus is INCORRECT
- a) It is characterized by a rash
 - b) The Weil Felix test can be used in its diagnosis
 - c) It is caused by a rickettsia
 - d) It is transmitted to humans by tick bites
66. Your patient is a three year old girl with fever and pain in her right ear. On physical examination the drum is found to be perforated and a bloody exudate is seen. A Gram stain of the exudates reveals Gram positive diplococci. Which is the MOST likely cause?
- a) *Corynebacterium diphtheriae*
 - b) *Brucella abortus*
 - c) *Staphylococcus aureus*
 - d) *Streptococcus pneumoniae*
67. The main host defense against bacterial exotoxin is
- a) Activated macrophage
 - b) Ig G and Ig M antibodies
 - c) Helper T cells
 - d) Modulation of host receptors in response to toxin
68. Decolorization of Gram negative bacteria by alcohol during Gram staining is due to
- a) Proteins encoded by F plasmids
 - b) 70s ribosomes
 - c) Polysaccharides in the capsule
 - d) Lipids in the cell wall
69. Sterilization CANNOT be achieved by:
- a) Dry heat at 180°C for 1 hour
 - b) Incineration for 1 hour
 - c) Dry heat at 121°C for 15 minutes
 - d) Using formaldehyde gas in safely cabinets for 2 hours
70. Pasteurization of cow milk is effective in preventing
- a) Bovine tuberculosis
 - b) Anthrax
 - c) Plague
 - d) Botulism
71. Examination of paired sera to demonstrate a four-fold rise in antibody titre is useful in the diagnosis of:
- a) Bubonic plague
 - b) Bacillary dysentery
 - c) Typhoid (Enteric) fever
 - d) Gonococcal urethritis

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72. Which one of the following is a virulence factor of *Neisseria meningitidis*?
- a) Polysaccharide capsule
 - b) Exotoxin
 - c) Fimbriae (pili)
 - d) Endotoxin
73. An age group which is particularly prone to *Haemophilus meningitis* is?
- a) Under one month
 - b) 2 months to 3 years
 - c) 3 years to 12 years
 - d) Over 25 years
74. Which of the following conditions DOES not involve arthropod vectors for transmission to humans?
- a) Wool – sorter’s disease
 - b) Endemic typhus
 - c) Scrub typhus
 - d) Bubonic plague
75. *Mycoplasma pneumoniae*:
- a) Are associated with respiratory tract infection
 - b) Do not cause disease in humans
 - c) Are susceptible to cephalosporins
 - d) Contain peptidoglycan in their cell walls
76. Which ONE of the following mycobacteria is a scotochromogen?
- a) *Mycobacterium kansasii*
 - b) *Mycobacterium scrofulaceum*
 - c) *Mycobacterium bovis*
 - d) *Mycobacterium leprae*
77. Chlamydiae differ from viruses in that they:
- a) Are filterable infectious agents
 - b) Exist as obligate intracellular parasites
 - c) Multiply by binary fission
 - d) Form inclusion bodies in infected cells
78. Confirmatory identification of *Candida albicans* can be done by:
- a) Positive urease test
 - b) Fluorescence under Wood’s lamp
 - c) Positive germ tube test
 - d) Presence of capsule
79. Bronchopulmonary allergy is COMMONLY caused by:
- a) *Cryptococcus neoformans*
 - b) *Candida tropicalis*
 - c) *Aspergillus spp*
 - d) *Aspergillus fumigatus*

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80. Which ONE of the following statement about bacterial genetics is NOT true?
- a) Multidrug resistance genes are normally carried on extrachromosomal DNA
 - b) The bacterial genome comprises one single circular DNA
 - c) Some bacterial cells are capable of receiving naked DNA from a surrounding medium
 - d) Translation of bacterial mRNA involves polyribosomes
81. Which ONE of the following statements about Erythema infectiosum is NOT true?
- a) It is caused by parvovirus B19
 - b) It is also called Fifth disease
 - c) It is primarily a disease of old age
 - d) It presents with bright red rashes prominent in the cheeks
82. ONE striking feature of Hepatitis D virus (HDV) is?
- a) It is transmitted sexually, by blood and parentally
 - b) It is a defective virus with no genes for its envelope protein
 - c) It can be prevented by use of inactivated HAV vaccine
 - d) None of the above
83. Proper sterilization of material contaminated with CJD agent can be achieved by:
- a) Use of sodium hypochlorite
 - b) Use of quaternary ammonium compounds
 - c) Boiling in water for 5 minutes
 - d) Tyndallization
84. The following are groups of human oncogenic viruses **EXCEPT**
- a) Hepatitis B virus and Hepatitis C virus
 - b) Epstein – Barr virus and Human papilloma virus
 - c) Human T cell lymphotropic virus and Hepatitis C virus
 - d) Human herpes virus and Adenoviruses
85. Identify the mismatched pair
- a) HPV and urogenital tract
 - b) EBV and respiratory tract
 - c) Adenoviruses and alimentary tract
 - d) Measles viruses and alimentary tract
86. Which ONE of the following organisms is MOST likely to invade of the intestinal mucosa
- a) *Vibrio cholerae*
 - b) *Shigella sonnei*
 - c) Enterotoxigenic *Escherichia coli*
 - d) *Clostridium botulinum*

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87. A 6 year old boy who returned from a camping trip presented with a migratory skin rash followed by arthritis. Which is the MOST likely cause?
- a) *Borrelia burgdorferi*
 - b) *Helicobacter pylori*
 - c) *Brucella melitensis*
 - d) *Treponema pallidum*
88. Which organism that produces urease is associated primarily with UTI?
- a) *Escherichia coli*
 - b) *Klebsiella pneumoniae*
 - c) *Salmonella enteritidis*
 - d) *Proteus mirabilis*
89. Which one of the following virus groups exhibits latency in its pathogenesis?
- a) Polio viruses
 - b) Herpes viruses
 - c) Rhinoviruses
 - d) Influenza viruses
90. Which ONE of the following clinical syndromes is NOT associated with infection by picornaviruses?
- a) Myocarditis / pericarditis
 - b) Hepatitis
 - c) Mononucleosis
 - d) Meningitis
91. The earliest process during the development of dental caries is:
- a) Acquired pellicle
 - b) Acid release
 - c) Enamel destruction
 - d) Plaque formation
92. Viruses CANNOT be cultivated in:
- a) Tissue culture
 - b) Embryonated eggs
 - c) Animals
 - d) Chemically defined media
93. Which ONE of the following tests CANNOT be used in the laboratory diagnosis of histoplasmosis ?
- a) KOH wet mount
 - b) Fungal culture
 - c) Wood's lamp examination
 - d) Fluorescent antibody technique

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94. The dermatophyte *Epidermophyton floccosum*
- a) Causes skin, hair and nail infections
 - b) Causes skin and hair infections only
 - c) Causes skin and nail infections only
 - d) Causes no human disease
95. Which one of the following organisms DOES NOT exhibit intracellular pathogenicity?
- a) *Mycobacterium tuberculosis*
 - b) *Chlamydia trachomatis*
 - c) *Legionella pneumophila*
 - d) *Bordetella pertussis*
96. Which ONE of the following media is selective for *Vibrio cholerae*
- a) Thiosulphate citrate bile salt sucrose agar
 - b) MacConkey agar
 - c) Eosine methylene blue agar
 - d) Chocolate agar
97. Which ONE of the following nosocomial pathogens manifests the widest spectrum of antibiotic resistance?
- a) *Staphylococcus aureus*
 - b) *Escherichia coli*
 - c) *Enterococcus faecalis*
 - d) *Klebsiella pneumoniae*
98. Which ONE of the following fungal infections is not commonly acquired through the respiratory route?
- a) Coccidioidomycosis
 - b) Blastomycosis
 - c) Sporotrichosis
 - d) Aspergillosis
99. Which ONE of following conditions is NOT associated with false positive result when performing cold agglutination test
- a) Mumps
 - b) Rubella
 - c) Autoimmune haemolytic anaemia
 - d) Syphilis
100. Quellung reaction can be used to identify
- a) *Pseudomonas aeruginosa*
 - b) *Proteus mirabilis*
 - c) *Klebsiella pneumoniae*
 - d) *Shigella dysenteriae*