



THE CATHOLIC UNIVERSITY OF EASTERN AFRICA

A. M. E. C. E. A

REGINA PACIS INSTITUTE OF HEALTH SCIENCES

MAIN EXAMINATION

AUGUST – DECEMBER 2017 TRIMESTER

FACULTY OF SCIENCES

DEPARTMENT OF COMMUNITY HEALTH

REGULAR PROGRAMME

CHD 125: MEDICAL MICROBIOLOGY AND PARASITOLOGY

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Duration: 3 Hours

INSTRUCTIONS: Answer ALL Questions

SECTION A: Answer all Questions (20 marks)

- Q1. Which of the following is the most important structure related to microbial attachment to cells?
- a) Flagellum
 - b) Plasmid
 - c) Peptidoglycan
 - d) Glycocalix
- Q2. The presence of membrane bound organelles is a characteristic of
- a) Prokaryotic cells
 - b) Eukaryotic cells
 - c) All cells
 - d) Viruses
- Q3. Which of the following is NOT true about Prokaryotic cells?
- a) Nucleolus is present
 - b) Mesosomes are present
 - c) Mitochondria are present
 - d) Golgi apparatus are absent
- Q4. Which of the following bacterial structures is important during chemotaxis?
- a) Fimbriae
 - b) Flagella

- c) Cell wall
- d) Capsule

Q5. Which of the following streptococcal toxins is responsible for scarlet fever?

- a) Streptokinase
- b) Hyaluronidase
- c) Protease
- d) Erythrogenic toxin

Q6. Which E.Coli causes diarrhea in children and travelers.

- a) Enteropathogenic E. Coli
- b) EnterohemorrhagicE. Coli
- c) EnterotoxigenicE. Coli
- d) EnteroinvasiveE. Coli

Q7. Which of the following virulence factors of E. coli is important for attachment to host epithelial cells during urinary tract infections?

- .a) Aerobactin
- b) Alpha hemolysin
- c) Urease
- d) K1 antigen
- e) Pili

Q8. Which of the following tests is diagnostic of salmonella typhi?

- a) BS
- b) Catalase test test
- c) Occult test test
- d) Widal test

Q9. Which of the following would indicate no fermentation in Triple Iron Sugar Test (TSI) for enterobactericiae?

- a) Red slant/Red butt
- b) Red slant/Yellow butt
- c) Yellow slant/yellow butt
- d) All the above

Q10. Which of the following is NOTa primary fungal disease?

- a) Coccidioidomycosis
- b) Histoplasmosis
- c) Blastomycosis
- d) Cryptococcosis

Q11. All of the following are TRUE statements regarding viruses EXCEPT:

- a) They contain both RNA and DNA
- b) The nucleic acid may be single or double stranded

- c) They are obligate intracellular parasites
- d) They reproduce using host cell energy

Q12. Which of the following is an RNA virus?

- a) Adenovirus
- b) Calicivirus
- c) Papovirus
- d) Poxvirus

Q13. Fever blisters is caused by one of the following?

- a) HSV 1
- b) Plasmodium falciparum
- c) Morbillivirus
- d) Vibrio cholera

Q14. Which of the following statements regarding Enterotoxigenic E. coli is TRUE?

- a) They are important causes of traveler's diarrhea.
- b) Transmission occurs from ingestion of contaminated food and water.
- c) Disease is caused by production of one or both of two types of enterotoxins.
- d) None of the above are correct.
- e) All of the above are correct.

Q15. Which of the following is NOT true?

- a) Portal of entry for variola major is the respiratory tract.
- b) Epstein Barr virus infection results through unprotected sexual contact.
- c) Cytomegalovirus infection may present with signs of hepatomegally.
- d) Hepatocellular carcinoma is a final stage of hepatitis D infection

Q16. Which of the following is a paramyxovirus?

- a) Morbillivirus
- b) Herpes simplex 11 virus
- c) Influenza C
- d) Variola

Q17. On admission, **Chameleon**, 38 year old male, is admitted to Nsambia hospital with acute chest pain. On day two, it is clear that he has had a myocardial infarction. Unfortunately, on the same day he develops acute diarrhea and stool culture grows positive for Salmonella infection. This infection is:

- a) Hospital acquired
- b) Occupational
- c) Lactogenic
- d) Community acquired

Q18. Which is true about mycobacterium tuberculosis?

- a) Gram negative

- b) Rapid growing (doubling time 15 minutes)
- c) Acid fast
- d) Alpha hemolytic

Q19. A 20-year old female patient complains of vaginal itching, smelly discharge, pain with intercourse and discomfort with urination. She has had 3 different sexual partners over the past 2 years. As part diagnosis, a wet mount of vaginal secretions is done and a flagellated organism about the size of a white blood cell with "twitching motility" is observed. This is likely *Trichomonas vaginalis*. **Which of these statements is false regarding the infection?**

- a) Men are most likely asymptomatic but efficient transmitters of this organism
- b) The cyst form of the life cycle is the most common method of transmission
- c) Simultaneous treatment of the patient and her sexual contacts will decrease the chance of recurrences
- d) In severe cases the regional mucosa may be red with petechial lesions and the cervix becomes ""strawberrycervix"
- e) Patients found to have *Trichomonas* should be evaluated for other venereal transmitted diseases

Q20. One of the following is NOT TRUE:

- a) Sabine vaccine is administered orally
- b) BCG vaccine is administered via Intradermal route
- c) Scarification is the method of administration of small pox vaccine
- d) Oral route is the method of administration of live attenuated influenza vaccine

SECTION B. Answer ALL Questions, (1 mark each). Total 10 marks

- Q1. Enteric fever is an infection caused by.....
- Q2.is a sexually transmitted disease caused by herpes simplex II.
- Q3. Undulant fever is caused by a microorganism called.....
- Q4. An example of a mechanical vector of infection transmission is
- Q5. Syphilis is a sexually transmitted disease caused by.....
- Q6.is the portal of entry for chicken pox
- Q7. Sample of choice for diagnosis of vibrio cholera is
- Q8.is the causative agent for pneumocystis.
- Q9. Amoebic dysentery is a fecal- oral infection caused by.....

Q10. The Rabies immunoglobulin administered when bitten by a rabid dog offers.....type of immunity.

SECTION C: ANSWER ANY TWO QUESTIONS. QUESTION ONE is COMPULSORY.

Q1. The mosquito is the vector for various microorganisms, including the causative agent for malaria.

a) What is a vector and in this case what type of vector is a mosquito? **(2 marks)**

b) List any four microorganisms transmitted by the mosquito. **(4 marks)**

c) State the four species of plasmodium. **(4 marks)**

d) Briefly discuss the life cycle of plasmodium **(10 marks)**

Q2. As a microbiologist, a key concern regards managing microorganisms, which are responsible for infections. This involves disinfection and sterilization.

a) Differentiate between sterilization and disinfection. **(2 marks)**

b) Distinguish between a bacteriostatic and a bactericidal disinfectant. **(2 marks)**

c) Describe the factors to consider before choosing a type of chemical to use for sterilization. **(6 marks)**

d) Discuss any five physical methods for sterilizing medical equipment. **(10 marks)**

Q3. Africa is facing morbidity and mortality from various viral infections.

a) Draw a simple structure of a virus. **(5 marks)**

b) Describe the process of viral replication and its implication. **(10 marks)**

c) Describe any five (5) consequences of virus replication. **(5 marks)**

END