



**THE CATHOLIC UNIVERSITY OF EASTERN AFRICA**

**A. M. E. C. E. A**

P.O. Box 62157

00200 Nairobi - KENYA

Telephone: 891601-6

**REGINA PACIS INSTITUTE OF HEALTH SCIENCES**

**MAIN EXAMINATION**

**SEPTEMBER – DECEMBER 2019 TRIMESTER**

**FACULTY OF SCIENCES**

**DEPARTMENT OF COMMUNITY HEALTH**

**REGULAR PROGRAMME**

**CHD 125: MEDICAL MICROBIOLOGY AND PARASITOLOGY**

**Date: DECEMBER 2019**

**Duration: 3 Hours**

**INSTRUCTIONS: Answer ALL Questions in the booklet provided.**

**SECTION A: MULTIPLE CHOICE QUESTIONS**

**(30 Marks)**

**Q1. What is the mode of action of Sulfonamides?**

- A. Inhibit metabolic pathways
- B. Inhibit DNA synthesis
- C. Lyse cytoplasmic membrane
- D. Inhibit protein synthesis

**Q2. Methicillin resistant strain of *Staphylococcus aureus* (MRSA). Is the strain**

- A. susceptible to oxacilin
- B. susceptible to penicillin
- C. can be killed by vancomycin
- D. resistant to methicillin but susceptible to other beta-lactams

**Q3. Clostridium tetani causes the disease tetanus:**

- A. By toxin produced by vegetative cells that germinate from spores contaminating the wound
- B. After the biting of animal that has tetanus
- C. By spores
- D. By producing the necrosis

- Q4. A number of different species from the genus *Streptococcus* are able to cause disease in humans. Which species is among the most common causes of bacterial meningitis?
- A. *Streptococcus pyogenes*
  - B. *Streptococcus pneumoniae*
  - C. *Streptococcus mutans*
  - D. *Streptococcus meningitidis*
- Q5. Which of the following vaccine does not provide lifetime protection?
- Polio
- A. Tetanus
  - B. DPT
  - C. Small Pox
- Q6. Which of the following statements about diphtheria toxin is false? It
- A. Is an example of an endotoxin
  - B. Is produced by a species of *Corynebacterium*
  - C. Can cause local damage to the throat
  - D. Can cause systemic damage
- Q7. Which one of the following organisms causes a diseases characterized by the catarrhal, paroxysmal and convalescent stages?
- A. *Bordetella pertussis*
  - B. *Corynebacterium diphtheria*
  - C. *Mycobacterium tuberculosis*
  - D. *Streptococcus pyogenes*
- Q8. A 30-year-old lady has non-bloody diarrhea for the past 14 hours. Which one of the following organisms is LEAST likely to cause this illness?
- A. *Streptococcus pyogens*
  - B. *Clostridium difficile*
  - C. *Shigella dysenteriae*
  - D. *Salmonella enteritidis*
- Q9. A 30-year-old female was hospitalized after she experienced convulsions. On examination, she was alert, oriented, and complained of a fever, headache, and stiff neck. Which of the following is most likely to provide rapid identification of the cause of her symptoms?
- A. Gram stain of cerebrospinal fluid.
  - B. Gram stain of throat culture.
  - C. Biopsy of brain tissue.

- D. Check of serum antibodies.
- Q10. A patient has fever, difficulty breathing, chest pains, fluid in the alveoli, and a positive tuberculin skin test. Gram-positive cocci are isolated from the sputum. The patient most likely has:
- A. Tuberculosis
  - B. Influenza
  - C. Pneumococcal Pneumonia
  - D. Mycoplasmal Pneumonia
- Q11. Which of the following causes Burkitts Lymphoma?
- A. Cytomegalovirus
  - B. Epstein Bar virus
  - C. Varicella Zoster virus
  - D. Herpes simplex II virus
- Q12. Most bacteria living in the large intestine are able to persist despite high throughput of material due to:
- A. Frequent colonization of the large intestine from outside the body
  - B. Binding of a portion of the population to mucus secreted by epithelial cells
  - C. Binding of a portion of the population to villi of the epithelial cells
  - D. Chemotactic response to acids produced by the small intestine
- Q13. Which *E. coli* causes diarrhea in children and travelers?
- A. Enteropathogenic
  - B. Enterohemorrhagic
  - C. Enterotoxigenic
  - D. Enteroinvasive
- Q14. Which of the following toxins acts by inhibiting protein synthesis?
- A. Cholera
  - B. Shiga
  - C. Pertussis
  - D. LT of enterotoxigenic *Escherichia coli*
- Q15. Plague continues to exist in many parts of the world. From the list below select the combination which most favors this persistence
- A. Fleas and deer
  - B. Ticks and wild rodents
  - C. Fleas and wild rodents

D. Mosquitoes and urban rats

Q16. Formation of a grayish membrane in the back of the throat is seen in:

- A. Diphtheria
- B. Pharyngitis
- C. Tuberculosis
- D. Pertussis

Q17. A male patient is complaining about painful urination and penile discharge of pus. It is very likely that he contracted:

- A. Cystitis
- B. Syphilis
- C. Gonorrhea
- D. Chlamydia

Q18. What is the link between the chickenpox and shingles?

- A. The two diseases are caused by different viruses within the family Herpesviridae
- B. Exposure to the chicken pox virus early in life can result in an increased likely hood of being infected with the bacterium *Shigella* (the causative agent of shingles) later in life
- C. A person who has had the chickenpox has become immune to the virus that causes shingles and will never suffer from this disease
- D. The chickenpox virus can remain latent inside of nerve cells for many years, and it is this same virus that causes the disease shingles years later when the immune system is weakened

Q19. Hepatitis A:

- A. Is caused by an enveloped virus
- B. Is caused by a non-enveloped virus
- C. Infection is acquired via oral route
- D. Both B and C is correct

Q20. Which of the following is a paramyxovirus?

- A. Morbillivirus
- B. Herpes simplex 11 virus
- C. Influenza C
- D. Variola

Q21. A 40 year old has a herpesviridae infection of the lips with thick yellowish slough. A potential diagnosis is that he has:

- A. Herpes Zoster

- B. Herpes Simplex I
- C. Epstein Barr Virus
- D. Herpes Simplex II

Q22. What is not correct for HIV infection?

- A. The virus infects T cells
- B. Mature viruses are released by budding
- C. Immediately after infection, all the AIDS symptoms are fully expressed
- D. The virus may remain latent

Q23. What is antigenic shift?

- A. Transfer of an antigen from one bacterium to another
- B. A minor change in genetic set up of the flu virus
- C. Replication of bacterial antigens
- D. Major change in genetic set up of the flu virus

Q24. Which of the following is not a primary fungal disease?

- A. Coccidioidomycosis
- B. Histoplasmosis
- C. Blastomycosis
- D. Cryptococcosis

Q25. Which of the following is mismatched?

- A. pustular rash - smallpox
- B. Koplik spots - rubella
- C. popular rash - measles
- D. vesicular rash – chickenpox

Q26. The following occur in Chagas' disease except?

- A. Calabar swelling
- B. Lymphadenopathy
- C. Meningoencephalitis
- D. Periorbital odema (Romana's sign)

Q27. Routine method for the diagnosis of toxoplasmosis:

- A. Thick blood film
- B. Thin blood film
- C. Serology
- D. Urinalysis

Q28. The fever associated with visceral leishmaniasis may resemble that of:

- A. *Cutaneous leishmaniasis*
- B. *Oriental sore*
- C. Malaria
- D. Drug sensitivity

Q29. Which of the following *Schistosoma* species eggs are elongate and have a prominent lateral spine?

- A. *S. mansoni*
- B. *S. japonicum*
- C. *S. haematobium*
- D. *S. intercalatum*

Q30. The infective stage from which the patient acquires malaria from the mosquito vector is

- A. Sporozoite
- B. Ookinete
- C. Gametocyte
- D. Exflagellating male gametocyte

**SECTION B: FILLING IN THE BLANKS/ SHORT EXPLANATION** (20 Marks)

Q1. With the aid of a well-labeled diagram, list the components of a gram-negative cell wall.

**(3 Marks)**

Q2. Outline the Koch's postulates

**(4 Marks)**

Q3. List three disease specific vaccines for viral infections

**(3 Marks)**

Q4. Draw a well labeled structure of a HIV virus

**(5 Marks)**

Q5. As a health worker, you will frequently encounter clients with the following infections. Prove your knowledge on various infections by giving the causative agent and drug of choice for:

(5

Marks)

- a) Protozoan diarrhea
- b) Gonorrhea
- c) Cholera
- d) Chicken pox
- e) Measles

**SECTION C: ESSAY (ANSWER QUESTION ONE AND ANY OTHER ONE QUESTION)**  
**(20 Marks)**

Q1. Discuss the pathogenesis (including the cycle) of malaria in humans.

(20 Marks)

Q2. Fungal infections are prevalent in both healthy and immunocompromised individuals.

- a) Using the example of Histoplasmosis, discuss the etiology, signs, symptoms, and treatment.

(10 Marks)

- b) Using the example of Candidiasis, discuss the etiology, signs, symptoms, and treatment.

(10 Marks)

Q3. Viral epidemics have captured the global attention regarding infectious diseases. As a health expert, you have knowledge on virology and you've been called upon to give a health talk

- a) Outline the different ways of classifying of viruses.

(6

Marks)

- b) With an example of the HIV virus, describe to your audience the process of viral replication

(14 marks)

**\*END\***