



**TECHNICAL UNIVERSITY OF MOMBASA**  
**Faculty of Applied & Health**  
**Sciences**

DEPARTMENT MEDICAL SCIENCES

DIPLOMA IN MEDICAL LABORATORY SCIENCES

AML 2203: MEDICAL VIROLOGY I

**SPECIAL/SUPPLEMENTARY EXAMINATION**

**SERIES: MARCH 2014**

**TIME ALLOWED: 2 HOURS**

**Instructions to Candidates:**

You should have the following for this examination

- *Answer Booklet*

Answer **ALL** questions in sections **A** and **B**  
This paper consists of **SEVEN** printed pages

1. Which of the following is not true regarding viruses?
  - a) Are obligate intracellular parasites
  - b) Release virions during cell lysis or budding
  - c) All have envelopes
  - d) They have DNA or RNA
  
2. How are viruses different from bacteria:
  - a) They replicate by binary fission
  - b) They are obligate intracellularly
  - c) They have enzymes necessary for metabolism and reproduction
  - d) All of the above
  
3. Which statement is true regarding adsorption?
  - a) Virus attaches to specific receptors
  - b) Acquires AOD
  - c) Water is necessary for the process
  - d) All of the above
  
4. A fully formed viral particle is called a:
  - a) Viroid
  - b) Virosoid
  - c) Virion
  - d) Capsid
  
5. The genetic material of viruses consist of either:
  - a) DNA
  - b) RNA
  - c) DNA or RNA
  - d) SSDNA
  
6. The protein coat of a virus is called:
  - a) Nucleic
  - b) Capsid
  - c) Capsomeric
  - d) Outer envelope
  
7. The functions of capsid include:
  - a) Protect genetic material from nuclease attack
  - b) Attachment and injection of viral genome into the host
  - c) Determines the antigenic specificity of a virus
  - d) All of the above
  
8. Viruses that attacks bacteria are called:
  - a) Lysophage
  - b) Bacteriophage
  - c) Virophage

- d) None of the above
9. Which of the following is anti-viral:
- a) Lysozyme
  - b) Infectious
  - c) Protein
  - d) Hormone
10. An infectious proteinous material is known as:
- a) Viroid
  - b) Prion
  - c) Virosoid
  - d) Virion
11. Viruses multiply in:
- a) Soil
  - b) Dead tissue
  - c) Living tissue
  - d) Plastic
12. Virion is:
- a) Nucleic acid of virus
  - b) Protein of virus
  - c) Antiviral agent
  - d) Completely assembled virus outside the host
13. Which of the following pair of diseases is caused by a virus?
- a) Typhoid, Tranus
  - b) AIDS, syphilis
  - c) Cholera, Tuberculosis
  - d) Rabies
  - e) Measles
14. Viral diseases have no cure because:
- a) Viruses have no cell wall
  - b) Presence of capsid
  - c) Virus possesses no cytoplasm
  - d) Viruses can multiply repeatedly within the host cell
15. AIDS virus has effect on:
- a) leucocytes
  - b) Lymphocytes
  - c) Eryhcoytes
  - d) Thiobocytes
16. How does enveloped virus enter into host cells?
- a) By phagocytosis
  - b) By contact with mitochondria

- c) By injecting its own nucleic acid inside the host cells
  - d) By fusion with the membrane of host
17. The following are RNA viruses. Which one is NOT?
- a) Polio virus
  - b) Hepatitis Virus
  - c) Yellow fever virus
  - d) Papilloma virus
18. The following are DNA viruses which one is NOT:
- a) Herpes simplex virus
  - b) Adeno viruses
  - c) Small pox
  - d) Influenza virus
19. Which of the following is not an antiviral action of interferon:
- a) Interferons initiate an antiviral state in cells
  - b) Interferons block viral protein synthesis
  - c) Interferons bind viral receptors on host cell surface
  - d) Interferons inhibit cell growth
20. Which of the following is NOT true regarding antiviral antibodies:
- a) Neutralizes extracellular viruses
  - b) Block viral attachment proteins
  - c) Neutralizes intercellular viruses
  - d) Opsonizes viruses for phagocytosis
21. Which of the following is NOT true about influenza virus?
- a) Surrounded by plasma membrane of host
  - b) Nucleocapsid contains 8ss RNA
  - c) Matrix protein beneath lipid BI-layer
  - d) Has reverse transcriptase
22. Which of the following is NOT a means of acquiring active immunization?
- a) Breast feeding i.e. antibodies in material milk
  - b) Natural infection e.g. measles infection
  - c) Vaccination with attenuated organisms
  - d) Vaccination with inactivated organisms
23. Which of the following viruses can NOT undergo vertical Transmission?
- a) HIV
  - b) CMV
  - c) Rubella Virus
  - d) Rota Virus
24. Which of the following is NOT a key structural gene in HIV:
- a) GAG
  - b) REV
  - c) POL

d) ENV

**In the following questions write either TRUE or FALSE (24 – 33)**

25. The following may be useful for prognostic purposes in HIV-infected individuals EXCEPT one:
- HIV viral load
  - CD4 count
  - HIV P24 antigen
  - HIV envelope antibody
26. Azidothymidine (AZT) dideoxyinosine (DDI) and squanavis are therapy for AIDs patient. Which viral processes are inhibited by these drugs:
- RNASE, DNase
  - Gpipo formation
  - P24 Antibody expression
  - Reverse transcriptase, protease
27. One of the most common sexually transmitted diseases that may lead to cervical Carcinoma is caused by which viruses?
- Cylomegals virus
  - Papiloma virus
  - Esteria-Ball virus
  - Adeno virus
28. Which of the following is NOT a class of Highly, Active Anti-celioviral therapy drug used in HIV therapy:
- Protease inhibitors
  - Penetration inhibitors
  - Nucleoside reverse-transcriptase inhibitors
  - Non-nucleoside reverse-transcriptase inhibitors
29. What is a defective virus:
- Inactivated virus
  - Infective virus
  - Viral capsid
  - A virus that cannot replicate on its own and requires a helper virus
30. Which one of the following groups of people may be at increased risk of HIV infection?
- Receptionist at a hospital
  - Homosexual males
  - Factory workers whose co-workers are HIV-positive
  - Members of a household in which there is a person
31. Which of the following viruses have primary replication in the intestinal epithelium followed by secondary replication tissue and CNS:
- Entrioviruses
  - Papiloma viruses
  - Rhinoviruses

d) Influenza virus

32. Which route of transmission is utilized by Adenoviruses:

- a) Fecal-oral
- b) Mother to child
- c) Respiratory
- d) Sexual

33. Which of the following diseases is NOT treated using interferons:

- a) Hepatitis
- b) Hepatitis B
- c) Colon Tumors
- d) Influenza infection

34. Which of the following is NOT an activity of the complement system:

- a) Viral lysis
- b) Enhancing neutralization of antibody
- c) Enhancing phagocytosis of virus particles
- d) Blocking viral protein synthesis

35. Nanoviridae is the name of:

- a) Subfamily
- b) Genera
- c) Family
- d) Viroids

36. Beta herpes virus is the name of a?

- a) Subfamily
- b) Genera
- c) Family
- d) Ordes

37. Rabies virus is the name of a:

- a) Ordes
- b) Genera
- c) Family
- d) Subfamily

38. Which one of the following is not vertical viral transmission?

- a) Neonatal infection at birth e.g. HIV
- b) Infection in utero e.g. CMV
- c) Germ line infection via ovum or sperm
- d) Mosquito bites in transmission of dengue

39. Which one of the following is transmitted by mosquitoes

- a) Rubella virus
- b) Rabies virus
- c) Yellow fever virus

d) Measles virus

40. Viral replication

- a) Occurs by binary fusion
- b) Requires host cell macromolecules
- c) Can be prevented by antibiotics
- d) Occurs within the host cell lysosome

**SECTION B**

1. Discuss the classification of antiviral drugs giving an example of each class. **(20 marks)**
2. Discuss the immunity towards viral infections **(20 marks)**
3. a) Discuss the influenza virus **(14 marks)**  
b) Antigenic variation performed by influenza virus to avoid the immune system. **(6 marks)**