



MASENO UNIVERSITY
UNIVERSITY EXAMINATION 2013/2014
SCHOOL OF PUBLIC HEALTH AND COMMUNITY DEVELOPMENT

**FIRST, SECOND, THIRD AND FOURTH YEAR SECOND SEMESTER EXAMINATION FOR ALL
UNDERGRADUATE DEGREES**

PHT: 112: HIV AND AIDS DETERMINANTS, PREVENTION AND MANAGEMENT

CANDIDATES REGISTRATION NUMBER: _____

SCHOOL / FACULTY OF: _____

DEGREE FOR WHICH CANDIDATE IS BEING EXAMINED: _____

YEAR OF STUDY: _____

DATE: 5TH SEPTEMBER 2014

TIME: 2:00PM – 4:00PM

GENERAL INSTRUCTIONS

1. Write your University Registration Number on every page of the question paper.
2. Do not write your name on any papers you use.
3. The Questions are set out in Three (3) Sections A, B and C
4. Answer all Questions in each section in the question paper
5. Section A has Thirty (30) Multiple Choice Questions (MCQs) (30 Marks)
6. Section B has Thirty four (34) Short Answer Questions (SAQs) (25 Marks)
7. Section C has Three (3) Case Application Questions (15 Marks)
8. Read very carefully the additional instructions preceding each Section
9. Answer all questions on the question paper as per instructions preceding each section

Section A: MCQs: Answer all Questions

(30 Marks)

Circle the most appropriate option (Each correct answer is 1 mark)

1. What is your understanding of the statement 'Kenya has a generalized HIV epidemic'
 - a) HIV mainly affects the sexually active
 - b) HIV mainly affects people in the age bracket 16 – 49 years
 - c) HIV mainly affects women and children
 - d) HIV affects all age groups in the society
 - e) HIV mainly affects mainly the heretosexuals

2. Of the following Counties, which one has the highest HIV and AIDS prevalence?
 - a) Siaya County
 - b) Kisumu County
 - c) Homabay Country
 - d) Migori County
 - e) Busia County

3. HIV-2 is mainly confined to a few countries in?
 - a) Eastern Africa
 - b) Western Africa
 - c) Southern Africa
 - d) Central Africa
 - e) Northern Africa

4. Retrovirus is a virus that has a genome consisting of?
 - a) Two DNA molecules which may or may not be identical
 - b) Two RNA molecules which may or may not be identical
 - c) Two identical DNA molecules
 - d) Two identical RNA molecules
 - e) One DNA and one RNA molecule

5. Which one of the following outlines the process of HIV replication?
 - a) Binding and fusion, reverse transcription, integration, transcription, assembly, budding
 - b) Integration, reverse transcription, binding and fusion, transcription, budding, assembly
 - c) Assembly, integration, binding and fusion, reverse transcription, transcription, budding
 - d) Transcription, reverse transcription, integration, assembly, budding, binding and fusion
 - e) Reverse transcription, transcription, binding and fusion, budding, integration, assembly

6. Following a prolonged infection of T_{Helper} cells by HIV, the host immune response fails, viral levels rise, and the patient develops opportunistic infections. Which of the following would you NOT consider an opportunistic infection?
 - a) Persistent diarrhea
 - b) Yeast infections
 - c) Malaria
 - d) Tuberculosis
 - e) Pneumonia

7. Which one of the following DOES NOT constitute the top four highly risky behaviours in so far as the spread of HIV is concerned?
 - a) Unprotected sex with one partner at a time
 - b) Blood infusion in hospitals
 - c) Unprotected sex between men
 - d) Injecting drug use
 - e) Unprotected sex with more than one partner

8. Development of vaccine is difficult for AIDS because *env* gene;
 - a) Undergoes mutation at rapid rate
 - b) Undergoes reverse transcription
 - c) Undergoes forward transcription
 - d) Integrates into large number of host genes
 - e) Integrates its genome into that of helper T cells

9. Which of the following opportunistic infections presents as an oral thrush and can affect the whole gut leading to difficulties in feeding?
 - a) Pneumonia
 - b) Oropharyngeal candidiasis
 - c) Cryptococcal meningitis
 - d) Tuberculosis
 - e) Toxoplasmosis

10. All of the following investigations are done during prevention from mother to child transmission EXCEPT;
 - a) Sexually transmitted infections (STI) tests
 - b) Complete blood counts
 - c) Blood grouping
 - d) CD4 counts for HIV positive mothers
 - e) Cervical cancer screening

11. When is it necessary to perform liver function tests (LFTs) in HIV patients?
 - a) When the patient is to be put on an HIV medication
 - b) When renal tests are indeterminate
 - c) When hepatitis is suspected
 - d) When the patient complains of liver-related conditions
 - e) When the levels of alanine aminotransferase is high in blood

12. Which of the following two tests are mainly used in HIV diagnosis?
 - a) PCR and ELISA
 - b) ELISA and any Rapid test
 - c) Western blot and NAAT
 - d) ELISA and western blot
 - e) PCR and any rapid test

13. Point -of-care tests are very useful in HIV diagnosis. Which one of the following will suit this kind of test?
 - a) NAAT
 - b) UniGold
 - c) PCR
 - d) ELISA
 - e) Western blot

14. The following activities increase the spread of HIV and AIDS. Which one does not?
- Enhanced means of communication
 - Separation of spouses or partners by distance
 - Hugging and kissing
 - Sex for favours
 - Long-distance truck drivers
15. The following constitute appropriate ways of information giving. Which one is NOT?
- Formal teaching
 - Lectures and talks
 - Posters
 - Limited time for teaching
 - Grapevine
16. The effectiveness of communication in the S-M-C-R model can be affected by?
- The attitude of the sender
 - Mutual understanding of the receiver
 - Relevance to cultural and social systems
 - Poor communication skills of the sender
 - Knowledge of the sender
17. Which of the following is NOT an effect of nutrition on HIV and AIDS
- Further decrease in immunity
 - Healing process is slow
 - Nausea and vomiting
 - Healing process is fast
 - Cost of treatment
18. The following are guiding principles for behaviour change communication (BCC) development. Which one is not?
- Promoting acceptance among stakeholders
 - Integrating with program goals
 - Target population should participate
 - Involve stakeholders
 - People Living with HIV and AIDS (PLHA) should be involved
19. According to the Mexico Declaration of 1982, culture includes all but ONE of the following:
- Ways of life
 - Science and Technology
 - Representation of health and disease
 - Traditions and beliefs
 - Family structures
20. When a country has a 20% HIV & AIDS prevalence?
- Its Gross Domestic Product (GDP) growth drops
 - Its population drops by 20% within five years
 - Its expenditure increases by 20% per annum
 - Its budget on health drastically increases
 - Its birth rate drops by 20% per annum

21. Which one of the following strategies DOES NOT contribute to immediate protection from infection by HIV virus?
- Harm reduction with drug injection
 - Condom use
 - Voluntary Counseling and Testing (VCT)
 - Insisting on taking tablets when seeking treatment as opposed to injections
 - Abstinence
22. Which of the following is not a rapid test for the diagnosis of HIV infection?
- Dot blot assay
 - Particle agglutination test
 - Western blotting
 - HIV spot and comb test
 - Antibody detection test
23. The following factors can increase the risk of HIV infection due to occupational exposure in developing countries EXCEPT;
- Limited availability of personal protective equipment or safety-engineered devices
 - Performing unfamiliar medical procedures
 - Absence of safety regulations or standards
 - Presence of very stringent safety regulations or standards
 - Unfamiliar practice conditions and equipment
24. Large, multi-institutional studies have indicated that the risk of HIV transmission following skin puncture from a needle or a sharp object that was contaminated with blood from a person with documented HIV infection is?
- Approximately 0.3 %
 - Approximately 1 %
 - Approximately 0.01 %
 - Approximately 0.09 %
 - Approximately 10 %
25. Which one of the following is not a direct demonstration of HIV in a test sample?
- Virus isolation- virus culture
 - Antigen detection- P24 detection
 - Viral nucleic acid detection- PCR
 - Protein detection and analysis by western blot
 - Anti -HIV antibody detection
26. All of the following are AIDS indicator conditions EXCEPT:
- Herpes simplex
 - Herpes zoster
 - Kaposi's sarcoma
 - Cryptococcosis
 - Greater than 10% Cachexia

27. Hairy leukoplakia is clinical condition associated with what AIDS-indicated category?
- Window Period
 - Clinical Category 1
 - Clinical Category 2
 - Clinical Category 3
 - Clinical Category 4
28. World AIDS day is an approach that has been used annually as part of the Information, Education and Communication campaign (IEC). In which category of IEC materials and activities does it fall under?
- Giveaways
 - Mass media
 - Community awareness events
 - Innovative ideas
 - Print media
29. Which type of HIV testing and counseling refers to a situation whereby an individual, couple, or group actively seeks out HIV testing and counseling at a site where these services are provided and/or accessible?
- Client- initiated HIV testing and counseling
 - Provider-initiated HIV testing and counseling
 - Mandatory HIV testing
 - Diagnostic HIV testing
 - Mobile outreach clinics
30. What is the meaning of indeterminate result in HIV diagnosis?
- The HIV status of an individual in whom the test results can lead to a definitive diagnosis, meaning that no clear HIV status (either HIV positive or HIV negative) can be assigned.
 - When one HIV test result in an individual is reactive and another test result using a different HIV assay in the same individual is non-reactive
 - When an individual performs two tests using different kits and both results are reactive
 - When an individual performs two tests using different kits and both results are non-reactive
 - When an individual performs two tests using different kits and both results are invalid

SECTION B: SAQs: Answer all questions (25 Marks)

Part 1: Mark as true (T) or false (F) at the end of each question (5 Marks)

NB: Each correct answer will earn you ½ mark

31. HIV-2 is thought to come from the SIV in Sooty Mangabeys rather than chimpanzees, and crossed over to humans _____
32. HIV cannot pass through an unbroken skin as it is the biggest immune system organ _____
33. One's culture has no influence on attitudes and behaviour related to the HIV/AIDS epidemic _____
34. All viruses are obligate, intracellular parasites of cells _____
35. Opportunistic infections affect people who are malnourished _____
36. According to surveys conducted over the last 10–15 years, educational attainment is inversely correlated with HIV risk for women in sub-Saharan Africa _____
37. A HIV antibody test is used to indicate how rapidly HIV is progressing in the body _____
38. HIV infection is often difficult to diagnose in very young infants because they carry maternal antibodies which do not reflect infants' HIV status _____
39. *Pneumocystitis carinii* is the least common opportunistic infection in AIDS _____
40. Advantage of convergence model of communication recognizes that communication involves dialogue and exchange of information and ideas _____

Part 2: Risk Level: Write the correct level of risk for each behavior at the end of the question.

NB: Each correct answer will earn you ½ mark (4 Marks)

Decide and indicate whether each of the behaviours listed below is high risk, low risk or no risk for getting HIV.

41. Kissing deeply _____
42. Swimming with someone who has HIV _____
43. Cleaning up blood without gloves on _____
44. Masturbating mutually _____
45. Using toilets in a public washroom _____
46. Sharing a razor to shave legs or face _____
47. Sharing clothes with someone who has HIV _____
48. Having sex using a condom correctly _____

Part 3: Cross Matching. Match the items in List A with the statements in List B**INSTRUCTIONS**

- i. This section consists of two Lists of items (List A and B).
- ii. The items in List A (item option) match with specific items in List B (Statement).
- iii. Identify item in List A that correctly matches with a particular statement in List B and enter the answer in List C. See example below
- iv. Each option can be used more once only.

Example:

LIST A		LIST B		LIST C (ANSWER)
A	PHT112	i.	Platform for offering e-based courses	B
B	eCampus	ii.	Accessible anytime anywhere	C
C	Online module	iii.	Mandatory for all undergraduate students	A

49. Match the items in List A to those in List B (Each option can be used once only)

LIST A		LIST B		LIST C (Answer)
A	Single stranded RNA	I.	Viral proteins involved in attaching HIV virus to CD4 cells	
B	Budding	II.	Glycoprotein component in HIV required for cell–cell fusion	
C	CD8+ cells	III.	Genetic material of HIV virus	
D	gp 41	IV.	Normal ratio of CD4 to CD8	
E	Viral load	V.	HIV virus replicates in this cell	
F	gp120 and p24	VI.	Best describes HIV virus that cause AIDS	
G	2:1	VII.	DNA to genomic RNA	
H	Single stranded DNA	VIII.	HIV DNA enters the host cell's DNA	
I	CD4+ cells	IX.	HIV virus joins the host cell's outer envelope to form new glycoproteins	
J	HIV-1 and HIV-2	X.	Directly correlates with the chance of HIV transmission with any type exposure	
K	gp120 and gp41			
L	Reverse transcriptase			
M	Integration			
N	1:2			

50. Match the items in List A to those in List B (Each option can be used once only)

	LIST A		LIST B	LIST C (Answer)
A	Plasma viral load	i.	Mode of HIV Transmission	
B	Rapid HIV tests	ii.	Requires a confirmatory test	
C	Mosquito bite	iii.	HIV antibody synthesis and seroconversion	
D	Vertical HIV transmission	iv.	Chief predictor of heterosexual transmission of HIV	
E	HIV reactive test	v.	Provides preliminary HIV results	
F	Human bite	vi.	Transmission of HIV from mother to child	
G	Window period			

SECTION C: Case presentations: Answer all questions**(15 Marks)**

Each correct answer will earn you (1 mark)

NB: Enter the correct answer in the space provided at the end of each question

51. In a HIV clinic, five clients turned up for different diagnostic and management services. Client A was advised to go for cell count to decide whether or not initiate administration of antiretrovirals. Client B was suffering from a protozoan opportunistic infection whose definitive host is the cat. Client C had red, raised, tender vesicles or lesions on the vulva, in the vagina, on the cervix and anal area with multiple vesicles. Client D had a sudden and rapid viraemia clinically, the patient presented with marked weight loss, chronic diarrhoea, and fever that had lasted for more than 1 month. Client E was infected by yeast like fungus *Cryptococcus neoformans*, had severe headache that lasted over weeks, fever and neck stiffness that were often absent in early stages

NB: Use the above case scenario to answer the questions below

- a. State the name of cells that were counted to determine whether to initiate Client A on ARVS or not

 - b. Name the opportunistic infection client B was suffering from _____
 - c. What opportunistic infection was client C suffering from? _____
 - d. Identify the HIV and AIDS stage of client D _____
 - e. What opportunistic infection was client E suffering from? _____
52. In Matokeni community, the number of people monthly being diagnosed with HIV increased tremendously. In an attempt to equip the people infected and affected with requisite knowledge and skills geared towards improving the quality of life within their homes, Malezi Bora Support Group was formed. Within a period of one month, the membership rose to 150, after which the group's officials were elected a in a fair and transparent manner. The diverse membership brought on board varying special needs that required to be urgently addressed. Members were divided into five groups, where each group was tasked with overseeing the delivery of a specific element of the Comprehensive Home and Community-Based Care package,

Group A was mandated directed to come up with strategies to help members respond to the total well-being of the person and the family affected by the illness, particularly HIV/AIDS, through interventions that focus on the emotional, mental and social aspects.

Group B was focused on helping community members who are terminally ill suffer less.

Group C was charged with teaching members how to care for bedridden patients and help with maintaining mobility, bathing, wound cleansing, skin care and oral hygiene.

Group D was given the responsibility of organizing prayers and devotions.

Group E was delegated to advice members on ways of healthy foods.

What element of the Comprehensive Home and Community-Based Care package was addressed by?

- a. Group A _____
- b. Group B _____
- c. Group C _____
- d. Group D _____
- e. Group E _____

53. The origin of AIDS and HIV has puzzled scientists ever since the illness first came to light in the early 1980s. For over twenty years it has been the subject of fierce debate and the cause of countless arguments, with everything from a promiscuous flight attendant to a suspect vaccine programme being blamed. In a bid to demystify the evolution of HIV, a conference was held in Nairobi, Kenya in September 1995, where globally renowned scientists researching on HIV and AIDS were invited. At the end of the conference, the following conclusions from six scientists stole the show and were published:

Scientist 1 concluded that HIV literally means 'slow virus' because they take such a long time to produce any adverse effects in the body.

Scientist 2 summarized that HIV is an infectious disease that may be transmitted from other animals, both wild and domestic, to humans

Scientist 3 emphasized that HIV was transferred to humans as a result of chimps being killed and eaten or their blood getting into cuts or wounds on the hunter.

Scientist 4 pointed out that it is likely that HIV spread because one single syringe would have been used to inject multiple patients without any sterilization in between.

Scientist 5 stressed that many of the labourers would have been inoculated with unsterile needles against diseases such as smallpox (to keep them alive and working), and that many of the camps actively employed prostitutes to keep the workers happy, creating numerous possibilities for onward transmission.

Scientist 6 believed that HIV was manufactured as part of a biological warfare programme, designed to wipe out large numbers of black and homosexual people.

NB: Use the above information to answer the questions below

- a. What is the scientific name given to literally 'slow virus'? _____
- b. What is the scientific name given to the disease referred to by Scientist 2? _____
- c. What is the name of the theory described by Scientist 3? _____
- d. What is the name of the theory described by Scientist 4? _____
- e. What is the name of the theory described by Scientist 5? _____
- f. What is the name of the theory described by Scientist 6? _____