



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

FOURTH YEAR SECOND SEMESTER EXAMINATION FOR RIBM AND IAT 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: 29TH SEPTEMBER 2014

TIME: 2:00PM – 4:00PM

GENERAL INSTRUCTIONS

1. Write your 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. According to Kenya's first-ever study to estimate new infections by modes of transmission, which one of the following contributed the highest number of new infections?
 - a) Injecting drug use
 - b) Casual heterosexual sex
 - c) Sex workers and clients
 - d) Men who have sex with men and prisons
 - e) Heterosexual sex within a union or regular partnership
2. HIV, a member of the retrovirus family, contains all of the following EXCEPT;
 - a) RNA as genetic material
 - b) DNA as genetic material
 - c) A Reverse transcriptase enzyme that converts the single-stranded HIV RNA to double-stranded HIV DNA
 - d) An envelope containing glycoprotein spikes
 - e) An enzyme integrase that inserts HIV DNA in host genome
3. Results obtained by rapid HIV tests are best described as;
 - a) Preliminary results
 - b) Positive results
 - c) False positive results
 - d) Negative results
 - e) False negative results
4. The following statements are true about the impact of HIV and AIDS on households. Which one is not? As HIV and AIDS increases
 - a) Household incomes increases
 - b) Food production decreases
 - c) Healthcare expenses increases
 - d) Funeral costs increases
 - e) Basic necessities decreases
5. Faith based organizations (FBOs) have scored rather weakly on a number of HIV and AIDS related attributes. For FBOs to increase their effectiveness, they can do one or more of the following, EXCEPT?
 - a) Support the development of policy to deal with HIV and AIDS within their institutions
 - b) The FBOs leadership need to dedicate more time for more fervent prayers
 - c) Use their enormous resources in eliminating poverty
 - d) Provide more public and coordinated leadership in the struggle against the epidemic
 - e) Support activities that eradicate stigma and discrimination within the churches
6. UNAIDS identifies certain domains of context that are virtually universal factors in communications for HIV preventative behavior. The following are some of the domains EXCEPT which one?
 - a) Socio-economic status
 - b) Gender relations
 - c) Culture
 - d) Non-governmental Organizations activities
 - e) Government policy



7. For effective Information, Education and Communication (IEC) it is important to carefully select materials for your campaign. Sufficient exposure to these materials will reinforce the following, EXCEPT?
- Counseling and testing
 - Women's and human rights
 - Pro-cultural stigma messages
 - HIV prevention
 - Basic facts about HIV and Sexually transmitted Infections (STI)
8. Stigma is a mark of shame or discredit on a person or group. It can manifest itself in a number of ways from ignoring the needs of the affected to psychologically or physically harming those who are stigmatized. The following are the most targeted by stigma EXCEPT?
- HIV/ AIDS related health workers
 - Men who have sex with men (MSM)
 - Sex workers (SWs)
 - Intravenous drug users (IDUs)
 - People living with HIV and AIDS (PLHA)
9. The following are guiding principles of behaviour change and communication. Which one is NOT?
- Target population should participate in all phases of BCC development
 - BCC assessments must be conducted to improve understanding of the needs of the target group
 - Considering that pre-testing is usually expensive it should be introduced towards the end of the implementation stage
 - Planning for monitoring and evaluation should be part of the design
 - Having a variety of linked communication channels is more effective than relying on one specific one
10. The following statements describes HIV as a lentivirus EXCEPT;
- Lentivirus, which is a class of viruses that attack the immune system
 - Lentiviruses are part of a larger group of viruses known as retroviruses
 - The name 'lentivirus' literally means 'slow virus' because they take such a long time to produce any adverse effects in the body
 - These viruses have been found to exist only in humans and not in different animals such as cats, sheep, cattle and horses
 - Lentivirus relies on the enzyme reverse transcriptase to perform the reverse transcription of its genome from RNA into DNA, which can then be integrated in the host's genome with an integrase enzyme
11. AIDS impacts children in many ways. Which one of the following is NOT a core impact?
- Abuse, both physical and sexual
 - Increase in number of orphaned children
 - Increased participation in community affairs
 - Increased infant and childhood morbidity and mortality
 - Increased deprivations in various forms, including mental, psychological and high school dropouts rates
12. The following statements describe the parenteral mode of HIV transmission EXCEPT;
- Exposure to infected blood or body fluids through contaminated sharps- IDU through needle-sharing or needle stick accidents
 - Transfusion of infected blood or blood products
 - Traditional procedures such as circumcision, ear-piercing, tattooing
 - Donated organs
 - Transplacental transmission during labor or delivery and breastfeeding

13. HIV thrives by taking over the host cell's normal ability to synthesize new proteins. Which one of the following is NOT a step in the HIV replication cycle?
- Reverse transcription
 - Termination
 - Integration
 - Budding
 - Binding and Fusion
14. The following factors increase the risks of HIV transmission. Which one does NOT?
- Having unprotected sex with an HIV infected partner
 - Men who have sex with men
 - Having multiple sex partners, concurrently or serially
 - Sex with commercial sex workers (unprotected)
 - Shaking hands or holding each other, kissing or eating from the same plate
15. Vertical transmission (VT) of HIV can occur in all of the following ways EXCEPT
- Before delivery
 - During delivery
 - After delivery
 - During weaning
 - Intrauterine
16. 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
 - Challenging practice conditions that might result in barriers to Standard Precaution adherence
 - Adequate resources for post-exposure evaluation and treatment
 - Limited access to HIV treatment, resulting in high viral titers in source patients
 - Increased prevalence of injection therapy and unsafe infection practices in many countries
17. The average efficiency of HIV transmission with a single episode of unprotected receptive vaginal intercourse with an untreated HIV infected source is approximately?
- 0.003%
 - 0.03%
 - 0.3%
 - 3%
 - 30%
18. *Pneumocystis pneumonia* is a clinical condition associated with what AIDS-indicated category;
- Primary HIV infection
 - Clinical Category 1
 - Clinical Category 2
 - Clinical Category 3
 - Clinical Category 4
19. All of the following are correct about hairy leukoplakia EXCEPT,
- Scrapings of it will show pseudomycelia
 - It will respond to treatment with acyclovir
 - It will respond to treatment with ganciclovir
 - It is a rare complication of diseases other than HIV infection
 - It is usually not treated

20. Which one of the following represents a characteristic feature of phase 3 of HIV infection?
- Virus replication continues for several years, predominantly in the lymphoid tissues
 - CD4 count usually < 200 cells/mm³
 - Immune system largely intact
 - Clinically, patients are either asymptomatic or develop persistent generalized lymphadenopathy
 - Many patients have herpes zoster, oral thrush
21. Which of the following conditions in a person with HIV infection is suggestive of the greatest degree of immunosuppression?
- Peripheral generalized lymphadenopathy
 - Pneumonia due to *S. pneumoniae*
 - Thrush
 - Cavitary pulmonary tuberculosis
 - Vaginal candidiasis
22. The opportunistic organism most likely to infect the adrenal gland in patients with advanced HIV infection is:
- Mycobacterium avium*
 - Histoplasma capsulatum*
 - Candida albicans*
 - Cytomegalovirus*
 - Cryptococcus neoformans*
23. Window period is the time between infection and enough antibodies for a positive HIV test. Which of the following does NOT characterize the window period?
- HIV test is negative
 - Person is very infectious
 - No symptoms or signs of illness
 - Virus is multiplying rapidly - viral load is high
 - Duration without antiretroviral drugs is less than 2 years
24. Which one of the following is NOT a surrogate marker of HIV disease progression?
- Increased serum neopterin
 - Increased P24 antigen
 - Decreased P24 antibody
 - Increased CD4 cells
 - Decreased CD4 cells
25. A negative HIV antibody test result means;
- HIV is present
 - HIV antibodies are present
 - No HIV antibodies were detected
 - A person is definitely not infected in HIV
 - The viral genetic material was not detected
26. Which immune marker is present during the window period of HIV infection?
- p24
 - p17 antigens
 - Antibodies to gp 41
 - Antibodies to gp 46
 - Antibodies to gp 120

27. Which one of the following outlines the process of HIV replication?
- Assembly, integration, binding and fusion, reverse transcription, transcription, budding
 - Binding and fusion, reverse transcription, integration, transcription, assembly, budding
 - Integration, reverse transcription, binding and fusion, transcription, budding, assembly
 - Reverse transcription, transcription, binding and fusion, budding, integration, assembly
 - Transcription, reverse transcription, integration, assembly, budding, binding and fusion
28. 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
 - Diagnostic HIV testing
 - Mandatory HIV testing
 - Mobile outreach clinics
29. What is the meaning of indeterminate result in HIV diagnosis?
- 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
 - 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
 - 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
30. In the context of the AIDS epidemic, Behaviour Change Communication (BCC) is an essential part of a comprehensive program that includes both services and commodities. What is a KEY component of ensuring this takes place?
- Discussion on cultural practices
 - Risk behaviors
 - Sex and sexuality
 - Stigma and discrimination
 - Supportive environment

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. It is now generally accepted that HIV is a descendant of a Simian Immunodeficiency Virus because certain strains of SIVs bear a very close resemblance to HIV-1 and HIV-2, the two types of HIV
32. Male circumcision increases the risk of female-to-male sexual transmission of HIV by 50% to 60%
33. As many as 2 billion T cells are produced each day in response to the growing viral load
34. Frequency of breast-milk transmission is decreased if the mother's CD4⁺ count is less than 200 cells/mL
35. The strongest predictor of HIV sexual transmission is plasma viral load
36. Sexually transmitted infections (STIs) decrease susceptibility to HIV by a factor of 2 to 4 and increase transmissibility 2 to 3 times
37. A laboratory result with high white blood cell count indicates that the body is fighting an infection such as HIV
38. Tuberculosis is the most common opportunistic infection in AIDS
39. One's culture has an influence on attitudes and behaviour related to the HIV/AIDS epidemic
40. Malnutrition and HIV and AIDS are synergetic and together create a vicious cycle that does increase nutrient intake and absorption

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. Exposure to blood and other potentially infectious bodily fluids via percutaneous injury _____
42. Body-to-body rubbing with clothes on _____
43. Masturbating mutually _____
44. Splash exposures to mucous membranes or non-intact skin _____
45. Self masturbation _____
46. Kissing deeply _____
47. Unfamiliar practice environments can put the health care worker at increased risk of exposure _____
48. Correct use of a condom during sexual intercourse _____

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

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

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. Fifty RIBM students and one hundred from IAT were charged with the responsibility of developing different Information Education Communication (IEC) materials and activities that will effectively educate the public about the HIV and AIDs scourge. They were divided into five groups namely A, B, C, D and E.

Group A used brochures posters, wall calendars, playing cards and bill boards to post information in public places about how male circumcision reduces HIV infection

Group B used television, radio and DVDs/VCDs as their educational medium by airing short documentaries and comedies about how "mpango wa kando" fuels the HIV scourge

Group C printed special HIV and AIDS messages on pens, caps, key holders T-shirts and handkerchiefs and distributed them to the public

Group D organized rallies to promote awareness on specific issues, for example issues relating to stigma and discrimination affecting people living HIV and AIDS

Group E used Twitter, Face booking, Text messaging/short message service is an in expensive and quick way to reach the youth that possess mobile phones, to sensitize them about the benefits of voluntary testing and counseling.

NB: Use the above information to answer the questions below

What is the general name of IEC material used by:

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

52. Tinny police are present in the blood to protect a person from germs that cause infections such as TB, flu, meningitis, toxoplasmosis and herpes. The HIV virus targets to destroy specific cells in the body that protects our bodies from infections. Once in the body the virus progressively replicates. It takes around three months before the viral antibodies can be detected in blood. The virus then undergoes different stages namely I, II, III and IV.

NB: Use the above information to answer the questions below

- a) What body defense cells are destroyed by HIV _____
- b) The period when antibodies cannot be detected in blood is called _____
- c) The other name for stage 1 is _____
- d) The other name for stage IV infection is _____
- e) TB and flu that occur during HIV infection are examples of _____

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 _____