



*"Investing in Africa's Future"*

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL  
SCIENCES  
DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES  
BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS**

**NSLS209: IMMUNOLOGY PRACTICALS**

**END OF SECOND SEMESTER FINAL EXAMINATIONS**

**APRIL/MAY 2022**

**LECTURER: MR G. MALUNGA**

**20 APRIL 2022 0900 HRS**

**DURATION: 3 HOURS**

---

***INSTRUCTIONS***

---

Answer **all** questions on the separate answer sheet provided.

---

Mark allocation for each question is indicated at the end of the question

---

Credit will be given for logical, systematic and neat presentations

---

**Question 1**

A whole blood sample labelled **M** has been submitted for malaria test. Use a malaria Antigen *Plasmodium falciparum* Rapid Test to perform the test.

- a) Perform the test using the provided test kit and record your results. [10]
- b) How do you interpret the test results on the test cassette? [3]
- c) Explain the principle of this test. [10]
- d) Why is it that this test uses whole blood instead of serum? [2]

**TOTAL: 25 MARKS**

**Question 2**

You are provided with a blood sample labelled **S** from a patient who is suspected to be infected with syphilis. You are requested to perform both the RPR Test and Syphilis Rapid test using the test kits provided.

- a) Perform the RPR Test and record your results. [10]
- b) Outline the principle of the RPR test. [5]
- c) Perform the Syphilis Rapid Test and record your results. [5]
- d) Outline the principle of the Syphilis Rapid Test which you have used. [10]
- e) Which of the two tests is better in screening for syphilis? Explain your answer. [5]
- f) Which other confirmatory test can be done to confirm a positive syphilis screening test result? Explain the principle of this test. [10]

**TOTAL: 45 MARKS.**

### Question 3

You are provided with two samples from a couple which had visited an HIV clinic after suspecting that they may be HIV-positive. Sample **H** is for the husband and sample **W** is for the wife. You are required to carry out an HIV Rapid test on the 2 samples using the provided test kits. Start with the Determine Test and then proceed to the CHEMBIO Test if the Determine Test is positive.

#### Determine HIV 1/2 Test Procedure

- i. Remove the protective foil from the test card.
- ii. Using a micropipette, apply 50 µl of sample **H** to the sample pad (indicated by an arrow).
- iii. Wait one minute and then apply one or two drops of chase buffer to the sample pad.
- iv. Wait a minimum of 15 minutes and then read the result.
- v. Do not read the result after 60 minutes.
- vi. If the result is positive, repeat the test using the CHEMBIO HIV 1/2 STAT-PAK. .

#### CHEMBIO HIV 1/2 Test procedure

- i. Remove the CHEMBIO HIV 1/2 STAT PAK test device from its pouch and place it on a flat surface.
- ii. Label the test device with the patient identification.
- iii. Touch the 5 µl sample loop provided to the specimen, allowing the opening of the loop to fill with the liquid.
- iv. Holding the sample loop vertically, touch it to the sample pad in the center of the sample(S) well of the device to dispense the sample onto the sample pad.
- v. Invert the running buffer bottle and hold it vertically over the sample well. Add 3 drops of the buffer slowly into the sample well.
- vi. Read the test result 15 minutes after the addition of the running buffer. Do not read results after 20 minutes.

#### Results

- a) Record you results in a suitable table. [20]
- b) Discuss your results giving possible explanations for the results obtained. [4]
- c) Which other test can be done to diagnose HIV. [1]

**TOTAL: 25 Marks**