"Investing in Africa's Future"

COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES
DEPARTMENT OF BIOMEDICAL AND LABORATORY SCIENCES

NSLS207: PARASITOLOGY, MYCOLOGY AND VIROLOGY PRACTICAL

END OF SECOND SEMESTER EXAMINATIONS

LECTURER: DR S. MUTAMBU

APRIL/MAY 2023

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on your answer sheets and prepared slides.
2. Answer **all** questions.
3. Marks for each question are indicated in brackets at the end of the question.
4. Credit will be given for logical, systematic and neat presentations

Answer any ALL questions

Question 1 (40 marks)

Rosa aged 4 years attends a pre-school in her neighborhood. Yesterday her mother took **Rosa** to the local clinic for a medical checkup because she had a fever and flu-like illness, including shaking chills, headache, muscle pain, tiredness and was vomiting. **Rosa's** mother told the clinic nurse that she and **Rosa** were in the rural area for the past two weeks visiting her grandmother. **Rosa** was requested to provide a sample of blood in a tube labelled **A** which was then sent to the Laboratory for examination.

a) Using the blood sample in tube **A**, perform procedure **B** shown below and submit the slides for assessment. (15)

PROCEDURE B

1. *Add nine (9) parts of water to one (1) part of Giemsa stock solution to prepare a 10% working solution*
2. *Prepare thin and thick blood smears using the blood sample in tube A.*
3. *Allow the slides to dry completely in air by placing the slides on a flat surface.*
4. *Fix the thin smear with methanol for approximately 2 seconds and allow to dry in air.*
5. *Place the thin and thick slide on the staining rack.*
6. *Flood both the thin and thick smears on the slides on the staining rack with 1 in 10 diluted Giemsa stain and allow to stand for 10 - 15 minutes.*
7. *Gently wash the Giemsa stain with a stream of buffered water or tap water*
8. *Tilt the slides to remove excess water.*
9. *Wipe the underneath of the slides and allow them to air dry.*
10. *Examine the smears on the stained blood slides on the microscope under oil immersion.*

b) Name the parasite and the stage of its life cycle shown on the slides. (2)
c) Discuss the methods used to control the parasite on the slides. (18)
d) Explain the principle of procedure **B.** (5)

Question 2 (20 marks)

You are provided with picture **Y** on the bench.

a) (i) Name the organism shown in picture **Y.** (1)
(ii) Label four [4] different parts of the organism. (4)

b) Discuss the life cycle of the organism shown in picture **Y.** (10)

c) Briefly discuss the medical use of the organism shown in picture **Y.** (5)

Question 3 (40 marks)

On the workbenches, you are provided with slides, pictures and petri dishes with different organisms numbered **D to K**

a. Identify each organism and stage of its life cycle shown on slides **D, E, F** and **G** under the microscope. (8)

b. What disease does each organism in slides **D, E, F** and **G** cause? (4)

c. How is disease **G** spread? (4)

d. What can one do to control the spread of disease **G**? (4)

e. Draw and label any three parts of the organism that you have identified on slide **D.** (4)

f. Identify the organism and stage of its life cycle shown in pictures **H** and **I.** (4)

g. What disease does each organism in pictures **H** and **I** cause? (4)

h. Identify the organism and stage of its life cycle shown in petri dishes **J** and **K.** (4)

i. How does one get infected by the organism in petri dishes **J** and **K**? (4)

END