Part B – Short Answer Question (20 Marks)

1.

1.1 List two (02) types of light microscopes. (02 marks)

I. .....

II. .....

1.2 List three (03) major steps in preparing a stained specimen. (03 marks)

I. .....

II. .....

III. .....

1.3 Mention the principles behind the techniques that are used to detect antibodies. (03 marks)

Technique	Principle
Enzyme-linked immunosorbent assay (ELISA)	
Radio-immunoassay	
Western blot	

1.4 What is "Polymerase Chain Reaction" (PCR)? (01 mark)

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1.5 Define the term "epitope". (01 mark)

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2.

2.1 State one (01) organism which causes malaria in humans. (01 mark)

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2.2 State how leishmaniasis is transmitted to human? (01 mark)

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2.3 List four (04) sources of contamination of pharmaceutical products and state one (01) way to minimize each. (08 marks)

Source of contamination	Method to minimize the contamination

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Part C – 04 Structured Essay Questions (60 Marks)

1.

1.1 What are "Live vaccines" ? Give one (01) example. (02 marks)

1.2 Write three (03) differences between active acquired immunity and passive acquired immunity. (03 marks)

1.3 Name the two (02) types of lymphocytes and mention the main activities of them. (04 marks)

1.4 Briefly explain the body's innate defense mechanisms against pathogens. (06 marks)

2.

2.1 Define the term "antisera/sera". (03 marks)

2.2 State four (04) hazards of vaccination. (04 marks)

2.3 Briefly describe the term "Immuno-prophylaxis" and how to achieve it. (04 marks)

2.4 Briefly describe the preventive measures and the immunization programme directed towards the prevention of the spread of tuberculosis. (04 marks)

3.

A pharmaceutical company that manufactures a wide range of ophthalmic products recently faced complaints from customers about the ineffectiveness of some batches of their eye drops. Some patients have reported experiencing irritation, redness, and discomfort after using these eye drops. Upon investigation, it was discovered that a particular batch of eye drops was contaminated, leading to microbial spoilage.

3.1 Name a possible pathogen responsible for above-mentioned type of spoilage most frequently. (01 mark)

3.2 Name three (03) ways that microbes can spoil ophthalmic products. (03 marks)

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3.3 List the four (04) factors which govern the risk of infection in the human body. (04 marks)

3.4 What is the type of excipient that can be used to control microbial growth during the shelf life of eye drops? (01 mark)

3.5 Describe the preventive measures this manufacturing company can take to ensure personnel hygiene in order to avoid such contaminations. (06 marks)

4.

4.1 Define the following terms.

I. Bactericidal

II. Bacteriostatic

III. Disinfection (03 marks)

4.2 Name two (02) types of disinfectants. (02 marks)

4.3 Give four (04) important information of a cleaning/disinfecting agent which should be included in the procedure of cleaning and disinfection policy. (04 marks)

4.4 Describe the particular procedures a manufacturing company adheres to manage the contamination of the following products. (06 marks)

A. Chemical raw materials

B. Dry products