IBANDA HIGH SCHOOL
UGANDA NATIONAL LOWER SECONDARY
MID OF TERM II EXAMS, 2025
S.1 BIOLOGY P553/1

(Time 1hr: 30min)

Item 1

In a village called Kakumiro, there lived an evangelist named Mr. Picfare. He had always enjoyed good health until he abandoned evangelism and began living a reckless lifestyle—frequently drinking alcohol, going to nightclubs, and engaging in sexual relations with multiple women.

Recently, Mr. Picfare has started experiencing serious health problems, including persistent skin rashes, frequent fevers, night sweats, body weakness, and extreme fatigue, among other symptoms.

Task:

Imagine Mr. Picfare comes to you for advice regarding his condition. In not more than 150 words, explain: What could be the likely cause of his symptoms, what actions he should take to help himself and how he can protect the people around him from similar problems (15 Marks)

Mr. Picfare is likely suffering from a disease caused by a virus✓ such as HIV/AIDS, ✓ which can be spread through unprotected sex with multiple partners ✓ and sharing of sharp objects which infected people have used ✓. His symptoms—skin rashes, fever, night sweats, body weakness, and fatigue—are common signs of this condition. ✓ These symptoms usually appear when the immune system becomes weak due to the virus. ✓

To help himself, Mr. Picfare should go to a health centre for testing ✓ and counseling. ✓ If found positive, he should start antiretroviral (ARV) treatment immediately ✓ to manage the disease and live a longer, healthier life. ✓

To protect others, he must avoid unprotected sex, ✓ stop sharing sharp objects like razors, ✓and educate others about the dangers of careless sexual behavior. ✓ He should also stop drinking and live a more responsible life. ✓

I also advise him to feel courageous and not lose self esteem ✓ because so many people have been possibly able to live with the virus. ✓ By doing this, Mr. Picfare can care for himself and prevent the spread of the disease in his community.

ITEM II:

In an attempt to fulfill a royal request, the King of Buganda sent his royal guard into the wilderness to collect cloves. Unfortunately, the guard did not know how cloves appear. As a result, he returned with various plant structures, labeled Specimens A, B, C, and D, hoping that the King would select the correct one.

TASK:

a) Using a dichotomous key, classify Specimens A, B, C, and D. (4 marks)

1. **(i) Specimen has seeds → go to 2**
   (ii) Specimen has no seeds → go to 3

2. (i) Seeds enclosed in a fruit → Specimen A (Mango) ✓
   (ii) Seeds not enclosed (naked seeds) → Specimen B (Pine) ✓

3. (i) Plant has vascular tissue and fronds → Specimen C (Fern) ✓
   (ii) Plant lacks vascular tissue, has rhizoids → Specimen D (Moss) ✓

b) Identify the plant division to which Specimen B belongs and give reasons for your answer. (4 marks)

Specimen B belongs to the division Gymnospermatophyta (Gymnosperms). ✓

Reasons:

It bears naked seeds, not enclosed in fruits. ✓

It reproduces using cones rather than flowers. ✓

It has needle-like leaves and is adapted to conserve water. ✓

It is a vascular plant with true roots, stems, and leaves. ✓

c) Which one of the four specimens depends on bees at some stage of its life cycle and for what? (2 mark)

Specimen A – Mango fruit ✓

Mango plants are flowering plants (angiosperms) that rely on bees and other insects for pollination to produce fruits. ✓

d) State three roles played by small single-celled organisms such as fungi and bacteria in nature. (6 marks)

1. Decomposition: They break down dead plants and animals, recycling nutrients back into the ecosystem. ✓
2. Nitrogen fixation: Some bacteria (e.g. Rhizobium) convert atmospheric nitrogen into forms plants can absorb. ✓
3. Food production: Certain fungi (like yeast) and bacteria are used in making bread, yogurt, cheese, and alcoholic drinks. ✓
4. Medicine production: Some fungi (e.g. Penicillium) are sources of antibiotics like penicillin. ✓
5. Soil fertility: By decomposing organic matter and fixing nitrogen, they improve soil quality. ✓
6. Biotechnology and research: Bacteria are widely used in genetic engineering and scientific experiments. ✓
7. Biogas production: Certain bacteria are involved in breaking down waste to produce methane gas for fuel. ✓
8. Waste treatment: Used in sewage treatment plants to break down organic waste. ✓
9. Bioremediation: Used to clean up oil spills and detoxify polluted environments. ✓
10. Symbiotic relationships: Form mutualistic associations with plants (e.g., mycorrhizae help plant roots absorb nutrients). ✓
11. Disease causation (for awareness): Though mostly beneficial, some bacteria and fungi cause diseases—important for balance and control. ✓

Total Scores = 30

Don't score when the learner gives wrong spelling for biological words.