

UNIVERSITY OF RUHUNA

BACHELOR OF SCIENCE (GENERAL DEGREE) LEVEL III (SEMESTER I)

EXAMINATION – July 2016

SUBJECT: BOTANY

COURSE UNIT: BOT3132 Advanced Microbiology

Time: 1.5 hrs

Question No.	Marks
Q ₁	
Q ₂	
Q ₃	
Q ₄	
Total	

Answer three (03) questions including question 1

(1)

A) Name three basic methods used for enumerating microorganisms?

1.

2.

3.

B) What are the three distinct phases of the enumeration process?

1.

2.

3.

C) What do you understand by the term "representative sample"?

.....
.....
.....
.....

D) What are the two important steps in the sampling process in studying the number of microorganism in a soil sample?

1.
2.

E) Selective media are important for enumeration of particular groups of bacteria, name two such selective media.

1.
2.

F) Name three disadvantages of the plate count technique.

1.
2.
3.

G) What are the categories of microorganisms that are classified based on optimum growth temperature?

1.
2.
3.

H) Fill the blanks in the following table by adding the appropriate interaction;

(0 = no effect, + = positive effect, - = negative effect) Provide one example for each.

Name of Interaction	Effect of Interaction		Example
	Population A	Population B	
Commensalism			
Mutualism			
Competition			
Amensalism			
Parasitism			

I) Name three molecular-based microbial community analysis methods.

1.
2.
3.

J) Name three reporter genes which can be used to trail microorganisms in soil.

1.

2.

3.

2)

a) Differentiate bulk soil from rhizospheric soil.

b) Briefly explain how you would isolate inner rhizospheric bacteria.

c) Write an account of important traits of rhizobacteria in agriculture.

3) Write notes on two of the followings:

a) Rhizodeposits

b) Nitrogen fixing free living bacteria

c) Biofilm formation by rhizobacteria

4) Write an account on mycorrhizae association of plant life.