

UNIVERSITY OF RUHUNA
BACHELOR OF SCIENCE (GENERAL) DEGREE LEVEL II - (SEMESTER I)
EXAMINATION – AUGUST – 2017

SUBJECT: BOTANY

COURSE UNIT: BOT 2112 (General Microbiology)

Time: One & half hours

Answer three (03) questions ONLY including the question NO.1

(1)

(a) State **three** important aspects of microorganisms in the human lives.

- 1)
- 2)
- 3)

(01X3=03 Marks)

(b) Give a definition for microorganisms.

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.....

(03 Marks)

(c) "Microorganisms are important experimental tools for biological research" give three reasons.

1.
2.
3.

(02X3=06 Marks)

(d) How do you obtain a **pure culture** from a **mixed culture**?

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(06 Marks)

(e) State two methods that can be used to preserve a bacterial culture.

1.
2.

(02X2=04 Marks)

(f) State two biochemical tests for identification of bacterial cultures.

1.
2.

(02X2=04 Marks)

(g) State three methods that you would follow to minimize contaminations when handling microorganisms.

1.
2.
3.

(02X3=06 Marks)

(h) Name three different colony forms of bacteria and give an example for each.

1.
2.
3.

(02X2X3=12 Marks)

(I) State three differences between Gram's positive and Gram's negative bacterial cell walls.

Gram's Positive

Gram's Negative

- | | |
|---------|-------|
| 1. | |
| 2. | |
| 3. | |

(02X2X3=12 Marks)

(j) How are siderophores important to bacteria?

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(06 Marks)

(k) What do you mean by the term "quorum sensing"? Name three physiological actions of this in bacteria.

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(08 Marks)

1.
2.
3.

(3X02=06 Marks)

(l) Name three enzymes that are important to pathogenic bacteria.

1.
2.
3.

(3X02=06 Marks)

(m) Provide three important advantages of formation of 'biofilm' for pathogenic bacteria.

1.
2.
3.

(3X02=06 Marks)

(n) Based on the energy and carbon sources categorize the mode of nutrition found in bacteria and provide an example for each category.

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(2x04=08 Marks)

(o) Name four non-specific defenses found in human.

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(04 Marks)

Total =100 Marks

(2)

- (a) Explain the ranges of three physical factors which affect bacterial growth.
- (b) List the methods that can be used to measure bacterial growth in a culture.

(3)

- (a) Discuss the main characteristics of bacterial genome.
- (c) Briefly describe the gene transfer mechanisms found in bacteria.

(4) Write notes on **any two** of the following.

- a) Role of bacteria in Nitrogen cycle
- b) Protein synthesis inhibiting antibiotics
- c) Characteristics of microorganisms used in industries
