



Jail

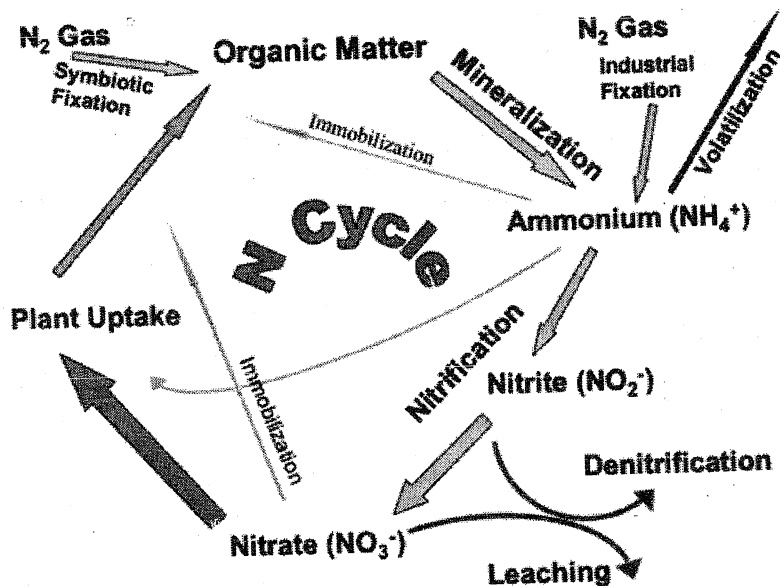
THE OPEN UNIVERSITY OF SRI LANKA
B.S.C. DEGREE PROGRAMME-LEVEL 05-2008/2009
BTU3101/BTE5101- ENVIRONMENTAL AND APPLIED MICROBIOLOGY
ASSESSMENT TEST I (OPEN BOOK TEST)

Duration: one hour

Reg. No:

Answer all questions on this paper itself. This paper consists of four(04) questions and six (06) pages.

01. The diagram below explains a simple N cycle in soil.



a. Write down at least two names of microorganisms related to the following processes where microorganisms are involved

i. Symbiotic Nitrogen Fixation

.....
.....

ii. Nitrification

.....
.....

iii. Denitrification

.....
.....

iv. Mineralization

.....
.....

- b. Leaching of Nitrogen causes many effects to the environment. List four such effects to the environment.

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

- c. Fill in the following table with suitable answers.

Substance	Responsible organism(One name only)	Enzyme involved
Cellulose		
Lignin		
Keratin		
Proteins		

- d. Some organism can degrade certain manufactured substances which are resistant for normal biodegradation. Name one responsible microorganism in front of each substance.

- i. Methane -
ii. Malathion -
iii. 2,4 D -
iv. Crude oil -
v. Detergents -

02. a. List three(03) indicators of water quality.

.....

.....

.....

.....

b. Give three reasons for **NOT** using pathogens in routine microbiological testing of water for drinking purposes.

i.....

.....

.....

ii.....

.....

.....

iii.....

.....

.....

c. During a test carried out to measure the water quality in three different sources of water(A,B,C), the following observations were made.

	A	B	C
BOD	5	4.5	0.3
Coliform MPN count(ml⁻¹)	05	2000	01
Turbidity units	300	350	05
pH	3.3	4.0	6.8

Comment on the quality of these three sources of water and suitable treatment methods.

A.....

.....

.....

.....

B.....
.....
.....
.....

C.....
.....
.....
.....

03. a. In food preservation, prevention or delay of microbial decomposition can be achieved by various ways. List four (04) of them.

- i.
- ii.
- iii.
- iv.

b. 'Use of nitrites in food preservation has become restrictive'. Give reasons.

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

c. Give one (01) benefit and one (01) limitation of using irradiation in food preservation.

Benefit

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

Limitation-

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

- (b) The following table gives five (05) types of food spoilage. Give the possible microorganisms involved and the biochemical changes that occur during each type of spoilage.

Spoilage type	Possible microorganisms Involved	Biochemical changes
i. Ropiness of bread		
ii. Rind rot of cheese		
iii Putrifaction of meat		
iv. Black rots of eggs		
v. Lypolysis of milk		

- c. Explain the following statements.

- i. Fish flesh is considered more perishable than meat.

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

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

ii. Starter cultures have many uses in sewage treatment.

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

iii. Membrane filter technique has a number of advantages over multiple tube method.

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

-Copyrights Reserved-