

THE OPEN UNIVERSITY OF SRI LANKA
B.Sc. / B.Ed. DEGREE PROGRAMME - LEVEL 04
BTU 2104 / BTE 4104 / BTI 4104 - PRINCIPLES OF MICROBIOLOGY
OPEN BOOK TEST - 2007/2008
DURATION - ONE (01) HOUR



Date: 10.09.2007 Reg. No. _____

Answer All Questions.

Questions should be answered on the question paper itself

01. What is meant by the following?

a. Phase of exponential growth in a bacterial population

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b. Germ theory of fermentation

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c. An algal bloom

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d. Cryptobiosis

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02. Name three (03) methods of maintaining (storing) each of the following in the laboratory

a. a purified culture of a bacterium

i.

ii.

iii.

b. a purified suspension of a plant virus

i.

ii.

iii.

03. a. Indicate the basic difference between a total count and a viable count of bacteria

Total count

Viable count

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b. Name one (01) technique employed to determine the total count of each of the following groups of microbes.

i. Bacteria -

ii. Soil fungi -

iii. Viruses -

c. Name one (01) technique employed to determine the viable count of each of the following

i. Bacterial viruses -

ii. Plant viruses -

iii. Animal viruses -

d. Indicate the most suitable method of determining viable counts of bacteria in the following

i. In a soil sample -

ii. In a sample of river water -

iii. In a sample of milk -

- c. What is the assumption you make in the method mentioned in part (d - iii) for the milk sample?

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04. a. How are the plant viruses transmitted in nature?

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- b. How can viruses be transferred from diseased plants to healthy plants under experimental conditions?

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- c. Outline how you would purify a given plaque culture of a bacterial virus.

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05. Distinguish between the following.

- a. Cell walls of a prokaryotic cell and an eukaryotic cell

Prokaryotic

Eukaryotic

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b. Sterilization and pasteurization

Sterilization

Pasteurization

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06. Give one example for each of the following culture media used in microbiology. Indicate specific usage of each medium you mentioned.

Example

Usage

- i. A natural medium
- ii. A defined medium
- iii. An enriched medium
- iv. A differential medium
- v. An indicator medium

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07. Briefly explain the following.

a. Viruses are not included in the 5-kingdom system of classification of organisms.

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b. Mycoplasmas are not inhibited by Penicillin.

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c. Antibiotics are incorporated in some culture media

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d. *Bacillus thuringensis* is used as a biological insecticide in agriculture.

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08. Out line the basic theory behind the following.

a. Gram's staining

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b. Phage typing

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