

**THE OPEN UNIVERSITY OF SRI LANKA**  
**B.Sc. / B.Ed. DEGREE PROGRAMME – LEVEL 04**  
**BYU4303/ BOE4303- PRINCIPLES OF MICROBIOLOGY**  
**FINAL EXAMINATION -2021/2022**  
**DURATION: TWO (02) HOURS**



**DATE 28<sup>th</sup> October 2022**

**TIME : 9.30 a.m – 11.30 a.m**

Answer any four (04) of the six (06) Questions. All questions carry equal marks.  
 Use fully labelled diagrams where appropriate.

1. a). Citing suitable examples, give a detailed description on the mode of action of antibiotics.  
 b). What is meant by acquired resistance to antibiotics ? How can build up of acquired resistance be minimized?
2. a). Write an account on the different types of media used for cultivation of microorganisms.  
 b). Briefly state how long-term preservation is done using agar slants under mineral oil and freeze drying. Highlight the advantages and disadvantages of each of the methods.
3. a). Differentiate between a total count and viable count of organism.  
 b). Discuss the (i) dilution plate method and (ii) MPN method used to determine viable counts of bacteria.
4. a). What is meant by the term genetic variability in bacteria?  
 b). Write a detailed account on transduction as means of creating genetic variability in bacteria.
5. a). Write an account on fermentation as a means of energy generation in organotrophic bacteria  
 b). Energy generation processes of microorganisms play an important role in the environment. Comment.
6. Write short notes on the following
  - a). Louis Pasteur's contribution to microbiology
  - b). Lytic cycle of replication of viruses
  - c). Microorganisms as ideal tools for investigating biological phenomena

