

THE OPEN UNIVERSITY OF SRI LANKA

B.Sc. / B.Ed. DEGREE PROGRAMME – LEVEL 04

BOU2103/BOE4103/BTU2104/BTE4104- PRINCIPLES OF MICROBIOLOGY

FINAL EXAMINATION – 2013/2014

DURATION: TWO (02) HOURS.



DATE : 27th June 2014

TIME : 9.30 a.m. – 11.30 a.m.

ANSWER ANY FOUR QUESTIONS. USE FULLY LABELLED DIAGRAMS WHERE NECESSARY.

1. A culture of *E.coli* was maintained in a conical flask containing nutrient broth in the laboratory at room temperature and its growth was measured by counting cell numbers with time.
 - a) Draw the type of growth curve you would expect and describe the activities taking place at each phase.
 - b) Giving reasons state how the above curve would differ, if the culture was maintained in a Chemostst.
 - c) Discuss the methods which can be used to measure the growth of a bacterial population, excluding the method described in (a) above.

2.
 - a) Briefly describe how antibiotics act on microbial pathogens.
 - b) Giving examples, explain the way in which antibiotics are grouped based on their chemical structure.
 - d) State the ways in which antibiotic resistance can be minimized.

3.
 - a). What is meant by the term 'Glycolysis'? Briefly describe the activities that take place during glycolysis
 - b) Write an account on energy generation in Lithotrophs
 - c) Briefly state why aerobic respiration is the most energy efficient catabolic process in organotrophic bacteria. .

4.
 - a) The group 'microorganisms' include organisms belonging to many Kingdoms. State the common characters used to define the group 'microorganisms'.
 - b) Explain why microorganisms are considered as ideal tools for investigating biological phenomena.
 - d) Viruses are considered as microorganisms by some, but are not included in any Kingdom of classification. Comment.

5.
 - a) Differentiate between sterilization and disinfection
 - b) List the desirable characters of an ideal disinfectant
 - c) Giving suitable examples, write an account on different sterilizing techniques you come across when working in a microbiology laboratory.

6. Write short notes on the following.
- a) Use of bacteria in genetic engineering
 - b) The 'slide culture technique'
 - c) Lytic cycle of replication of viruses.

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