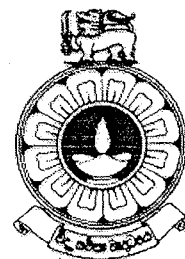


The Open University of Sri Lanka
Faculty of Natural Sciences
B.Sc/ B. Ed Degree Programme



00456

Department : Botany
Level : 04
Name of the Examination : Final Examination
Course Title and - Code : Principles of Microbiology BYU4303
Academic Year : 2023/24
Date : 21/10/2023
Time : 9.30-11.30
Duration : 2 hours

General Instructions

1. Read all instructions carefully before answering the questions.
2. This question paper consists of **06** questions in **01** pages.
3. Answer any **04** questions only. All questions carry equal marks.
4. Answer for each question should commence from a new page.
5. Draw fully labelled diagrams where necessary
6. Involvement in any activity that is considered as an exam offense will lead to punishment
7. Use blue or black ink to answer the questions.
8. Clearly state your index number in your answer script

-
1. a) What is meant by aseptic techniques in microbiology? (08 marks)
b) Describe three (03) methods commonly used in the laboratory to isolate bacteria from a mixed population. (72 marks)
c) Make a list of the specific aseptic techniques you followed for each of these methods (20 marks)
 2. a) 'The field of medicine developed greatly in the 19th and 20th century with the advancement of microbiology'. Discuss this statement. (60 marks)
b) State the common features that form the basis for the grouping of organisms from different taxonomic groups into a common group as 'microorganisms'. (40 marks)

3. a) Explain how the growth of a bacterial population is determined in the following three methods (i) cell numbers (microscopic counts) (ii) cell mass per unit volume (iii) cell activity (80 marks)
- b) State the ways in which viruses can be preserved (20 marks)
4. Make short notes on the following
- a) Slide culture technique (30 marks)
- b) Disc diffusion technique of testing antibiotic sensitivity (30 marks)
- c) Gram's stain (40 marks)
5. a) What are lithotrophic microorganisms? (15 marks)
- b) Briefly discuss how lithotrophic microorganisms obtain their energy for metabolism (45 marks)
- c) Compare and contrast between respiration and fermentation as energy generation processes in organotrophic bacteria (40 marks)
6. a) Differentiate between an antiseptic and a disinfectant (10 marks)
- b) List 6 characters of an ideal disinfectant (24 marks)
- c) Write a concise account on specific groups of antimicrobial chemical agents taking into consideration their mode of action and practical applications (50 marks)
- d) Give reasons to why antibiotics are ineffective against viruses. (16 marks)