



**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER II  
SESSION 2022/2023**

- COURSE NAME : MICROBIOLOGY  
COURSE CODE : DAS 26503  
PROGRAMME CODE : DAU  
EXAMINATION DATE : JULY 2023  
DURATION : 3 HOURS  
INSTRUCTION : 1. ANSWER ANY **FIVE (5)** QUESTIONS  
2. THIS FINAL EXAMINATION IS CONDUCTED VIA **CLOSED BOOK**.  
3. STUDENTS ARE **PROHIBITED** TO CONSULT THEIR OWN MATERIAL OR ANY EXTERNAL RESOURCES DURING THE EXAMINATION CONDUCTED VIA CLOSED BOOK

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

- Q1.** (a) (i) Define Microbiology and Microorganisms.  
(ii) List three (3) main groups of microorganisms and describe their impact on the quality of life. (7 marks)
- (b) 'Spontaneous generation' was a scientific theory that was widely accepted in ancient times.  
(i) State the name of the scientist who introduced the theory of "spontaneous generation." (1 mark)  
(ii) Explain this theory. (3 marks)  
(iii) State one (1) scientist that disagrees with the theory of "spontaneous generation." Briefly explain his/her work on this disapproval of the theory. (3 marks)
- (c) The era of microbiology expanded significantly after the microscope was invented. List and explain two (2) scientists who invented the microscope and their contributions. (6 marks)
- Q2.** (a) Microbes are important communities in life that are present in virtually every environment on Earth. List and explain the four (4) roles of microbes in our environment. (12 marks)
- (b) (i) State two (2) microbes that are involved in carbon cycling. (2 marks)  
(ii) Explain the role of microbes in Q2. (b) (i) in carbon cycling. (3 marks)
- (c) List and explain three (3) ways of dispersing microbes in the environment. (3 marks)
- Q3** (a) (i) State and sketch the basic shape of bacteria. (3 marks)  
(ii) State and describe terms that refer to the growth of bacteria on an agar plate. (2 marks)
- (b) List, sketch and explain the growth of different types of bacteria based on their oxygen requirements. (15 marks)

- Q4.** (a) The kingdom of fungi is one of the five major kingdoms of living organisms.
- (i) State the types of cell organisms in this kingdom. (1 mark)
  - (ii) State one (1) example of organisms in this kingdom that can be classified as microorganisms. (1 mark)
  - (iii) Differentiate the nutritional types of organisms in this kingdom compared to plants. (6 marks)
  - (iv) Describe the general germinating and growth processes of fungi. (5 marks)
- (b) The kingdom of protists is a diverse group of organisms.
- (i) State the types of cell organisms in this kingdom. (1 mark)
  - (ii) State and describe all modes of nutrition for organisms in this kingdom. (6 marks)
- Q5.** (a) A virus is an infectious agent that is classified as a microorganism. Describe the terms below.
- (i) Virus is not a living organism. (2 marks)
  - (ii) Size range of the virus (2 marks)
  - (iii) Structure of the virus (2 marks)
  - (iv) Replication media of viruses. (2 marks)
  - (v) Replication system in viruses. (2 marks)
- (b) Draw and describe all stages of the lytic cycle of a virus. (10 marks)
- Q6.** (a) The specific conditions required for microbe growth vary depend on the type of microbe.
- (i) List and give the condition of bacteria based on their optimal pH for growth. (6 marks)
  - (ii) List and describe all bacteria groups based on their preferred temperature range for growth. (8 marks)
- (b) Describe the bacteria's growth phase. (6 marks)

- END OF QUESTIONS -

**TERBUKA**