

BOWEN UNIVERSITY, IWO
COLLEGE OF AGRICULTURE, ENGINEERING AND SCIENCE
MICROBIOLOGY PROGRAMME
2021/2022 FIRST SEMESTER EXAMINATION

MCB 307: BIODETERIORATION

Answer question **ONE** and any two others

Time: 2 hrs 20 mins

1. (a) (i) Define biodeterioration? (3 marks)
(ii) Explain how biodeterioration differs from biodegradation. (5 marks)
(iii) With the use of specific examples, comment on the different types of biodeterioration. (12 marks)
(b) Highlight **two** groups of microbes involved in deterioration of crude oil and oil products with **two** specific examples of microorganisms in **each** group? (10 marks)

(30 marks)
2. (a) Discuss **four** factors which favour deterioration of materials (10 marks)
(b) Highlight **five** groups of microbes involved in deterioration of food with a representative genus of each group (10 marks)

(20 marks)
3. (a) Explain why postharvest spoilage of food is a major issue in the tropics (8 marks)
(b) What are some of the preventive measures for stored food spoilage? (4 marks)
(c) List the characteristics of microorganisms involved in the spoilage of the following sets of food produce:
 - i. Fresh meat (2 marks)
 - ii. Cured meat (2 marks)
 - iii. Fresh fruits and vegetables (2 marks)
 - iv. Bread (2 marks)

(20 marks)
4. (a) How can deterioration of leather and leathery products be prevented? (4 marks)
(b) Name the microbial groups involved in biodeterioration of stone/building and their characteristics (10 marks)
(c) Explain the mechanism of microbial metal corrosion (8 marks)

(20 marks)
5. (a) Discuss the effects of biofilms in the clinical, agricultural and food industries. (10 marks)
(b) Explain how biofilms can be controlled. (10 marks)

(20 marks)