



**FEDERAL UNIVERSITY OF TECHNOLOGY, MINNA**  
**DEPARTMENT OF MICROBIOLOGY**  
**COURSE TITLE: MICROBIOLOGICAL TECHNIQUES**  
**SECOND SEMESTER EXAMINATION, 2016/2017 ACADEMIC**  
**SESSION**

**COURSE CODE: MCB 324 (3 units)**

**Instruction: Answer 5 questions in all (attempt at least 2 question in each section)**

**Time : 2½ Hours**

**SECTION A**

- 1(a). (i). Enumerate the characteristics often used as additional aid to identification in bacteriology.  
(ii). With named examples, distinguish between selective and differential medium.
- 1(b). Enumerate the precautions to be taken in the course of pour plating in pour plate technique.
- 2(a). Calculate the CFU/ml of fruit juice samples submitted to the laboratory for analysis if 207 and 209 colonies were counted in a duplicate plating sample after dispensing 0.1ml of  $10^{-5}$  dilution.
- 2(b). (i). Distinguish between synthetic and non-synthetic medium  
(ii). How are cultures preserved using soil?
- 3(a). What are the components of a good “Materials and Methods” in good scientific writing?
- 3(b). (i). Describe the procedure for nutrient agar preparation if 200ml quantities is required. Nutrient gar is usually weighed 28g/L  
(ii). Describe the Gram staining procedure
- 4(a). Describe the operation of an autoclave
- 4(b). Discuss the Bacitracin and Bile solubility tests in biochemical identification of bacteria.

**SECTION B**

- 5(a). Describe catalase test and explain how this test is used to distinguish bacteria
- 5(b). Discuss the morphology of bacteria
- 6(a). Explain classification and identification of bacteria
- 6(b). What are vitamins? Describe the B vitamins giving their specific names
- 7(a). List 6 laboratory tests used in identification of bacteria
- 7(b). Describe serology and briefly explain its uses