



MURANGA UNIVERSITY COLLEGE
[A constituent College of Jomo Kenyatta University of Agriculture and Technology].

DIPLOMA I APPLIED BIOLOGY

SCHOOL OF PURE AND APPLIED SCIENCES

CLASS AS/BIO/14D

COURSE CODE. ASB 1209

MICROBIOLOGY.

NOV/ DEC 2015

DATE: 13TH NOVEMBER 2015

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES.

This paper consists of two sections, A and B. Answer ALL questions in section A and any THREE questions from section B. Each question in A carries 4 marks while each question in section B carries 20 marks.

SECTION A [40marks]

1. Distinguish between selective and enriched media giving examples in each case . [4 marks]
2. With the aid of a diagram name four types of flagella . [4 marks]
3. Differentiate between bactericidal and bacteristatic giving example of chemical agent applied in case . [4marks]
4. a, Distinguish between facultative anaerobe and strict anaerobe. [2 marks]
b, State any *two* factors that determine of two zones of inhibition in a Bauer Kirby test . [2 marks]
5. Outline on the *four* ways used in testing for complete sterilization in microbiology laboratory. [4marks]

6. Distinguish between:
- a. Obligate aerobes and microaerophilic micro-organisms. [2marks]
- b. Disinfectant and antiseptic. [2 marks]
7. Describe how nutrient broth for use in culturing micro-organism is prepared. [4 marks]
8. State *four* advantages of membrane filter in sterilization. [4 marks]
9. a. Define culture media. [2 marks]
- b. Distinguish between empirical medium and synthetic medium . [2marks]
10. Describe how the following types of media are incubated.
- a. Stab medium. [2 marks]
- b. Slope and butt medium. [2 marks]

SECTION B 60 MARKS ANSWER ANY THREE QUESTIONS

11. a. Outline the viable count procedure. [6 marks]
- b. Classify bacteria on basis of oxygen requirement. [6marks]
- c. Give *three* methods of sensitivity testing and explain the effect of ph on zone size. [8marks]
12. a. State the safety precautions that should be observed while pipetting biohazards materials. [10marks]
- b. Outline on the acid fast procedure and the expected results. [10 marks]
13. a. Discuss the various methods used for sterilization in a microbiology laboratory. [14marks]
- b. Classify micro biology laboratories citing examples in each case. [6 marks]
14. a. Discuss various factors which influence the rate of sterilization. [10 marks]
- b. Describe the phases of bacteria growth curve. [10 marks]
15. a. Describe the following routes by which micro-organisms enter the body of a laboratory worker
- i. Skin and eyes. [4marks]
- ii. The mouth [6marks]
- iii. The respiratory tract [4marks]
- b. Classify micro organisms in their risk groups basing on the WHO classification. [6marks]