



MAASAI MARA UNIVERSITY

**REGULAR UNIVERSITY EXAMINATIONS
2017/2018 ACADEMIC YEAR
FIRST YEAR END OF SECOND SEMESTER
EXAMINATIONS
SCHOOL OF SCIENCE AND INFORMATION SCIENCES
FOR
COURSE CODE: BOT 1205
COURSE TITLE: LABORATORY METHODS &
TECHNIQUES**

DATE: 30TH APRIL, 2018

TIME: 0830 - 1030HRS

INSTRUCTIONS TO CANDIDATES

Answer any TEN questions.

Answer any TEN questions.

1. Drawing is a very important skill in biology, outline **SEVEN** guidelines for drawing from specimens in biology. **(7 marks)**
2. Describe **THREE** disadvantages and **FOUR** advantages of dissecting. **(7marks)**
3. Discuss the principles of Gram staining and its uses. **(7 marks)**
4. Microscope is important equipment in a biology lab. Describe how one should care and maintain a microscope. **(7marks)**
5. Define the following terms as used in Biology: **(7 marks)**
 - a) Mordant(1mk)
 - b) Fixation(1mk)
 - c) Resolution(1mk)
 - d) Vivisection(1mk)
 - e) Microtomy(1mk)
 - f) Concentration(1mk)
 - g) Herbarium(1mk)
6. Describe the procedure for collection and preservation of plant specimen. **(7 marks)**
7. Explain the processes involved in preparing a section for observing under a light microscopy. **(7 marks)**
8. Using well labeled diagrams distinguish between a monocot and dicot stems. **(7 marks)**
9. List the uses of a Herbarium **(7 marks)**

10. Outline the steps for setting up a light microscope. **(7 marks)**
11. State **SEVEN** general laboratory rules of safety. **(7 marks)**
12. Explain how to prepare a 15% and 3% concentration of NaCl solution. **(7 marks)**
13. Describe an experiment proving osmosis as a physiological process. **(7 marks)**
14. With an example explain the role of charts as a biological diagram **(7 marks)**

15. Fill the in the following:
 - a) The organism is stained and the background is left unstained in _____ staining technique. **(1mk)**
 - b) Staining is primarily used to enhance _____ in the image. **(1mk)**
 - c) Gram staining uses _____ to stain cell wall, _____ as mordant and _____ as counter stain. **(3mks)**
 - d) List any **TWO** neutral stains used in staining _____ and _____ **(2mks)**