



**MASINDE MULIRO UNIVERSITY OF
SCIENCE AND TECHNOLOGY
(MMUST)**

UNIVERSITY EXAMINATIONS

2019/2020 ACADEMIC YEAR

**SPECIAL/SUPPLEMENTARY EXAMINATIONS
MAIN CAMPUS**

SECOND YEAR FIRST SEMESTER EXAMINATIONS

**FOR THE DEGREE
OF
BACHELOR OF SCIENCE IN MEDICAL LABORATORY
SCIENCES**

COURSE CODE: BML 216

COURSE TITLE: BIOSAFETY AND BIOSECURITY

DATE:

TIME:

INSTRUCTIONS TO CANDIDATES

SECTION A: ANSWER ALL QUESTIONS (MCQs)	20 MARKS
SECTION B: ANSWER ALL QUESTIONS	40 MARKS
SECTION C: ANSWER ALL QUESTIONS	60 MARKS

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 5 Printed Pages. Please Turn Over.

SECTION A: MULTIPLE CHOICE QUESTIONS (MCQs) [20 MARKS]

1. The risk assessment process is used to
 - A. Determine what measures should be put in place that are proportionate with the risks involved with the work
 - B. Define how much funding is needed to implement a biorisk management program
 - C. outline the roles the responsibilities of individuals within the facility for managing biological risks
 - D. Measure the effectiveness of personal protective equipment and other safety equipment
2. When you are mixing or heating up chemicals always wear
 - A. Gloves
 - B. Goggles
 - C. both a and b
 - D. jogging shoes
3. If you met an accident like injury, breakage or spillage you should immediately
 - A. report to teacher
 - B. run
 - C. hide
 - D. leave lab
4. Science experiments are really interesting and you may have fun but if you are not careful it can be
 - A. Dangerous
 - B. Exciting
 - C. Normal
 - D. same
5. If a chemical get into your mouth you should
 - A. spit it out
 - B. rinse your mouth
 - C. visit a doctor
 - D. all of them
6. Typical common apparatus used for heating is
 - A. Stove
 - B. Bunsen burner
 - C. Lantern
 - D. woods
7. The desire to maintain a safe laboratory environment for all begins with _____?
 - A. Prevention
 - B. Ubiquity
 - C. Microbiology
 - D. accidents
8. Good work practices include,

- A. smelling and tasting chemicals
 - B. not washing hands before and after lab
 - C. confining long hair and loose clothing
 - D. using damaged equipment and glassware
9. What is the name of the procedure performed under sterile conditions to eliminate contamination in hopes to obtain a pure culture of one type of microorganism?
- A. sterilization technique
 - B. disinfectant technique
 - C. aseptic technique
 - D. pathogen technique
10. Which of the following involves preventing the accidental transmission of disease in the laboratory?
- A. Biohazard
 - B. Biosafety
 - C. Biorisk
 - D. Biosecurity
11. After a biohazard spill is covered with paper towels and disinfectant solution, it must sit for _____ minutes?
- A. 5
 - B. 60
 - C. 30
 - D. 20
12. _____ is needed as a source of nutrient for the growth and reproduction of microbes.
- A. pathogens
 - B. reagents
 - C. bacteria
 - D. media
13. Who is responsible for providing training that is specific to the bioresearch being performed?
- A. The lab manager or Principal Investigator
 - B. The lab personnel who is performing the work
 - C. The Department where you work
 - D. EH&
14. Biosafety is working safely with biological material or organisms with potential to cause disease in:
- A. Animals
 - B. Plants
 - C. Humans
 - D. All the above
15. To prevent the contamination of microscopes and surrounding areas disinfect/clean used slides, prepared by student, with
- A. 70% ethanol and lens paper
 - B. acetone and lens paper
 - C. 5% methylene blue and lens paper
 - D. water and lens paper
16. Which class of biosafety cabinet is the most common and used for working with biological materials or organisms:

- A. Class I
 - B. Class II
 - C. Class III
 - D. Class IV
17. For research that requires Biosafety Level 2 containment, Biological Safety Cabinets must be certified by the Investigator:
- A. Daily
 - B. Monthly
 - C. Annually
 - D. Never, it's someone else's problem
18. Keep all work areas
- A. Clean
 - B. clear of all unnecessary materials
 - C. organized
 - D. all of the above
19. If you come into class with gum or candy
- A. offer some to the teacher
 - B. spit it out after the lab is over
 - C. spit it out before the lab begins
 - D. wait until the teacher calls on you
20. Biosafety cabinets are among the most effective and most commonly used
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- containment devices when working with infectious agents
- A. Primary
 - B. Secondary
 - C. Tertiary
 - D. Quaternary

SECTION B: SHORT ANSWER QUESTIONS [40 MARKS]

21. Outline the range of laboratory equipments designed to reduce biohazards in a research laboratory. [5 Marks]
22. State the elements that are considered in assessing the risk of exposure of biomedical laboratory workers to injury, infection and illness? [5 Marks]
23. Outline the range of laboratory equipments designed to reduce biohazards in a research laboratory [5 Marks]
24. Describe any **five** international rules safeguarding GMOs. [5Marks]
25. Explain what to consider when drawing classification of microorganisms' risk groups. [5 Marks]
26. Describe the classification of infective microorganisms according to the risk groups. (5 Marks)
27. Outline the elements to consider in assessing the risk of exposure of biomedical laboratory workers to injury, infection and illness. [5 Marks]
28. Describe briefly how to evaluate biological hazards [5 Marks]

SECTION C: ESSAY QUESTIONS [60 MARKS]

29. Discuss the factors that modify Biosafety and Biosecurity risks [20 Marks]
30. Explain in details the good microbiological techniques in a biomedical laboratory.
[20 Marks]
31. Describe in details the responsibility of laboratory biosecurity. [20 Marks]