



(University of Choice)

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

**(MAIN CAMPUS)**

**UNIVERSITY EXAMINATIONS  
2022/2023 ACADEMIC YEAR**

**THIRD YEAR SECOND SEMESTER MAIN EXAMINATIONS**

**FOR THE DIPLOMA  
OF  
MEDICAL BIOTECHNOLOGY**

**COURSE CODE: BBD 328**

**COURSE TITLE: FORENSIC SCIENCE AND ITS APPLICATION**

**DATE: 25<sup>TH</sup> APRIL 2023**

**TIME: 11.00 AM – 1.00PM**

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**INSTRUCTIONS TO CANDIDATES**

This paper is divided into three sections, **A B** and **C**, carrying respectively: Multiple Choice Questions (**MCQs**), Short Answer Questions (**SAQs**) and Long Answer Questions (**LAQs**). **Answer all questions. DO NOT WRITE ON THE QUESTION PAPER.**

**TIME: 2 Hours**

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over

## SECTION A: Multiple Choice Questions (20 Marks)

1. Which of the following is true about ballistics;
  - A. The study of anything that tends to establish or disprove a fact.
  - B. The study of bodies by looking at and matching dental patterns with the dental records.
  - C. The science that deals with the motion, behavior, and effects of projectiles, most often firearms.
  - D. The examination of physical evidence.
2. The following apply to sexual violence history collection except;
  - A. In case of more than one assailant, their number should be recorded along with the names and relation if known.
  - B. A relative should not be present even with consent of the survivor.
  - C. Details of the date, time and location of incident of sexual violence should be recorded.
  - D. All of the above.
3. Which of the following closely describes what forensic science is;
  - A. It refers to the examination of physical evidence.
  - B. It refers to the application of a broad spectrum of sciences to answer questions of interest to a legal system.
  - C. It refers to the study of dead bodies.
  - D. All of the above.
4. Which of the following is true about physical evidence;
  - A. Provides investigative leads for a case.
  - B. Ties one crime to a similar crime or connects one suspect with another.
  - C. Corroborates statements from witnesses to or victims of a crime.
  - D. All of the above.
5. Which one of the following refers to the examination of bite marks and dental identification of corpses;
  - A. Palynology
  - B. Polygraphy
  - C. Odontology
  - D. Pathology
6. Which of the following is a database maintained by the FBI that is used to find matches to unknown DNA samples from a crime scene.
  - A. NCBI
  - B. FDA
  - C. CODIS
  - D. NASCOP
7. What features can be determined by analyzing the development of the teeth, bone growth, and the length of specific bones, such as the femur.
  - A. Race
  - B. Sex
  - C. Age
  - D. Comorbidities
8. What feature can be determined by examining the pelvis, humerus,
  - A. Race
  - B. Sex

- C. Age
  - D. Stature
9. What feature can be determined by analyzing the skull for characteristics that are common among people of different races.
- A. Race
  - B. Sex
  - C. Age
  - D. Stature
10. Which one of the following is true about incised wound;
- A. It is caused by sharp, pointed and cutting instruments.
  - B. caused by application of great blunt force on the body, e.g. in road traffic accidents.
  - C. It is always broader than the edge of the weapon causing it due to restriction of cut tissues.
  - D. All of the above.
11. Which of the following is not one of the factors modifying action of poisons;
- A. Quantity
  - B. Condition of the body
  - C. Condition of the poison
  - D. Form
12. Which of the following is a test performed to find out ante-mortem drowning;
- A. Serum Calcium test
  - B. Serum Magnesium test
  - C. Serum hepcidin test
  - D. Creatinine test
13. Which of the following is an example of long-term psychological effect post-sexual violence;
- A. Sexual disfunction
  - B. Infertility
  - C. Pelvic inflammatory disease
  - D. Impaired sense of self
14. Which of the following statements is true about fingerprints;
- A. Identical twins, with identical DNA, have exactly the same fingerprints
  - B. Fraternal twins do have identical fingerprints
  - C. No two people have exactly the same fingerprints
  - D. All of the above.
15. Fingerprints are classified into how many categories;
- A. 5
  - B. 9
  - C. 6
  - D. 3
16. Which was the first technique used to analyze DNA;
- A. Restriction Fragment Length Polymorphism
  - B. Polymerase chain Reaction
  - C. ELISA
  - D. Microscopy
17. When an investigator is analyzing drip stains/ patterns, blood spatter, shadowing/ghosting, and expiratory blood there are different factors they have to look at, these factors include:
- A. Color of the blood

- B. The angle of impact
  - C. Density of the blood
  - D. All of the above
18. Which of the following clearly describes infraction;
- A. These are more serious crimes that carry stiffer penalties
  - B. A breach of a right, duty, or law
  - C. A minor offence or petty crime that is considered less serious than a misdemeanor
  - D. None of the above
19. What is a secondary crime scene?
- A. Any physical location in which a crime has occurred or is suspected of having occurred.
  - B. An alternate location where additional evidence may be found.
  - C. The original location of a crime or accident.
  - D. All of the above.
20. Which one of the following is NOT a potential source of a criminal physical evidence;
- A. The suspect and his environment
  - B. The scene of crime
  - C. The forensic scientist
  - D. The victim

**SECTION B: Short Answer Questions (40 Marks)**

1. Describe the applications of forensic Science (8marks)
2. Describe the key steps when securing a crime scene (8Marks)
3. Explain the Locard's Exchange Principle (8marks)
4. Explain the steps Scientists use to solve problems especially using a scientific method approach (8 marks)
5. Describe the different types of crime evidence (8marks)

**SECTION C: Long Answer questions (60 Marks)**

1. Answer the following questions;
  - i. What is questioned document examination and highlight its primary purpose (5marks)
  - ii. Describe the Principle of forensic document examination (8marks)
  - iii. Explain the limitations of forensic document examination (7marks)
2. Explain the applications of fingerprints in forensic science (20 marks)
3. Explain the guidelines for medical examination and reporting for sexual violence in forensic science (20marks)