



(University of Choice)

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

(MAIN CAMPUS)

**UNIVERSITY EXAMINATIONS (MAIN PAPER)
2017/2018 ACADEMIC YEAR**

SECOND YEAR SECOND TRIMESTER EXAMINATIONS

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

COURSE CODE: BML 227

COURSE TITLE: LABORATORY MANAGEMENT & Q.A.

DATE: JULY 2018

TIME:

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.

TIME: 2 Hours

MMUST observes ZERO tolerance to examination cheating

This Paper Consists of 4 Printed Pages. Please Turn Over

- Q1. The estimate of the lowest concentration of an analyte that can be measured is known as?
- (a) Analytical sensitivity
 - (b) Analytical specificity
 - (c) Analytical measurement range
 - (d) Analytical run
- Q2. Tolerance limits for humidity as a quality control measure is established for which of the following equipment:
- (a) Centrifuges
 - (b) Water baths
 - (c) Autoclaves
 - (d) Refrigerators
- Q3. In order to have a functioning lab quality management process there must be?
- (a) Equipment
 - (b) Personnel
 - (c) Established and implemented quality policies
 - (d) All of the above
- Q4. Personnel are the most important laboratory resource. They must:
- (a) Be competent, committed and motivated
 - (b) Not engage in other activities other than laboratory work
 - (c) Address management and oversight
 - (d) Not be reminded of the importance of encouragement and motivation
- Q5. Which of the following is the service guidelines for biosafety cabinets/laminar flow hoods:
- a) Check accuracy with standard weights of appropriate class at a predetermined frequency
 - b) Check daily air flow and document the results to verify effectiveness
 - c) Maintain and keep records to verify that back-up is in place
 - d) Verify effective sterilization with an appropriate biological indicator weekly
- Q6. You are required to store in the fridge reagent kits with the following recommended storage temperature ranges: ALT: 0 to 8°C, Rapid HIV: 3 to 10°C, Pregnancy Test: 2 to 25°C and Chemistry Controls: -10 to 6°C. The optimal fridge storage temperature for these kits would be defined as?
- (a) 2 to 8°C
 - (b) 0 to 25°C
 - (c) 3 to 6°C
 - (d) -10 to 25°C
- Q7. During centrifuge calibration, a digital tachometer displays a value of 3000rpm for a rotational speed set at 3200rpm by the manufacturer. How would you interpret these results?
- (a) Calibration has passed
 - (b) Calibration has failed
 - (c) Centrifuge should be recalibrated
 - (d) Centrifuge should be validated and pass/fail criteria set
- Q8. Select the best response regarding medical laboratory equipment:
- (a) Equipment shall have an SOP describing the use, preventive maintenance, cleaning and calibration
 - (b) Equipment SOPs are not required if operator manuals are available for use

- (c) Labs should not have documented evidence of personnel training for the use, operation and maintenance of lab equipment
 - (d) All of the above
- Q9. As a QMS, medical lab equipment management will involve the following element:
- (a) Having the equipment chosen for you
 - (b) A system in place for equipment maintenance
 - (c) Installing the equipment yourself
 - (d) Assumption that the equipment works properly
- Q10. Proper management of laboratory purchases and inventory:
- (a) Negates all working processes in the laboratory
 - (b) Clears all work backlog, reagents and equipment from lab benches
 - (c) Produces cost savings and ensures that supplies & reagents are available when needed
 - (d) Reduces the costs of testing, supplies and equipment
- Q11. This is the element of process control within a medical laboratory:
- (a) Proper disposal of lab wastes
 - (b) Information management
 - (c) Customer care and service
 - (d) Method verification and validation
- Q12. In addition to technical competency, job performance evaluation may also consider:
- (a) Quality of interpersonal communication
 - (b) Good clinical laboratory practice training
 - (c) Staff identification codes
 - (d) Adequate number of qualified personnel
- Q13. Careful management of laboratory information assures:
- (a) Proper laboratory functions are met and achieved
 - (b) Accuracy and confidentiality is maintained
 - (c) That no staff or any other health provider may access the information
 - (d) Quality control for testing is met and achieved
14. This is a factor involved in the management of lab facilities and safety:
- (a) Proper testing procedures
 - (b) Quality control procedures
 - (c) Minimizing risks and preventing hazards
 - (d) Elimination of risks and hazards
- Q15. The following is as a laboratory record:
- (a) The laboratory Quality manual
 - (b) Standard Operating Procedures
 - (c) Un-reviewed test results
 - (d) External quality assurance and/or proficiency test results
- Q16. An example of a pre-analytic occurrence frequently seen in most laboratories is?
- (a) Improper sample collection and storage
 - (b) Appropriate sample labeling
 - (c) Transporting samples under specified conditions
 - (d) Reagent or test kit storage under specified condition
- Q17. A laboratory document control plan will address the following:
- (a) Proper testing procedures
 - (b) Ensure SOPs are procedurally accurate and relevant

- (c) Quality control procedures
 - (d) Destructive elimination of risks and hazards
- Q18. The Deming's cycle in process improvement usually follows these steps:
- (a) Act, Check, Do and Plan
 - (b) Check, Act, Plan and Do
 - (c) Plan, Do, Check and Act
 - (d) Plan, Check, Do and Act
- Q19. One of the standard operating procedures in laboratory specimen management is?
- (a) Quality control
 - (b) Test results reporting
 - (c) Equipment operation and maintenance
 - (d) Tracking
- Q20. In laboratory testing, accuracy can be defined as:
- (a) Measure of how close a tested value is to the true value
 - (b) Measurement of the scatter or random error between repeated measurements
 - (c) Estimate of the lowest concentration of an analyte that can be measured
 - (d) Specified interval bound by two limiting values that contains 95% of the values found in healthy individuals

SECTION B: Short Answer Questions (SAQs)

INSTRUCTIONS

- **The section has five (5) questions, carrying a maximum total of forty (40) marks**
- **Answer all of them**

- Q21. State what the laboratory safety training course would entail, at a minimum. **(8 Marks)**
- Q22. Enumerate any eight items that have to be in the laboratory personnel file **(8 Marks)**
- Q23. Explain the laboratory information systems access and security. **(8 Marks)**
- Q24. State the equipment service guidelines for lab refrigerator and freezer. **(8 Marks)**
- Q25. List the basic laboratory safety and personal protective equipment **(8 Marks)**

SECTION C: Long Answer Questions (LAQs)

- **The section has two (2) questions, carrying a maximum total of forty (40) marks**
- **Answer all of them**

- Q26. Document the standard format used to write laboratory SOPs. **(20 Marks)**
- Q27. Discuss audit trails and chain of custody in laboratory specimen management. **(20 Marks)**