

CANDIDATE NUMBER.....



"Investing in Africa's Future"

**COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES
DEPARTMENT OF HEALTH SCIENCES**

BACHELOR OF MEDICAL LABORATORY SCIENCES HONOURS

NSLS100: LABORATORY PRINCIPLES

END OF FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS

NOVEMBER 2018

LECTURER: MR G. MALUNGA

DURATION: 3 HOURS

INSTRUCTIONS

1. Write your candidate number on the space provided on top of each page
 2. Answer **all** questions in sections A on the question paper.
 3. Answer **all** questions in section B on separate answer sheets provided.
 4. Answer any **3** questions in section C on separate answer sheets provided
 5. The mark allocation for each question is indicated at the end of the question
 6. Credit will be given for logical, systematic and neat presentations in sections B and C
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CANDIDATE NUMBER.....

SECTION A : MULTIPLE CHOICE [40MARKS]

- **Answer all questions by encircling the correct response T for True or F for False for each statement in all the questions**
- **Each correct response is allocated half mark**

1. A clinical laboratory
T F a) deals with the diagnosis of all human diseases
T F b) processes human specimens in aiding disease diagnosis
T F c) is only found in a medical center
T F d) help in achieving cost effectiveness in medical care
2. The following are uses of laboratory tests
T F a) Prevention of spreading of diseases
T F b) Management of disease outbreaks
T F c) Detection of subclinical diseases
T F d) Confirmation of a diagnosis made by a doctor
3. Laboratory accidents may be caused by
T F a) Using sub-standard equipment
T F b) Lack of knowledge
T F c) Working in a hazardous environment
T F d) Not opening laboratory windows
4. According to Standard 1 (Professional responsibility) of the code of ethics, all medical laboratory scientists shall
T F a) Respect individual values and beliefs
T F b) Protect confidentiality of all patient information
T F c) Be allowed to operate their own private laboratories
T F d) Practice within the scope of their professional competence
5. The following are ways of minimizing the spreading of infectious agents in a medical laboratory
T F a) Washing hands thoroughly
T F b) Disposing medical waste appropriately
T F b) Always wearing gloves when on workbenches
T F c) Wearing labcoats even when going out of the lab

CANDIDATE NUMBER.....

6. The sign shown in Fig 1 is used on



Fig 1

- T F a) Biohazardous materials
 - T F b) Corrosive substances
 - T F b) Toxic substances
 - T F d) Harmful substances
7. Which of the following actions is **NOT** a safety practice
- T F a) Re-capping of needles
 - T F b) Mouth pipetting
 - T F c) Keeping samples locked in a secure place
 - T F d) Washing hands before and after collecting a blood sample
8. An adequately equipped laboratory must have
- T F a) An emergency shower
 - T F b) Serviced fire extinguishers
 - T F c) Heaters and fans
 - T F d) A Material Safety Data Sheets file
9. When designing the floor plan of a medical laboratory, the following should be taken into consideration
- T F a) Flexibility
 - T F b) Accessibility
 - T F c) Number of laboratory personnel working in the laboratory
 - T F d) Functional relationships
10. When using a micropipette
- T F a) Its volume can be adjusted beyond its range of measurement
 - T F b) Never force the volume adjuster dial
 - T F c) It's not necessary to keep it upright
 - T F d) Disposable tips can be recycled

CANDIDATE NUMBER.....

11. The following information should always appear on a laboratory request form
- T F a) Sex
 - T F b) Age
 - T F c) Specimen type
 - T F d) Name of laboratory manager
12. Levels of analytes in a blood sample can be affected by
- T F a) Physical stress
 - T F b) Emotional stress
 - T F c) Gender
 - T F d) Age
1. Which statement best describes how to prepare a 4%(w/v) NaCl
- T F a) Dissolving 40g of NaCl in 1000ml distilled water
 - T F b) Dissolving 0.4g of NaCl in 100ml distilled water
 - T F c) Dissolving 4g of NaCl in 100ml distilled water
 - T F d) Dissolving 0.4g of NaCl in 1000 distilled water
2. The following are causes of laboratory accidents
- T F a) Lack of skills
 - T F b) Negligence
 - T F c) Using dirty equipment
 - T F d) Using plastic ware instead of glassware
3. The following laboratory tests must be done before starting a person on HIV Post Exposure Prophylaxis(PEP)
- T F a) HIV antibody testing
 - T F b) Syphilis screening
 - T F c) Full Blood Count
 - T F d) Urinalysis
4. If a test has a specificity of 95% it results in approximately
- T F a) 95% false positives
 - T F b) 95% false negatives
 - T F c) 5% false positives
 - T F d) 5% false negatives

CANDIDATE NUMBER.....

5. The following statements refer to units which are used in a clinical laboratory
- T F a) 1 ml = 1000 μ l
T F b) 1 g = 1000 μ g
T F c) 1 mol = 1000 mmol
T F d) 1 cm = 10 000 μ m
6. Good equipment management involves
- T F a) Proper selection of equipment
T F b) Regular maintenance of equipment
T F c) Proper usage of equipment
T F d) Placing of equipment in a good position
7. The following variables affect the quality of results in a medical laboratory
- T F a) Reporting of results
T F b) Gender of laboratory personnel
T F c) Results interpretation
T F d) Type of specimen
8. The stock-levels which need to be constantly monitored in a logistics systems are
- T F a) Maximum stock-level
T F b) Minimum stock-level
T F c) Re-order level
T F d) Average level

SECTION B: [20 MARKS]

Answer all questions on separate answer sheets provided

1. State any 5 uses of medical laboratory tests in the medical field. [5]
2. State any 5 benefits of a good equipment program. [5]
3. a) Define accuracy and precision in relation to micropipettes. [2]
(b) State any 3 causes of leaks in micropipettes. [3]
4. State any 5 reasons which can cause the rejection of a urine sample for culture and sensitivity. [5]

CANDIDATE NUMBER.....

SECTION C : [75 marks]

Answer any 3 questions from this section on separate answer sheets provided

- 1.** Discuss the causes of errors in a clinical laboratory. [25]
- 2.** If you were a laboratory manager how would you implement an equipment maintenance program in your laboratory? [25]
- 3.** Discuss the importance of having a good documents and records management system in a laboratory. [25]
- 4.** How is quality of results monitored in a medical laboratory. [25]
- 5.** Compare and contrast internal quality control and external quality control. [25]