ΠΑΜΙΒΙΑ UΠIVERSITY
OF SCIEΠCE AΠD TECHΠOLOGY

Faculty of Health and Applied Sciences

Department of Health Sciences

QUALIFICATION: BACHELOR OF BIOMEDICAL SCIENCES	
QUALIFICATION CODE: 50BBMS	LEVEL: 8
COURSE: MEDICAL LABORATORY MANAGEMENT B	COURSE CODE: LAM420S
DATE: NOVEMBER 2019	SESSION: THEORY
DURATION: 3 HOURS	MARKS: 120

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
EXAMINER(S)	Ms Elzabe van der Colf
MODERATOR:	Dr Pavitra Pillay

INSTRUCTIONS
1. Answer all questions.
2. Please write neatly and legibly.
3. Do not use the left side margin of the exam paper. This must be allowed for the examiner.
4. No books, notes and other additional aids are allowed.
5. Mark all answers clearly with their respective question numbers.

Permissable material

Non programmable calculator is allowed.

THIS QUESTION PAPER CONSISTS OF 5 PAGES (Excluding this front page)

SECTION A (20 MARKS)

QUESTION 1   [10]

Evaluate the statements in each numbered section and select the most appropriate answer or phrase from the given possibilities. Write the appropriate letter next to the number of the statement/phrase. ONE mark for each correct answer.

1.1   Purchasing involves the following:

      A. Determining what is needed
      B. Evaluation of which product meets the requirements
      C. Which supplier offers the best value
      D. Where can the required product best be obtained
      E. All of the above

1.2   Corrective maintenance is
      A. A scheduled programme of activities
      B. Steps to be performed at specific intervals
      C. Repair / replacement of parts when a failure occurs
      D. Ongoing activity

1.3   Items to be purchased can be categorized into:
      A. Operational supplies
      B. Capital equipment
      C. Services
      D. A and B
      E. All of the above

1.4   The box price of a control product is not always the best indicator for the best price. Which of the following configurations of QC prices is the best option?
      A. 50 x 10 ml at N$1900 per box
      B. 250 x 5ml at N$4250 per box
      C. 50 x 20 ml at N$4000 per box
      D. 25 x 20 ml at N$1800 per box
      E. 50 x 5ml at N$1560 per box

1.5   The new HIV test that will be used as a screening test has the following parameters.
      A. Sensitivity 99.5% and specificity 80%
      B. Sensitivity 60.5% and specificity 95%
      C. Sensitivity 60.5% and specificity 60%
      D. Predictive value of 55.5%
      E. None of the above

1.6 To determine the positive predictive value of a test you need to consider the following values:
   A. True positive and true negative
   B. True positive and false positive
   C. False negative and true negative
   D. True positive and false negative
   E. False positive and true negative

1.7 The following statement is NOT true regarding financial management
   A. Revenue must cover the costs and generate surplus funds for growth and expansion
   B. Running or operational costs include supplies needed to do the tests as well as rent of buildings and equipment
   C. Staff salaries are part of the variable costs
   D. Capital cost include purchase of new equipment and facilities
   E. Service and repair of instruments is also a running cost

1.8 The purpose of the resume is to
   A. Get an interview
   B. Demonstrate your writing skills
   C. Inform the person of your intent to apply
   D. List your entire life history

1.9 During the interview the candidate should:
   A. Make available a list of three references with contact details, titles, addresses
   B. Refrain from making negative comments about past employers
   C. Make eye contact with the interviewer
   D. Answer all the questions completely and truthfully
   E. All of the above

1.10 The candidate may prepare for the interview by:
   A. Placing an anonymous call to find out who the workers are in the lab
   B. Researching the institution
   C. Reviewing the resume and making major changes
   D. Dressing for a jog immediately following the interview
   E. Getting minimal sleep the night beforehand

QUESTION 2 [10]

2.1 List the actions to be taken in the troubleshooting process. (5)

2.2 List five benefits of an equipment maintenance programme. (5)

SECTION B (100 MARKS)

QUESTION 3 [18]

You are appointed as the section supervisor for the reception office of the laboratory. Compile a job description of a person in the laboratory who will be stationed in the specimen reception section.

QUESTION 4 [10]

You are the manager of a busy private laboratory. Your bench supervisors report that they are constantly experiencing out of stock events in the different departments. You have a Procurement Officer responsible for orders to suppliers. Use the Pareto chart to determine the root cause of the problem. (5x2=10)

QUESTION 5 [12]

Read through the following paragraphs and insert the appropriate terms. Only write the letter and the correct term.

Sensitivity of a test
The sensitivity of a test is defined as the proportion of people A._____ (with/without) the disease who will have a B_____ (positive/negative) result. In other words, a highly sensitive test is one that correctly identifies patients C_____ (with/without) a disease. A test is 90% sensitive if it will identify D_____(percentage) of patients who have the disease, but it will miss E_____ (percentage) of patients who have the disease. A highly sensitive test can be used for F_____ (ruling out/ruling in) a disease if a person has a negative result. E.g. a negative result on a pap smear probably means that the person does not have cervical cancer.

Specificity of a test
The specificity of a test is the proportion of patients G _____ (with/without) the disease who will have a H_____ (positive/negative) result. In other words, the specificity of a test refers to how well a test identifies patients who do not have the disease. Tests with high specificity can be useful for ruling I_____ (in/out) patients who have a certain disease.

High sensitivity/low specificity
A mammogram is a high sensitivity low specificity test. According to Cancer.gov the tests also comes with a fairly high J_____ (false positive/false negative) rate.

Low sensitivity/high specificity
An example of this type of test is the nitrate dipstick test used to test for urinary tract infections in hospitalized patients. E.g. K_____ (94% or 27%) sensitivity and L_____(94% or 27%) specificity.

QUESTION 6   [15]

You have to perform an evaluation study to determine the sensitivity and specificity of a test kit for HIV screening. The evaluation is done against positive HIV patients' results.

6.1   For the following data, calculate the sensitivity, specificity, and efficiency of the new test for detecting HIV infection, as well as the predictive value of the positive HIV test.   (12)

HIV infection status	Positive HIV test result	Negative HIV test result	Total
HIV infected	5	3	8
No HIV infection	4	843	847
Total	9	846	855

6.2   Using your finding in 6.1, determine whether this would be a suitable and reliable screening test to give accurate results in cases of HIV infection? Qualify your reasons.   (3)

QUESTION 7   [15]

The first step in the pathway toward assuring quality of the analytical process and building an effective internal QC system for your laboratory is to establish overall quality goals for analytical performance.

The strategy of establishing goals sets the stage for creating a meaningful QC plan designed to meet basic accreditation requirements for quantitative tests including qualitative testing. The laboratory must consider those conditions or activities occurring in the laboratory that may adversely affect patient outcomes if an incorrect result is acted upon by the physician or caregiver.

Mention and discuss 5 possible risk areas that must be addressed and explain how these can negatively affect the test outcomes and therefore the health of the patient.

(5 x 3 = 15)

QUESTION 8 [30]

8.1 Discuss Maslow's model of motivation and draw a bar chart to illustrate the sequence of needs to be fulfilled. (20)

8.2 Give your opinion on the statement: "Money is the biggest motivator for staff in a clinical laboratory". (5)

8.3 Indicate how you would motivate your staff if funding is limited and monetary rewards e.g. a general salary increase is not possible in your laboratory. (5)

End of question paper. Good luck!