



PAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY

Faculty of Health and Applied Sciences

Department of Health Sciences

QUALIFICATION: BACHELOR OF MEDICAL LABORATORY SCIENCES	
QUALIFICATION CODE: 08BMLS	LEVEL: 7
COURSE: MEDICAL LABORATORY MANAGEMENT	COURSE CODE: MLM711S
DATE: JUNE 2019	SESSION: THEORY
DURATION: 3 HOURS	MARKS: 120

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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MODERATOR:	Dr Pavitra Pillay

INSTRUCTIONS	
<ol style="list-style-type: none">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.	

Permissible material

Non programmable calculator is allowed.

THIS QUESTION PAPER CONSISTS OF 6 PAGES (Excluding this front page)

SECTION A (60 MARKS)

QUESTION 1

[20]

Evaluate the statements in each numbered question 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 The laboratory manager need not be conversant with the following legal requirement:
- A. Allied Health Professions Act of 2004
 - B. Affirmative Action Act
 - C. The Labour Act of 2007
 - D. The Occupational Health and Safety Act of 2009
- 1.2 The time interval between ordering stock and the time that they are received and ready for use:
- A. Supply chain
 - B. Review period
 - C. Lead time
 - D. Pipeline
 - E. Average monthly consumption
- 1.3 The type of budget which reflects expected revenue and expenses and anticipates changes:
- A. Rolling budget
 - B. Program budget
 - C. Appropriation budget
 - D. Flexible budget
 - E. Fixed budget
- 1.4 Types of internal financial controls include the following except:
- A. Revenue collection and cash management
 - B. Records of incidences breaching safety
 - C. Inventory control
 - D. Budgetary control
 - E. Appropriate management of accounting system
- 1.5 The following is true when making business decisions:
- A. When volumes increase, costs and profits will decrease
 - B. When volumes increase, cost will increase and profit will decrease
 - C. When volumes increase, cost and profits will increase
 - D. When volumes increase, cost will decrease and profit will increase

- 1.6 The following is not true about the cost-benefit analysis:
- A. Managers need to know what it costs to operate a laboratory
 - B. Expense is cost to perform a billable procedure
 - C. A non-billable procedure contributes towards generation of a billable procedure which is not directly reimbursable (QC, standards)
 - D. Only variable cost is taken into consideration
- 1.7 The following need not be recorded in a problem log record for a piece of equipment:
- A. Log of routine daily maintenance
 - B. Date problem occurred, removed from service
 - C. Reason for breakdown or failure
 - D. Corrective action taken
 - E. Date returned to use
- 1.8 Incidence of a disease:
- A. Number of cases that existed in a population over a given time period
 - B. Number of cases of disease at a point in time
 - C. Number of new cases occurring over a certain time period
 - D. Number of cases over an extended period of time
- 1.9 Four important aspects to consider when purchasing QC material, except:
- A. Shelf life
 - B. Incentives offered by the supplier
 - C. Box pricing
 - D. Clinically relevant decision levels
 - E. Interlaboratory comparison programmes
- 1.10 The following is not true about information:
- A. Knowledge derived from study, experience or instruction
 - B. Knowledge of specific events or situations that has been gathered
 - C. In the laboratory it can be on paper or hard copies as patient request forms
 - D. Information must be captured, managed and stored
 - E. The ideal way of managing information is in hard copy format
- 1.11 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

- 1.12 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
- 1.13 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
- 1.14 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
- 1.15 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
- 1.16 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
- 1.17 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

- 1.18 The purpose of the resume is to:
- Get an interview
 - Demonstrate your writing skills
 - Inform the person of your intent to apply
 - List your entire life history
- 1.19 During the interview the candidate should:
- Make available a list of three references with contact details, titles, addresses
 - Refrain from making negative comments about past employers
 - Make eye contact with the interviewer
 - Answer all the questions completely and truthfully
 - All of the above
- 1.20 The candidate may prepare for the interview by:
- Placing an anonymous call to find out who the workers are in the lab
 - Researching the institution
 - Reviewing the resume and making major changes
 - Dressing for a job immediately following the interview
 - Getting minimal sleep the night beforehand

QUESTION 2

[16]

Match each analytical performance standard in the first column with its correct description in the second column. Only write the number and the letter. (Two marks each)

Standard	Description
1. Analytical sensitivity	A. Reproducibility of results
2. Analytical specificity	B. Degree of interference from drugs or other chemicals e.g. bilirubin
3. Linearity	C. Determine if one sample can contaminate the next sample in line
4. Precision	D. Should be established for patient population of the laboratory
5. Accuracy	E. How well can method distinguish between a high and a low value
6. Carry-over	F. Detection limit – lowest detectable amount of analyte
7. Diagnostic validity	G. Agreement between new method and true value (reference method)
8. Reference intervals	H. Ability of test to accurately diagnose absence or presence of disease

QUESTION 3 [24]

- 3.1 Define decision-making. (3)
- 3.2 Define the problem-solving process and identify the five steps involved. (5)
- 3.3 Discuss when the consensus approach for decision-making is appropriate. (4)
- 3.4 Define troubleshooting on an instrument. (2)
- 3.5 List the actions to be taken in the troubleshooting process. (5)
- 3.6 List five benefits of an equipment maintenance programme. (5)

SECTION B (60 MARKS)

QUESTION 4 [10]

- 4.1 Outline your understanding of what being a professional encompasses in the laboratory context. (4)
- 4.2 Identify and describe the three types of communication which can be used with and between employees in a laboratory. (3x2=6) (6)

QUESTION 5 [8]

Distinguish among four decision-making styles which a laboratory manager may use to take a decision. (4x2=8)

QUESTION 6 [10]

Draw a flow-chart to explain the 5 steps in building an effective Quality Assurance system. (5x2=10)

QUESTION 7 [9]

You have to advise the management of MedPath Laboratory on the procurement of a new chemistry analyzer. Outline the equipment management cycle which you would propose to them.

QUESTION 8

[12]

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

Sensitivity of a test

- 8.1 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 papsmear probably means that the person does not have cervical cancer.

Specificity of a test

- 8.2 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

- 8.3 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

- 8.2 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.

Retrieved from <https://www.statisticshowto.datascience>

QUESTION 9

[11]

Debate the following statement: 'A leader is better suited than a manager in a medical laboratory'. You may either oppose or defend the statement, but you have to justify your answer.

End of question paper. Good luck!