

# EXAMINATION FOR QUALIFIED MEDICAL LABORATORY TECHNICIAN



**Subject:** Phlebotomy

**Examination Date:** Saturday 6 November 2021

**Time Allowed:** 3 hours – 9.30am – 12.40pm  
10 minutes extra time for reading the paper

Candidate Number: «Member\_No»

Name: «First\_Name» «Surname»

## General Instructions

1. Total marks for paper = 100.
2. Marks for each question are as indicated.
3. The paper consists of common syllabus and discipline specific questions.  
The relevant breakdown of marks is indicated under each Section Heading.  
To pass the QMLT examination, candidates must gain a minimum of a C grade (50%) in the common syllabus examination component and a minimum of a C grade (50%) in the discipline specific component of the written examination.
4. All questions to be attempted.
5. Use of a calculator is permitted.
6. Write all answers into this examination booklet. Extra pages are provided at the back of this examination paper booklet if you require more space to write answers. Ensure you indicate the answer is continued on an additional page and label these additional pages clearly with your candidate number and the number of the question you are answering.

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WORD DEFINITIONS	
Calculate	Perform a mathematical process to get the answer
Classify	Be able to designate to a group
Complete	Finish, have all the necessary parts
Convert	Express in alternative units
Define	State meaning clearly and concisely
Describe	Give a complete account demonstrating a thorough practical knowledge
Differentiate	Briefly and concisely state the main differences
Discuss	Give details, explaining both the positives and negatives
Distinguish	To briefly point out the main differences
Expand	To express at length or in a greater detail
Identify	Recognise according to established criteria
Indicate	Briefly point out
Label	Give a name to
List	Headings only
Match	Find one that closely resembles another
Outline	Write brief notes incorporating the essential facts
Recognise	Be able to identify the main points

## SECTION A

**Multi Choice Questions - choose one answer for each question**

**Common Curriculum Questions C.1 - C.12 = 6 marks**

**Discipline Specific Questions D.13 - D.30 = 9 marks**

**(0.5 marks per correct answer)**

**Total Marks = 15 marks**

**Circle the letter for the correct answer**

**Example.** Which of the below is a primary colour?

- a. Green
- b. Purple
- ☒ c. Red
- d. Orange

C.1 Agreeing to something once provided with all the facts is an example of:

- a. Confidential information
- b. Work place ethics
- c. Informed consent
- d. Human resource management

C.2 Which organisation is responsible for issuing an Annual Practising Certificate?

- a. Medical Sciences Council of New Zealand
- b. New Zealand Institute of Medical Laboratory Science
- c. New Zealand Ministry of Health
- d. New Zealand Qualification Authority

C.3 Harmonisation is:

- a. The process leading to the uniformity of test results from different methods
- b. Where staff are encouraged to work happily together
- c. The process of taking tests out of one laboratory and sending to another to save money
- d. The process of review of laboratory procedure to make things run smoothly

- C.4 Alveoli are found in which organ?
- a. Heart
  - b. Brain
  - c. Lung
  - d. Kidney
- C.5 Specimens transported throughout New Zealand must adhere to which industry standard?
- a. IANZ guideline
  - b. NATA guidelines
  - c. CDC guidelines
  - d. IATA guidelines
- C.6 Standard precautions refers to:
- a. Treating all body fluids including blood as potentially infectious
  - b. Wearing gloves at all times when handling patient samples
  - c. Ensuring all staff are aware of all laboratory hazards and have read the Health and Safety manual
  - d. Keeping all samples in appropriate leak proof containers.
- C.7 What is the UN number for labelling packages containing Diagnostic Specimens Category A for air transport?
- a. UN 3373
  - b. UN 1845
  - c. UN 2814
  - d. UN 2900
- C.8 A Class 2 biosafety cabinet offers protection to:
- a. Personnel only
  - b. Personnel and products
  - c. Products only
  - d. Personnel and environment

- C.9 What laboratory department is generally responsible for the diagnosis of diabetes?
- a. Microbiology
  - b. Histology
  - c. Blood Transfusion
  - d. Biochemistry
- C.10 Where on the body is the antecubital fossa?
- a. The leg
  - b. The arm
  - c. The waist
  - d. The neck
- C.11 Why is it important to use personalised logons when using laboratory computer systems?
- a. So management know which staff has achieved their KPIs.
  - b. So all entries in the computer are appropriately tracked in accordance with Total Quality Management
  - c. So HR knows when staff are working and they can be paid the correct amount.
  - d. So you don't get the blame for other people's errors
- C.12 Belonging to and achieving appropriate Continuing Professional Development is a legal requirement from which Government Act?
- a. Health Practitioners Competency Assurance Act (2003)
  - b. Health and Disability Commissioner Act (1994)
  - c. Health and Safety at Work Act (2015)
  - d. Employment Relations Act (2000)
- D.13 What is the order of draw?
- a. The order in which you store blood vials
  - b. The sequence which tubes are filled
  - c. The order in which you select patients to draw from
  - d. An order given by a clinician to draw blood from a patient

D.14 What is the correct order of removal of PPE?

- a. Gown, mask, gloves
- b. Gown, gloves, mask
- c. Gloves, gown, mask
- d. Mask, gown, gloves

D.15 What is haemolysis?

- a. The rupturing of white cells and the release of their contents into surrounding fluid
- b. The rupturing of red cells and the release of their contents into surrounding fluid
- c. The rupturing of platelets and the release of their contents into surrounding fluid
- d. Increased concentration of larger molecules and formed elements in the blood

D.16 A fistula is:

- a. An artificial temporary surgical connection between an artery and vein
- b. An artificial permanent surgical connection between an artery and vein
- c. A natural connection between an artery and vein
- d. A form of intra-venous catheter

D.17 A haematoma is defined as:

- a. An abnormal build-up of blood vessels
- b. A localised collection of blood outside the blood vessels
- c. A weakening or bulging of a vessel wall
- d. Small red spots appearing on a patient's skin

D.18 What colour tube contains the reversible anticoagulant citrate?

- a. Grey
- b. Black
- c. Green
- d. Light blue

D.19 What tube type is used for Tissue Typing?

- a. CPD
- b. Plain
- c. EDTA
- d. SST

D.20 GTT stands for:

- a. Glucose Treatment Test
- b. Glucose Trial Test
- c. Glucose Tolerance Test
- d. Glucose Timed Test

D.21 When a patient fasts and discontinues exercise for 12 hours it's known as a:

- a. Homeostasis
- b. Steady state
- c. Basal state
- d. Haemostasis

D.22 Which is a TRUE statement about Venepuncture?

- a. A phlebotomy procedure which involves collecting blood by penetrating a vein with needle attached to a blood collection device.
- b. Practice of drawing blood from an artery or through a deep puncture in the skin.
- c. Phlebotomy practice which involves collecting blood by finger prick method.
- d. Phlebotomy procedure which involves collecting blood to reduce the number of red cells in the body.

D23. Certification refers to:

- a. Involuntary process by which a company grants an agency who has met the specific standards.
- b. Voluntary process by which a company grants an agency who has met the specific standards.
- c. Involuntary process by which an agency grants to an individual who has met a certain prerequisite in a specific technical area.
- d. Voluntary process by which an agency grants to an individual who has met a certain prerequisite in a specific technical area.

D.24 The force (pressure) or tension exerted by the blood on the walls of blood vessels is:

- a. Systolic Pressure
- b. Blood Pressure
- c. Diastolic Pressure
- d. Hypertension

D.25 The principles of right and wrong conduct as they apply to professional problems are called:

- a. Ethics
- b. Kinesics
- c. Proxemics
- d. Rules

D.26 Blood culture contamination is a quality indicator for the:

- a. Environmental services area
- b. Infection control department
- c. Microbiology department
- d. Specimen processing area

D.27 The most frequently occurring lab-acquired infection is:

- a. Hepatitis B
- b. HIV Infection
- c. Syphilis
- d. Tuberculosis

D.28 Which Abbreviation is CORRECT?

- a. TAT (Test and Time)
- b. SLE (Systemic Lupus Erythrocyte)
- c. TSH (Thyroid Sensitive Hormone)
- d. TIBC (Total Iron Binding Capacity)



D.29 Which statement is TRUE?

- a. Lipid levels decrease after eating oily foods
- b. Haemoglobin levels can decrease by drinking excessive amounts of fluids
- c. Glucose levels decrease dramatically with the ingestion of carbohydrates
- d. Cortisol levels have been shown to decrease after drinking caffeine

D.30 A procedural error that can cause specimen haemolysis is:

- a. Drawing blood through an IV valve or other VAD
- b. Drawing blood from the antecubital vein
- c. Using a needle with a diameter that is just right for venepuncture
- d. Careful handling during transport

**Section A: Total 15 marks**

## SECTION B

Labelling of Diagrams, e.g., Anatomy, Hazard Identification, Instrument

Common Curriculum Questions C.31 - C.33 = 5 marks

Discipline Specific Questions D.34 – D.35 = 5 marks

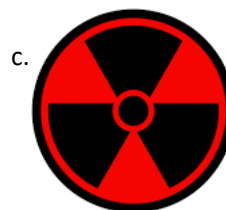
(Answer all questions)

**Total Marks = 10 marks**

C.31 Name the following hazard symbols:

(0.5 marks per correct answer)

**(C.31: 1.5 marks)**



a. \_\_\_\_\_

b. \_\_\_\_\_

c. \_\_\_\_\_

C.32 Name the equipment pictured below:

(0.5 marks per correct answer)

**(C.32: 1.5 marks)**

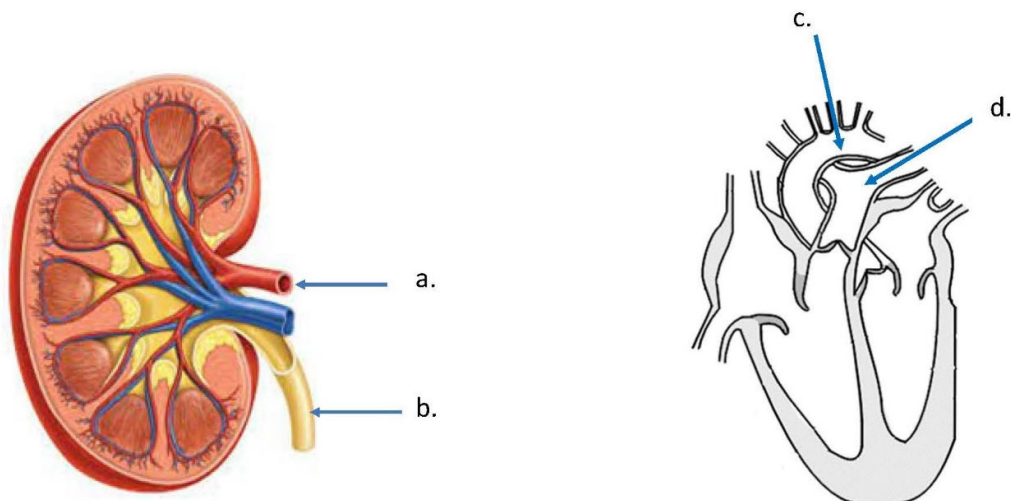


a. \_\_\_\_\_

b. \_\_\_\_\_

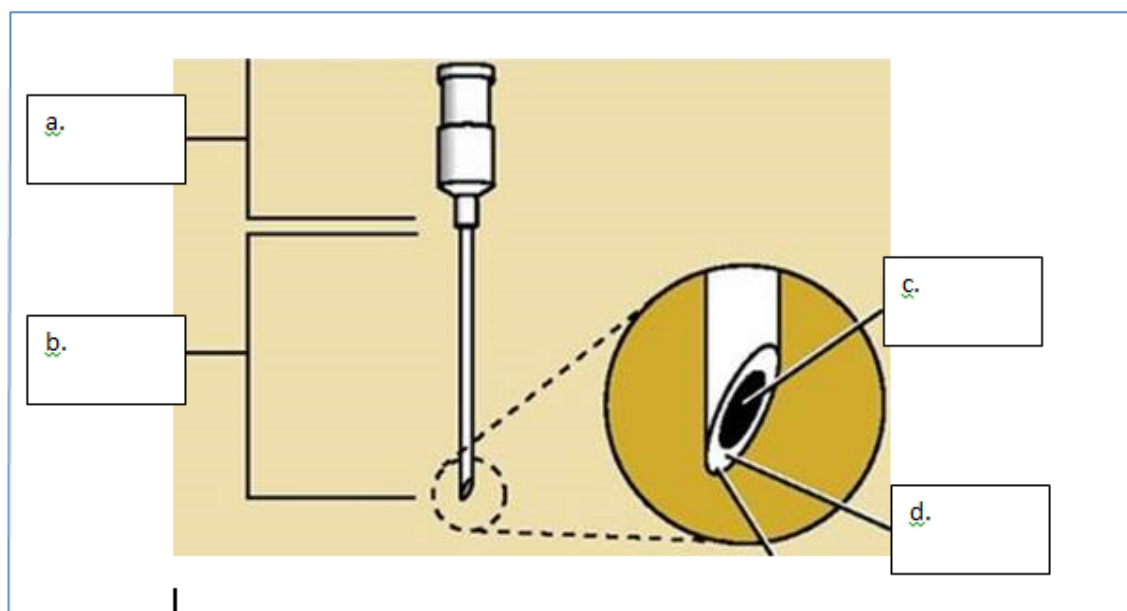
c. \_\_\_\_\_

C.33 Name the anatomical features pictured below, indicated by a, b, c and d:  
 (0.5 marks per correct answer)  
**(C.33: 2 marks)**



a. \_\_\_\_\_ c. \_\_\_\_\_  
 b. \_\_\_\_\_ d. \_\_\_\_\_

D. 34 Label the parts of the blood collection needle, indicated by a, b, c and d: (0.5 marks each)  
**(D.34: 2 marks)**

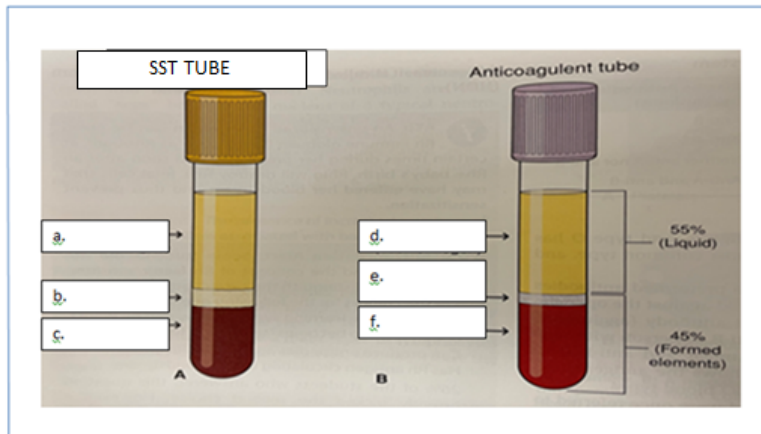


a. \_\_\_\_\_ c. \_\_\_\_\_  
 b. \_\_\_\_\_ d. \_\_\_\_\_

D.35 Label the components in these centrifuged blood tubes, indicated by a, b, c, d, e and f:

(0.5 marks each)

(D.35: 3 marks)



SST tube

Anticoagulant tube

a. \_\_\_\_\_

d. \_\_\_\_\_

b. \_\_\_\_\_

e. \_\_\_\_\_

c. \_\_\_\_\_

f. \_\_\_\_\_

Section B: Total 10 marks

## SECTION C

### Tables, Match Column Definition

Common Curriculum Questions C.36 - C.37 = 4 marks

Discipline Specific Questions D.38 = 6 marks

(Answer all questions)

**Total Marks = 10 marks**

C.36 Match the definition in column (A) with the correct description in column (B).

Write your answer in the table below. (Roman numeral only required.)

*(0.5 marks per correct answer)*

**(C.36: 2 marks)**

A	B
Accuracy	(i) Nose bleed
Morphology	(ii) Inflammation of the Kidney
Epistaxis	(iii) The science of organic forms and structure
Nephritis	(iv) The ability of a measurement to match the actual value of the quantity being measured

A	B (enter Roman numeral only)
Accuracy	
Morphology	
Epistaxis	
Nephritis	

C.37 Expand the following commonly used laboratory abbreviations. There are both laboratory tests and clinical conditions/details:

*(0.5 marks per correct answer)*

**(C.37: 2 marks)**

MI \_\_\_\_\_

UTI \_\_\_\_\_

PPE \_\_\_\_\_

PCR \_\_\_\_\_

D.38 Match the following list of Clinical Laboratory Services in Column A with the most appropriate statement in Column B. Write the correct answer in Column B. (Roman numeral only required.)

(0.5 marks per correct answer)

**(D.38: 6 marks)**

A	B
Chemistry	(i) study of the ability of blood to form and dissolve clots
Haematology	(ii) investigate immune system problems such as autoimmune reactions
Coagulation	(iii) detection and measurement of chemical substances in body fluids
Serology	(iv) analyses blood and other body fluids and tissues for the presence of microorganisms primarily by means of culture and sensitivity testing
Immunology	(v) study of microscopic structure of tissues
Microbiology	(vi) study of serum identifying antibodies and antigens
Blood Bank	(vii) large independent laboratories that receive specimens from many different facilities
Histology	(viii) study of blood and blood-forming tissues
Cytology	(ix) concerned with the structure of cells
Reference Laboratories	(x) diagnosis of disease through the examination of organs and tissues by a pathologist
Anatomic and Surgical Pathology	(xi) prepares blood products to be used for patient transfusions
Flow Cytometry	(xii) is a technique used to detect and measure physical and chemical characteristics of populations of cells and particles.

A	B (enter Roman numeral only)
Chemistry	
Haematology	
Coagulation	
Serology	
Immunology	
Microbiology	
Blood Bank	
Histology	
Cytology	
Reference Laboratories	
Anatomic and Surgical Pathology	
Flow Cytometry	

**Section C: Total 10 marks**

## SECTION D

### Calculations

**Common Curriculum Questions C.39 - C.42 = 5 marks**

**Discipline Specific Questions D.43 - D.46 = 5 marks**

(Answer all questions)

*(Use of a calculator is permitted)*

**Total Marks = 10 marks**

- C.39 A patient needs a specimen taken within 36 hours of flying to meet with travel requirements. They fly at 2130 hr on the 10<sup>TH</sup> of November.

When is the earliest they can have the specimen collected? Give the date and time.

**(C.39: 1 mark)**

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- C.40 A department needs to demonstrate an increase in workload and is asked to calculate the average number of specimens received for the week. **(C.40: 1 mark)**

Day of the week	Monday	Tuesday	Wednesday	Thursday	Friday
Specimens per day	227	243	217	209	186

What is the mean number of samples per day? *Show calculations*

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- C.41 Convert the following:

**(C.41: 2 marks)**

0.75 L      to      \_\_\_\_\_ mL  
1/4          to      \_\_\_\_\_ %  
142ug      to      \_\_\_\_\_ g  
185cm      to      \_\_\_\_\_ mm

(0.5 marks each)  
(C.42: 1 mark)

Express the above result as a percentage.

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a. A tube contains 0.3mL citrate and 2.7mL blood. What is the dilution ratio? (1 mark)

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## SECTION E

### Short Answer Questions

Common Curriculum Questions C.47 - C.51 = 10 marks

Discipline Specific Questions D.52 - D.57 = 25 marks

(Answer all questions)

**Total Marks = 35 marks**

C.47 Define Quality Assurance.

**(C.47: 1.5 marks)**

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C.48 Describe the “Duty of Care” in relation to patient samples. *(0.5 marks per point. Max. 2 marks)*

**(C.48: 2 marks)**

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C.49 List 3 routes of infection from biological material.

*(0.5 marks per point. Max. 1.5 marks)*

**(C.49: 1.5 marks)**

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C.50 Outline the prevention of a sharps injury.

*(0.5 marks per point. Max. 2 marks)*

**(C.50: 2 marks)**

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C.51 Describe Cultural Competence.

**(C.51: 3 marks)**

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D.52 Describe the function and use of tourniquet.

**(D.52: 5 marks)**

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D.53 Give two patient complications associated with blood collections and describe each.

(2.5 marks each)

**(D.53: 5 marks)**

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D.54 Differentiate Airborne Transmission from Droplet Transmission.

(2.5 marks each)

**(D.54: 5 marks)**

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D.55 Indicate the 5 Moments of Hand Hygiene.

**(D.55: 2.5 marks)**

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D.56 Differentiate Antiseptics from Disinfectants

*(2.5 mark each)*

**(D.56: 5 marks)**

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D.57 Differentiate Certification from Continuing Education

**(D.57: 2.5marks)**

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**Section E: Total 35 marks**

**SECTION F**

**Essay Questions**

**Discipline Specific Questions D.58 - D.59 = 20 marks**

(Answer all questions)

**Total Marks = 20 marks**

**SECTION F**

**Essay Questions**

**Discipline Specific Questions D.58 - D.59 = 20 marks**

(Answer all questions)

**Total Marks = 20 marks**

**SECTION F**

**Essay Questions**

**Discipline Specific Questions D.58 - D.59 = 20 marks**

(Answer all questions)

**Total Marks = 20 marks**

**SECTION F**

**Essay Questions**

**Discipline Specific Questions D.58 - D.59 = 20 marks**

(Answer all questions)

**Total Marks = 20 marks**

**SECTION F**

**Essay Questions**

**Discipline Specific Questions D.58 - D.59 = 20 marks**

(Answer all questions)

**Total Marks = 20 marks**

D.58 In essay format describe four different anticoagulated blood collection tubes with reference to their additive, mode of action, and its relevance in order of draw. **(D.58: 10 marks)**

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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D.59 In essay format discuss the Blood Culture Collection Procedure/Steps including the rationale for each step taken. **(D.59: 10 marks)**

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[illegible]



**Candidate No.:** \_\_\_\_\_

**Question No:**

[illegible]



**Question No:**

[illegible]

