

EXAMINATION FOR QUALIFIED MEDICAL LABORATORY TECHNICIAN



Subject: Donor

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
- IANZ guideline
 - NATA guidelines
 - CDC guidelines
 - IATA guidelines
- C.6 Standard precautions refers to
- Treating all body fluids including blood as potentially infectious
 - Wearing gloves at all times when handling patient samples
 - Ensuring all staff are aware of all laboratory hazards and have read the Health and Safety manual
 - 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?
- UN 3373
 - UN 1845
 - UN 2814
 - UN 2900
- C.8 A Class 2 biosafety cabinet offers protection to:
- Personnel only
 - Personnel and products
 - Products only
 - Personnel and environment
- C.9 What laboratory department is generally responsible for the diagnosis of diabetes?
- Microbiology
 - Histology
 - Blood Transfusion
 - Biochemistry
- C.10 Where on the body is the antecubital fossa?
- The leg
 - The arm
 - The waist
 - The neck

- C.11 Why is it important to use personalised logons when using laboratory computer systems?
- So management know which staff has achieved their KPIs.
 - So all entries in the computer are appropriately tracked in accordance with Total Quality Management
 - So HR know when staff are working and they can be paid the correct amount.
 - 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.
- Health Practitioners Competency Assurance Act (2003)
 - Health and Disability Commissioner Act (1994)
 - Health and Safety at Work Act (2015)
 - Employment Relations Act (2000)
- D.13 Which of these phases of haemostasis and coagulation describes the platelet phase?
- Platelet plug formation
 - Fibrinolysis
 - Vasoconstriction
 - Fibrin clot formation
- D.14 Identify the meaning of the abbreviation FMT in the context of New Zealand Blood Service:
- For Malaria Testing
 - Fractionation for Malaria Testing
 - Plasma for Malaria Tubes
 - Plasma for Malaria Testing
- D.15 Which of the following structures is associated with the heart?
- Aorta
 - Renal pelvis
 - Hepatic duct
 - Ampulla of Vater
- D.16 Which of the options below describes the unique identifier affixed to every unit?
- Donor ID number
 - Donation number
 - NHI number
 - Machine number

D.17 The abbreviation Hb is the abbreviation for:

- Haemoglobin
- Haemoglobinometry
- Haptoglobin
- Hepatitis B

D.18 Which of the following features is found in the CompoLab TS, haemoglobin testing machine?

- Inbuilt battery suitable for over 400 hours usage when fully charged
- A built-in self-check at start up and before every measurement
- A plastic casing with inbuilt antimicrobial action
- Automatic synchronisation with eProgesa

D.19 A first-time female donor weighing 86kg and measuring 173cm tall has presented to donate plasma. Identify the plasma weight that can be collected from this donor.

FEMALE-1		Height (cm)								
		150	155	160	165	170	175	180	185	190
Weight (kg)	50	500	512	524	535	547	558	570	581	592
	55	520	533	545	557	569	581	593	605	616
	60	540	553	565	578	590	603	615	627	639
	65	558	571	585	598	611	623	636	649	661
	70	576	589	603	617	630	643	656	669	682
	75	593	607	621	635	648	662	676	689	702
	80	593	624	638	652	666	680	694	708	722
	85	593	624	654	669	683	698	712	726	740
	90	593	624	654	685	700	715	729	744	758
	95	593	624	654	701	716	731	746	761	776
	100	602	624	654	701	732	747	763	778	793
	105	615	629	654	701	732	763	778	794	809
	110+	627	642	656	701	732	763	794	810	825

- 698g
- 689g
- 683g
- 700g

- D.20 What type of blood tubes are contained in the Blood and Body Fluid Exposure (BBFE) Kit?
- a. Purple top EDTA
 - b. Gold top SST tube
 - c. Red top plain tube
 - d. Green top lithium heparin tube
- D.21 Identify the acceptable haemoglobin range which would enable a male to donate blood:
- a. 120-175 g/L
 - b. 120-185 g/L
 - c. 130-175 g/L
 - d. 130-185 g/L
- D.22 Heatblocks used to incubate specimens in the NZBS Laboratory operate at what temperature?
- a. 37.5 degrees Celsius
 - b. 37 degrees Celsius
 - c. 36 degrees Celsius
 - d. 36.5 degrees Celsius
- D.23 Where in the body is prothrombin produced?
- a. Liver
 - b. Kidney
 - c. Bone marrow
 - d. Spleen
- D.24 Identify the tube used to collect Ferritin samples:
- a. EDTA
 - b. SST
 - c. CPDA
 - d. Sodium citrate

- D.25 Identify the process described below:
'the on-site verification activity such as inspection or examination of a process or quality system to ensure compliance to requirements'
- a. Document control
 - b. Quality control
 - c. Corrective action
 - d. Audit
- D.26 Identify the term used to describe the application of safety precautions taken to ensure the safe handling of biological substances that pose a risk to health:
- a. Biosafety
 - b. Bioinfection
 - c. Bioprecaution
 - d. Biological integrity
- D.27 Which of the following items is considered PPE?
- a. Sharps container
 - b. Acrylic counter protection screen
 - c. Non-latex gloves
 - d. Biohazard bag
- D.28 The process of ensuring good mixing of the anticoagulant in an accreditation tube with the collected sample is called:
- a. Tube activation
 - b. Hyperversion
 - c. Inversion
 - d. Haemolysis
- D.29 Identify the adverse event described below:
'A swelling or mass of blood (often clotted) such as that caused by blood leaking from a blood vessel during or following venepuncture'.
- a. Nerve injury
 - b. Accidental arterial puncture
 - c. Rebleeding
 - d. Haematoma

- D.30 What is the minimum interval after making a plasma donation before a whole blood donation may be made?
- a. 48 hours
 - b. 72 hours
 - c. 7 days
 - d. 14 days

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

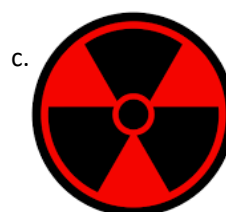
(Answer all questions)

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. _____

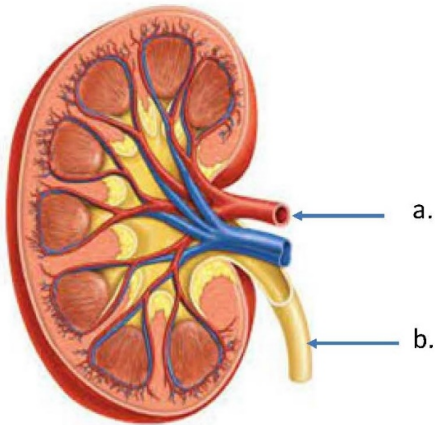
b. _____

c. _____

C.33 Name the anatomical features pictured below, indicated by a, b, c and d.

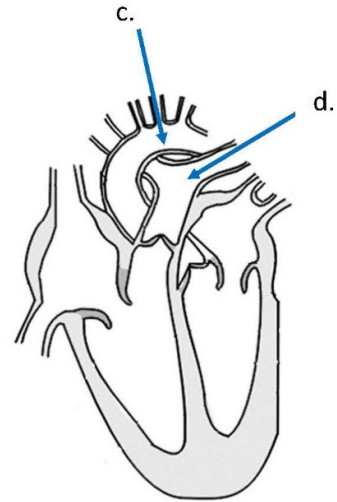
(0.5 marks per correct answer)

(C.33: 2 marks)



a. _____

b. _____



c. _____

d. _____

D.34 Label the parts of the Hemoflow machine:

(D.34: 2.5 marks)



a. _____

c. _____

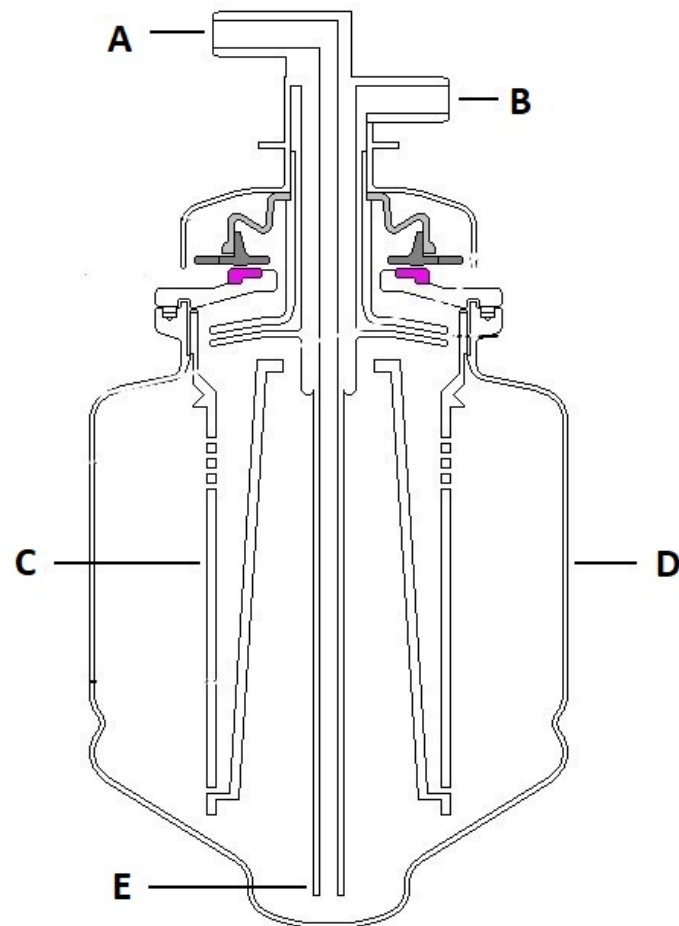
e. _____

b. _____

d. _____

D.35 Label the parts of the bowl used in AHF plasma collection:

(D.35: 2.5 marks)



a. _____

b. _____

c. _____

d. _____

e. _____

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)

(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.

(C.37: 2 marks)

MI _____
UTI _____
PPE _____
PCR _____

- D.38 Complete the chart below, providing a meaning and example for each of the prefixes/suffixes.
Write your answers in the space provided. **(D.38: 6 marks)**

Example:

Prefix/suffix	Meaning	Example
Pharmaco-	Drugs, medication	pharmacology

Prefix/suffix	Meaning	Example
Tox-		
Homeo-		
Neo-		
-spasm		
Tachy-		
-pathy		

Section C: Total 10 marks

SECTION D

Calculations

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

Discipline Specific Questions D.43 - D.44 = 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 10TH of November.

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

(C.39: 1 mark)

- 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.

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.*

(C.40: 1 mark)

- C.41 Convert the following:

(C.41: 2 marks)

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

C.42 Solve the following equation.

(0.5 mark per correct answer)

$$\frac{1}{3} + \frac{5}{8} = \underline{\hspace{2cm}}$$

Express the above result as a percentage. _____

(C.42: 1 mark)

D.43 A Team Red Group came in to donate. 50 of the donors were male and 18 were female. There were 42 whole blood units collected from the male donors and 3 of the female donors were deferred. **(D.43: 3.5 marks)**

(D.43: 3.5 marks)

a. Calculate the percentage of the donors that were female donors?

(Show your working)

(1.5 marks)

b. Calculate the percentage of the total whole blood units collected that were from the male donors? (*Show your working*) (1.5 marks)

(1.5 marks)

c. Calculate how many male donors were deferred?

(0.5 marks)

- D.44 The Waikato team collected whole blood in Rotorua for five days last week. The data from this collect is as below: **(D.44: 1.5 marks)**

Days of the week	Monday	Tuesday	Wednesday	Thursday	Friday
Total number of donors/day	95	104	145	132	94
Total number of deferrals/day	7	10	23	15	16
Total number of units collected/day	88	94	122	117	78

- a. Calculate the total number of units collected for the week (*Show your working*) (1 mark)

- b. What is the median number of deferrals for the week? (0.5 marks)

Section D: Total 10 marks

SECTION E

Short Answer Questions

Common Curriculum Questions C.45 - C.49 = 10 marks

Discipline Specific Questions D.50 - D.64 = 25 marks

(Answer all questions)

Total Marks = 35 marks

C.45 Define Quality Assurance:

(C.45: 1.5 marks)

C.46 Describe the “Duty of Care” in relation to patient samples: *(0.5 marks per point. Max. 2 marks)*

(C.46: 2 marks)

C.47 List 3 routes of infection from biological material:

(0.5 marks per point. Max. 1.5 marks)

(C.47: 1.5 marks)

C.48 Outline the prevention of a sharps injury.

(0.5 marks per point. Max. 2 marks)

(C.48: 2 marks)

C.49 Describe Cultural Competence.

(C.49: 3 marks)

D.50 Outline four of your responsibilities as a worker under the Health & Safety at Work Act 2015:

(D.50: 2 marks)

D.51 Outline 4 first aid actions that you should take in response to an air embolism which occurred during an apheresis procedure:

(D.51: 2 marks)

D.52 Differentiate between the concepts of confidentiality and privacy.

(D.52: 1 mark)

D.53 List four uses of centrifuges at NZBS:

(D.53: 2 marks)

D.54 Outline the process for decontaminating the Vasini Heat Sealer:

(D.54: 2 marks)

D.55

(D.55: 2 marks)

a. Describe the concept of aseptic technique, including the goal of using aseptic technique:

b. List two examples of aseptic technique, in your practice at NZBS:

D.56 List four types of diseases or organisms found in healthcare settings:

(D.56: 2 marks)

D.57 Describe the storage of the oxygen cylinder including when transporting on a mobile collect.

(D.57: 1 mark)

D.58 Identify two possible causes of donor anaphylaxis before or during plasma donation.

(D.58: 1 mark)

D.59 Distinguish between working under supervision, and working under direction as per the Medical Sciences Council of New Zealand? Include two points.

(D.59: 1 mark)

D.60 Identify a type of donor at increased risk of experiencing an adverse event and define why their risk of adverse event is increased. **(D.60: 1 mark)**

D.61 List four items contained in the First Aid kit: **(D.61: 2 marks)**

D.62 Identify two elements that a Donor Technician must check with a Registered Nurse before commencing a plasma collection. **(D.62: 1 mark)**

D.63 Identify the four stages of the infectious process and describe the identifying features of each stage. **(D.63: 4 marks)**

D.64 Indicate two examples of accountability in your work as a Donor Technician at New Zealand Blood Service. **(D.64: 1 mark)**

Section E: Total 35 marks

SECTION F

Essay Questions

Discipline Specific Questions D.65 - D.66 = 20 marks

(Answer all questions)

Total Marks = 20 marks

SECTION F

Essay Questions

Discipline Specific Questions D.65 - D.66 = 20 marks

(Answer all questions)

Total Marks = 20 marks

SECTION F

Essay Questions

Discipline Specific Questions D.65 - D.66 = 20 marks

(Answer all questions)

Total Marks = 20 marks

SECTION F

Essay Questions

Discipline Specific Questions D.65 - D.66 = 20 marks

(Answer all questions)

Total Marks = 20 marks

SECTION F

Essay Questions

Discipline Specific Questions D.65 - D.66 = 20 marks

(Answer all questions)

Total Marks = 20 marks

D.65 In essay format, describe informed consent in the context of New Zealand Blood Service, drawing on specific examples from Donor Services. **(D.65: 10 marks)**

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D.66 In essay format, describe three types of adverse events related to plasma donation, including preventative action to be taken by Donor Technicians. **(D.66: 10 marks)**

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