

EXAMINATION FOR QUALIFIED MEDICAL LABORATORY TECHNICIAN



Subject: DONOR

Examination Date: 7 October 2023

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

Candidate Name: _____

Candidate No.: _____

General Instructions

1. Total marks for paper = 100.
2. Marks for each question are as indicated,
3. The paper consists of:

	<i>Common</i>	<i>Discipline Specific</i>
Section A, questions 1-30 = Total Marks 15	6 Marks	9 Marks
Section B, questions 31-34 = Total Marks 10	5 Marks	5 Marks
Section C, questions 35-37 = Total Marks 10	4 Marks	6 Marks
Section D, questions 38-41 = Total Marks 05	5 Marks	0
Section E, questions 42-63 = Total Marks 40	10 Marks	30 Marks
Section F, questions 64-65 = Total Marks 20	0	20 Marks
4. All questions are to be attempted.
5. Use of calculator is permitted.
6. Put all answers into the examination booklet provided.

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WORD DEFINITIONS	
Calculate	Perform a mathematical process to get the answer
Classify	Be able to designate to a group
Compare	Detail both the differences and the similarities
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
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
Interpret	Express the results of a test or series of tests in a meaningful format
Label	Give a name to
List	Headings only
Match	Find one that closely resembles another
Name	A word or group of words used to describe or evaluate
Outline	Write brief notes incorporating the essential facts
State	Give the relevant points briefly

SECTION A

Section A – Question 1 to Question 30 = Total Marks: 15

Multi choice questions

Multi choice questions – choose one answer for each question

(0.5mark per correct answer)

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 A synovial fluid is taken from

- a. The eye
- b. A vein
- c. A joint
- d. An artery

C.2 The cardiovascular system is also referred to as the:

- a. Circulatory system
- b. Endocrine system
- c. Respiratory system
- d. Lymphatic system

C.3 The Medical Sciences Council is responsible for:

- a. Offering a CPD programme
- b. Issuing an Annual Practicing Certificate
- c. Providing QMLT examinations
- d. Laboratory auditing

- C.4 Leukemia is primarily diagnosed in which department in the laboratory?
- a. Haematology
 - b. Histology
 - c. Microbiology
 - d. Biochemistry
- C.5 The prefix “hypo” refers to:
- a. Inflammation
 - b. Excessive
 - c. Increased
 - d. Decreased
- C.6 Standard precautions refers to:
- a. Cleaning the laboratory regularly with an appropriate disinfectant
 - b. Treating all blood and body fluids as potentially infectious
 - c. Following the rules set by the Health and Safety Officer
 - d. Compulsory use of Personal Protective Equipment
- C.7 Which best describes confidential information?
- a. Information given on the understanding that it will not be passed on to others.
 - b. Information that is stamped or marked as “Confidential”
 - c. Information that can only be passed on to a doctor or family member.
 - d. Clinical details written on a form.
- C.8 A pathologist is a:
- a. Registered Medical Practitioner
 - b. An advanced Medical Laboratory Scientist
 - c. A specialised Scientific Officer
 - d. Registered Clinical Scientist

- C.9 Within the complaints process of The Code of Health & Disability Services and Consumer Rights, the complaint must be acknowledged in writing within how many working days?
- a. 7 days
 - b. 10 days
 - c. 5 days
 - d. 20 days
- C.10 A method of representing data in a visual, machine-readable form describes:
- a. A histogram
 - b. A cell scanner
 - c. A flow chart
 - d. A barcode
- C.11 “It is the duty of Members to uphold the dignity and honour of the profession, to accept its ethical principles and not engage in any activity that would discredit the profession” is part of:
- a. HPCA Act 2003
 - b. Health and Disabilities requirement of all staff
 - c. NZIMLS code of ethics
 - d. Medical Sciences Council of New Zealand practitioner requirement
- C.12 Venesection, venipuncture, phlebotomy and blood collection all come under what scope of practice?
- a. Medical Laboratory Scientist
 - b. Medical Laboratory Technician
 - c. Pre analytical Technician
 - d. Health Care Assistant
- D.13 New donors may be accepted to donate up to which birthday?
- a. 16th
 - b. 18th
 - c. 71st
 - d. 81st

- D.14 Which of the following blood type is considered the universal whole blood donor?
- a. A+
 - b. A-
 - c. O+
 - d. O-
- D.15 Which of the following is **NOT** a common adverse event of blood donation?
- a. fatigue and dizziness after donation
 - b. bruising or haematoma at the needle insertion
 - c. temporary low blood pressure
 - d. enhanced immune response and increased risk of infections
- D.16 Which of the following best describes autologous blood donation?
- a. A type of blood donation where the donor gives blood for their own use.
 - b. A type of blood donation where the donor gives blood to another unrelated individual.
 - c. A type of organ donation where the donor donates an organ to an unrelated individual.
 - d. A type of organ donation where the donor donates an organ to a family member.
- D.17 Which of the following blood components is NOT commonly transfused to patients?
- a. Red blood cells
 - b. White blood cells
 - c. Platelets
 - d. Plasma
- D.18 How is plasma separated from other blood components during the donation process using the MCS+ machine?
- a. By cooling the blood sample
 - b. By spinning the blood in a centrifuge
 - c. By filtering the blood through a membrane
 - d. By applying an electric current to the blood

D.19 Which of the following veins is commonly used for venesection?

- a. Radial vein
- b. Ulnar vein
- c. Femoral vein
- d. Median cubital vein

D.20 What is the recommended method for disposing of used needles and other sharps after blood collection?

- a. Placing them in regular trash bins
- b. Recycling them in designated containers
- c. Autoclaving them before disposal
- d. Using designated sharps containers

D.21 Which of the following is a crucial step in preventing needlestick injuries during blood collection?

- a. Using blunt needles instead of sharp needles
- b. Using larger gauge needles for improved visibility
- c. Avoiding recapping of used needles
- d. Disinfecting the needle before and after each use

D.22 How should accidental blood spills be properly managed during blood collection?

- a. Clean the spill with a regular cloth or tissue
- b. Apply bleach directly to the spill and let it dry
- c. Use absorbent materials and appropriate disinfectants
- d. Ignore the spill if it is small and not visible

D.23 Which of the following infections is a common occupational risk for healthcare professionals involved in blood collection?

- a. Tuberculosis (TB)
- b. Hepatitis B
- c. Malaria
- d. Influenza

- D.24 What is the purpose of serology testing in blood collection?
- a. To determine blood type and compatibility for transfusion
 - b. To detect the presence of specific antibodies or antigens in the blood
 - c. To measure the levels of different blood cell types
 - d. To assess kidney function through blood markers
- D.25 Which of the following conditions can be detected using serology testing?
- a. Diabetes
 - b. Hyperthyroidism
 - c. HIV
 - d. Asthma
- D.26 How often must you take an IgG test from a regular plasma donor apart from during the annual test?
- a. every 2nd donation
 - b. every 3rd donation
 - c. every 4th donation
 - d. every 5th donation
- D.27 What is the minimum period a donor must wait after donating whole blood before they can donate plasma?
- a. 24 hours
 - b. 48 hours
 - c. 14 days
 - d. 30 days
- D.28 What are the correct type of tubes and the correct order of draw for the NZBS accreditation samples?
- a. 6mL K2E (purple top), 5mL NAT (white top), 6mL CAT (red top)
 - b. 6mL CAT (red top), 6mL K2E (purple top), 5mL NAT (white top)
 - c. 4mL K2E (purple top), 5mL NAT (white top), 4mL CAT (red top)
 - d. 4mL CAT (red top), 5mL NAT (white top), 4 mL (purple top)

D.29 Which of the following is an essential step in the maintenance of blood collection equipment?

- a. Regular calibration
- b. Cleaning with bleach and water
- c. Disinfection with chlorhexidine
- d. Storage in a damp environment

D.30 Which of the following is the recommended site for capillary blood collection in adults?

- e. Fingertip
- a. Forearm
- b. Heel
- c. Earlobe

(Total: 15 marks)

END OF SECTION

SECTION B

Labelling of diagrams e.g. anatomy, hazard identification, instrument



Section B – Question 31 to Question 34 = Total Marks: 10

(Answer all questions)

C.31 Name the following hazard symbols:

(1 mark)

(0.5 marks per correct answer)

a.		b.	
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a. _____

b. _____

C.32 Name the instruments and describe their use:

(2 marks)

(1 mark per correct answer)

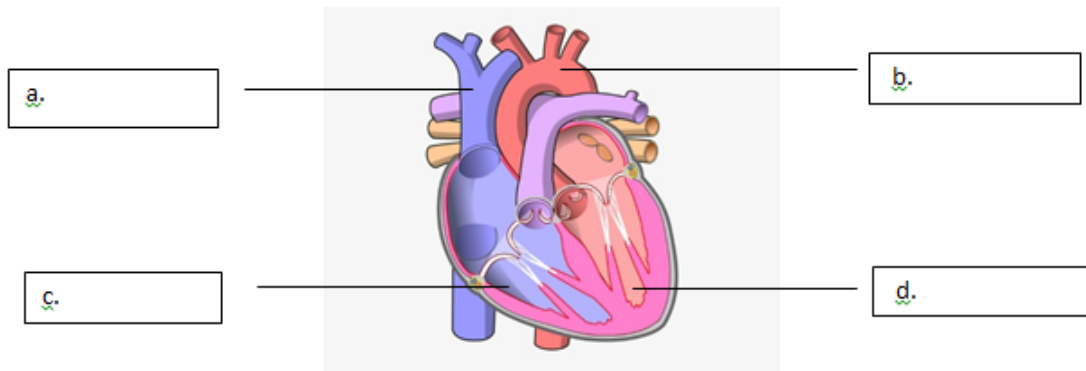
a.		b.	
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a. _____

b. _____

C.33 Label the following diagram:

(2 marks)



a. _____ b. _____

c. _____ d. _____

D.34 Label the following diagrams:

(5 marks)

a. MCS+ Machine

(3.5 marks)



a. _____ b. _____

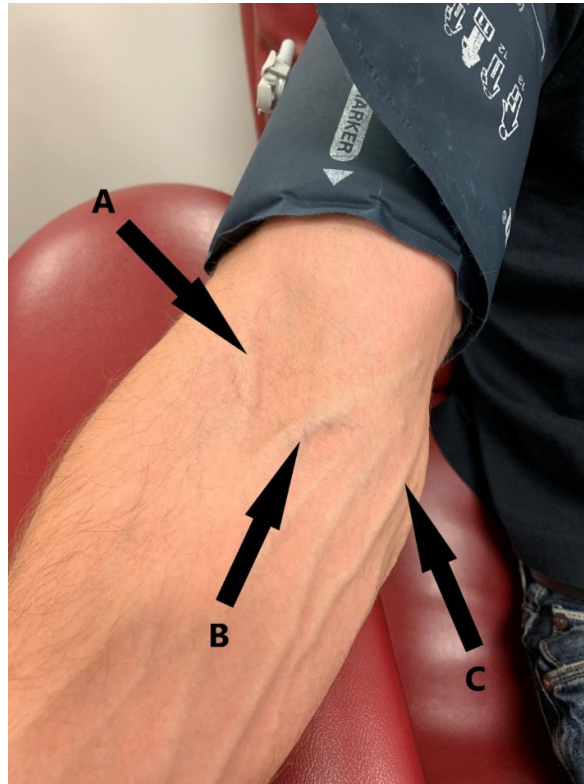
c. _____ d. _____

e. _____ f. _____

g. _____

b. Veins

(1.5 marks)



a. _____

b. _____

c. _____

(Total: 10 marks)

END OF SECTION

SECTION C

Tables, match column definition

Section C – Question 35 to Question 37 = Total Marks: 10

(Answer all questions)

- C.35 Match the columns by **writing the Roman numeral from list B** against the correct match in Column A **(2 marks)**

Column A	Column B
A. Hepatic	i. Knee
B. Nephritis	ii. Liver
C. Patella	iii. Molecular
D. PCR	iv. Kidney

Column A	Column B
A. Hepatic	
B. Nephritis	
C. Patella	
D. PCR	

- C.36 Expand the common abbreviations: **(2 marks)**

A	B
a. ACF	
b. CML	
c. COPD	
d. NAAT	

D.37 Write down the meaning and provide an example for each of the following prefixes:
(6.0 marks)

Prefix	Meaning	Medical-related Example
contra-		
cyt(o)		
endo-		
fore-		
gluco-		
ultra-		

(Total: 10 marks)

END OF SECTION

SECTION D*Calculations***Section D – Question 38 to Question 41 = Total Marks: 5****Calculations**

C.38 A patient has had daily Sodium and Potassium tests done for one week, the results are as follows:

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Sodium	135.7	135.9	136.3	136.9	137.2	136.5	135.4
Potassium	3.9	4.2	4.8	4.1	3.8	4.0	3.6

Calculate the mean Sodium and Potassium for the week. (Show all workings)

(2 marks)

C.39 Convert

(1.5 marks)

32.7 mg to _____ kg

$\frac{5}{8}$ to _____ %

200 uL to _____ mL

C.40 A test has been set up at 1730hrs and has an incubation time of 18 hours, the requester is asking what time they could expect the result (assume the result can be given as soon as the incubation period is complete).

(0.5 marks)

C.41 A colleague accidentally made one litre of 20% solution of Trigene, you have been asked to use that solution and make one litre of 2% Trigene.

Explain your process and show any calculations or workings.

(1 marks)

(Total: 5 marks)

END OF SECTION

SECTION E

Short answer questions (answers = one or more words, short sentences)

Section E – Question 42 to Question 62 = Total Marks: 40

Short Answer Questions

C.42 Define document control. **(2 marks)**

C.43 Outline the First Aid and Treatment for fainting or unconscious episode of a staff member or patient you are working with. **(1.5 marks)**

C.44 When referring to laboratory results the term “accuracy” is best described as: **(0.5 marks)**

C.45 Outline the principle purpose of the Health Practitioners Competency Assurance Act 2003. **(1.5 marks)**

C.46 Describe why user specific passwords are important when using a Laboratory Information System (Computer System) **(1.5 marks)**

C.47 Describe why it is important for the laboratory to have a robust specimen labelling policy.

(1.5 marks)

C.48 Define Patient/Donor confidentiality:

(1.5 marks)

D.49 Name **ONE** (1) important aim of the five (5) moments of hand hygiene:

(0.5 marks)

D.50 List **THREE** (3) Personal Protective Equipment (PPE) that is available to staff at NZBS

(1.5 marks)

D.51 List **FOUR** (4) ways privacy and confidentiality of donors are protected at NZBS.

(2 marks)

D.52 Outline the **SIX** (6) mandatory steps for performing weight checks on the Hemoflow. **(3 marks)**

D.53 List **FIVE** (5) criteria that require a linked donation to be audited **(2.5 marks)**

D.54 List **THREE** (3) components of the nervous system and state the function of each. **(3 marks)**

D.55 a. List **THREE** (3) signs/symptoms of Air Embolism **(1.5 marks)**

b. Describe the correct placement for a donor with suspected air embolus **(0.5 marks)**

D.56 Outline the procedure to change the nomogram level of an existing plasmapheresis donor **(2 marks)**

D.57 List **TWO** (2) examples where a Donor Technician uses the eProgesa system (1 mark)

D.58 List **FOUR** (4) infectious diseases tested for by Donation Accreditation for each donation (2 marks)

D.59 a. Describe the importance of monitoring and maintaining the storage conditions for core collection consumables (3 marks)

b. Identify the Specific Temperature Range for the items below: (2.5 marks)

- Macopharma BAT/TAT Bags _____
- Haemonetics Sodium Citrate _____
- Solu-IV wipes _____
- CompoLab cuvettes _____
- BD Vacutainer tubes _____

D.60 List **TWO** (2) things that you must check before opening the whole blood pack: (1 mark)

D.61 List **FOUR** (4) parts of the MCS+ that collections staff clean weekly

(2 marks)

D.62 List **FOUR** (4) reasons eProgesa flagged warnings may show during donor registration that requires nurse investigation and approval

(2 marks)

(Total: 40 marks)

END OF SECTION

ESSAY

Section F – Question 63 to Question 64 = Total Marks: 20

Essay Questions

ESSAY

Section F – Question 63 to Question 64 = Total Marks: 20

Essay Questions

ESSAY

Section F – Question 63 to Question 64 = Total Marks: 20

Essay Questions

D.63 In essay format, describe haematoma in the context of blood donation, including signs and symptoms, appropriate management and reporting requirements at New Zealand Blood Service. **(10 marks)**

[illegible]

[illegible]

D.64 In essay format, discuss the potential risks, immediate actions, preventative measures and the reporting process for eye splash incidents associated with blood collection. **(10 marks)**

[illegible]

[illegible]