NZIMLS EXAMINATION FOR QUALIFIED MEDICAL LABORATORY TECHNICIAN

SPECIMEN SERVICES
2025

Part 1: Common Syllabus

Part 2: Discipline Specific Syllabus

Candidate Name: «Name»

Candidate No.: «Member_No»

General Instructions

1. Total marks for paper = 100.

2. Marks for each question are as indicated.

3. The paper consists of:

	Common	*Discipline Specific*
Part 1:		
Section A; questions 1-30	6 Marks	9 Marks
Section B; questions 31-34	5 Marks	
Section C; questions 35-36	4 Marks	
Section D; questions 37-39	5 Marks	
Section E; questions 40-45	10 Marks	
Total Part 1:	*30 Marks*	*9 Marks*
Part 2:		
Section A; questions 46-50		06 Marks
Section B; questions 51-52		05 Marks
Section C; questions 53-60		30 Marks
Section D; qu4stions 61-62		20 Marks
Total Part 2:		*61 Marks*

4. All questions are to be attempted.

5. Use of calculator is permitted.

6. Put all answers into the examination booklet provided.

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

PART ONE

	Common	*Discipline Specific*
Section A; questions 1-30	6 Marks	9 Marks
Section B; questions 31-34	5 Marks	
Section C; questions 35-36	4 Marks	
Section D; questions 37-39	5 Marks	
Section E; questions 40-45	10 Marks	
Total Part 1:	***30 Marks***	***9 Marks***

PART 1: SECTION A – COMMON AND DISCIPLINE SYLLABUS MULTI CHOICE QUESTIONS

Multi Choice Questions 1 – 30

Instructions: Multi-choice questions – circle one answer for each question. If you make a mistake, clearly cross-out the incorrect answer and circle your new choice.

Marks: 0.5 per correct answer

Total Marks: 15

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

a. *Green*

b. *Purple*

c. *Red*

d. *Orange*

C1. The prefix "hypo" refers to:

a. Reduced

b. Raised

c. Absent

d. Removed

C2. Olecranon bursitis is associated with which body joint?

a. Shoulder

b. Knee

c. Hip

d. Elbow

C3. Which organs are responsible for removing toxins from the human body?

a. Liver and Stomach

b. Kidney and Stomach

c. Heat and Stomach

d. Liver and Kidneys

C4. Annual Practicing Certificates are issued by:

a. Medical Sciences Council of New Zealand

b. The New Zealand Institute of Medical Laboratory Science (Inc.)

c. IANZ

d. Te Whatu Ora – Health New Zealand

C5. Principles that govern the right behaviour are:

a. Standards

b. Methods

c. Criteria

d. Ethics

C6. A lavender top blood tube contains which anti-coagulant?

a. Sodium fluoride

b. Ethylenediaminetetraacetic Acid

c. Sodium citrate

d. Heparin

C7. Test and tag is a requirement for:

a. First Aid training

b. Fire safety

c. Electrical safety

d. Biohazard safety

C8. Vitreous fluid is taken from:

a. Eye

b. Joint

c. Artery

d. Lumbar puncture

C9. Formalin is a solution primarily used in which laboratory department?

a. Biochemistry

b. Haematology

c. Blood Bank

d. Histology

C10. Which guidelines are used as industry standard for specimen transport?

a. NATA guidelines

b. H&S guidelines

c. IATA guidelines

d. IANZ guidelines

C11. Laboratory computer systems have personalised logins to ensure that:

a. HR know when staff are working

b. Management can track individual staff KPI's

c. Computer entries can be appropriately tracked

d. Errors are logged appropriately

C12. Getting permission from a patient to proceed with a test is best described as:

a. Informed consent

b. Patient confidentiality

c. Cultural competence

d. Patient information

D13. What is the most appropriate testing method for detecting *Chlamydia trachomatis*?

a. Culture on chocolate agar

b. Nucleic acid amplification test (NAAT)

c. Gram stain

d. Wet mount microscopy

D14. Which component is typically found in plasma but not in serum?

a. Glucose

b. Electrolytes

c. Fibrinogen

d. Red blood cells

D15. What is the main effect of air bubbles in an arterial blood gas (ABG) specimen?

a. Decreased pO_2 and increased pCO_2

b. Increased potassium

c. Increased lactate

d. Increased pO_2 and decreased pCO_2

D16. Why must CSF samples for xanthochromia testing be protected from light?

a. To prevent protein breakdown

b. To maintain cell viability

c. To prevent bilirubin degradation

d. To avoid bacterial contamination

D17. Why is it essential for a platelet function assay (PFA) blood sample to be hand-delivered promptly to the laboratory?

a. Platelets can become activated or degraded, leading to inaccurate results if delayed

b. Walking the sample reduces agitation, leading to delayed clotting of platelets in the sample

c. Platelets are stable for 24 hours in citrate tubes, so transport method does not impact the accuracy of platelet function results

d. Platelets may clot if delivery is delayed

D18. What does the presence of dysmorphic red blood cells in urine typically indicate?

a. Infection of the lower urinary tract

b. Glomerular damage such as glomerulonephritis

c. Dehydration

d. Urinary tract obstruction

D19. Why are nasopharyngeal swabs the preferred specimen type for diagnosing *Bordetella pertussis* infection?

a. They are easier to collect than throat swabs

b. They avoid contamination from normal oral flora

c. They target the anatomical site where *B. pertussis* colonizes

d. They are the only specimen type compatible with PCR testing

D20. Which type of blood specimen is collected from a newborn's heel?

a. Arterial

b. Capillary

c. Cord blood

d. Venous

D21. Which regulatory body governs the air transport of infectious specimens?

a. CDC

b. WHO

c. FDA

d. IATA

D22. Identify the significance of using dedicated tubes specifically for PCR samples during specimen processing?

a. To prevent sample evaporation during thermal cycling

b. To increase the amplification speed of the PCR reaction

c. To avoid contamination with exogenous DNA or PCR amplicons

d. To allow the use of larger reaction volumes

D23. Which of the following best ensures the reliability of centrifuge performance in a medical laboratory?

a. Periodic speed checks and documented maintenance

b. Using the same centrifuge daily

c. Using high-speed centrifugation for all samples

d. Relying on manufacturer warranty

D24. Why is the timing of a GTT important?

a. It reduces haemolysis

b. To allow clot formation

c. To ensure accurate glucose readings at intervals

d. To increase cell separation

D25. Which of the following statements accurately reflects the clinical rationale for performing serial troponin measurements?

a. To diagnose anaemia

b. To monitor liver enzyme trends

c. To rule out pulmonary embolism

d. To detect and confirm myocardial infarction over time

D26. Which of the following is specifically stated in the Health and Safety at Work Act 2015?

a. Never eat in the workplace

b. Take reasonable care for your own health and safety

c. Wash your hands before you leave the laboratory

d. Cooperate with health and safety representative

D27. Collecting a drug trough level (pre-dose) is used to:

a. Assess the peak concentration of the drug after administration

b. Ensure the drug has reached its minimum toxic level

c. Determine the minimum concentration before the next dose to ensure therapeutic efficacy

d. Verify the patient's adherence to dosing schedule

D28. A citrate blood sample for coagulation testing is rejected due to underfilling. What is the most likely consequence if this sample were used to guide surgery?

a. Accurate coagulation results would be obtained

b. Clotting times may appear falsely prolonged, leading to unnecessary delay or cancellation of surgery

c. The test results would be unaffected by underfilling

d. The patient would receive unnecessary clotting factors

D29. What is the clinical indication of measuring CD4 count in a patient?

a. To evaluate the immune status in HIV-infected individuals

b. To assess liver function

c. To determine kidney function

d. To assess the presence of cancer

D30. Why are pre-dialysis urea levels routinely measured in patients receiving haemodialysis?

a. To detect hypouricaemia on pre-dialysis

b. To assess hydration status prior to haemodialysis

c. To evaluate renal perfusion in End-Stage Renal Failure patients

d. To assess the accumulation of nitrogenous waste before dialysis

Total marks: 15

END OF PART 1, SECTION A

PART 1, SECTION B – COMMON SYLLABUS QUESTIONS

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

Questions 31 – 34

Total Marks: 5

C31. Name the following hazard symbols: (2 marks)

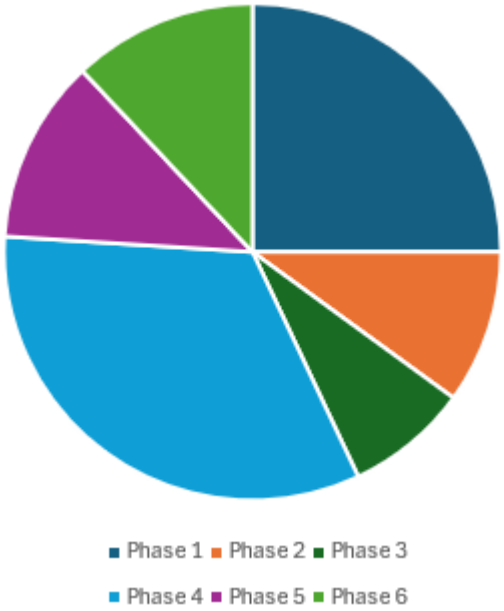
(0.5 mark per correct answer)

a.		b.	
c.		d.	

a. _____ b. _____

c. _____ d. _____

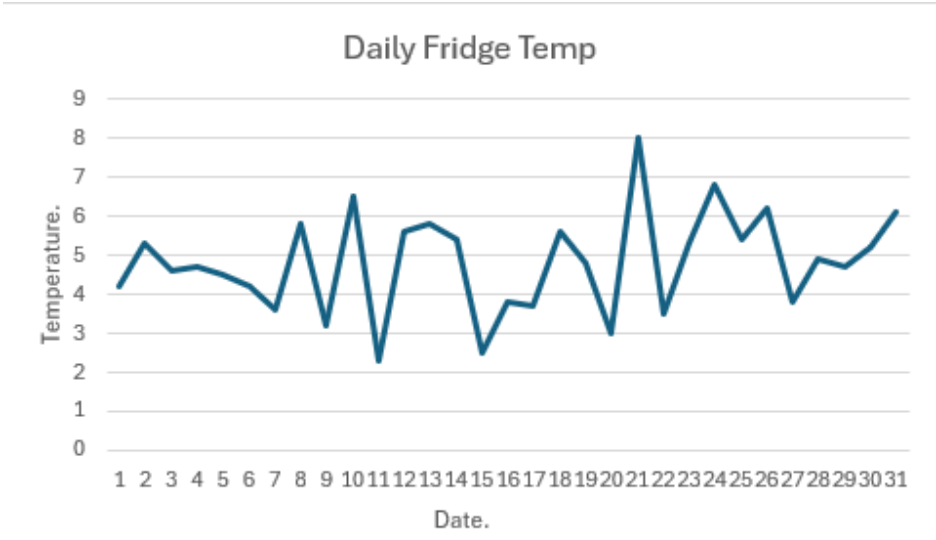
C32. Name the type of graph pictured below: (1 mark)



Type of graph: _____

What is the approximate percentage of the chart that is phase 1? _____

C33. Name the type of graph pictured below: (1.5 marks)



Type of graph: _____

Name the axis: Temperature = _____ Date = _____

C34. Name the piece of equipment pictured below: (0.5 mark)

_____

Total marks: 5

END OF PART 1, SECTION B

PART 1, SECTION C – COMMON SYLLABUS QUESTIONS

Tables, match column definition

Section C – Questions 35 to 36

Total marks: 4

C35. Match the columns by **writing the Roman numeral from the test list in Column B** against the correct match in Column A. (2.5 marks)

Column A	Column B
a. Microtome	i. Inflammatory marker
b. C Reactive Protein	ii. Coagulation
c. Prothrombin time	iii. Foetal Red Cells
d. Polymerase Chain Reaction	iv. Molecular technique
e. Kleihauer test	v. Histology

Column A	Column B
a. Microtome	
b. C Reactive Protein	
c. Prothrombin time	
d. Polymerase Chain Reaction	
e. Kleihauer test	

C36. Expand the common abbreviations: (1.5 marks)

A.	B.
a. CKD	
b. DKA	
c. AML	

Total marks: 4

END OF PART 1, SECTION C

PART 1, SECTION D – COMMON SYLLABUS QUESTIONS

Calculations

Section D – Questions 37 to 39

Total marks: 5

C37.a A 200 µL pipette is due for calibration. 5 aliquots of deionised water were taken and weighed. The results are below. (2 marks)

i. 0.2015 gm
ii. 0.2018 gm
iii. 0.2009 gm
iv. 0.2002 gm
v. 0.2011 gm

Calculate the average weight of the aliquots taken?
(Show all calculations) *(1 mark)*

C37.b Calculate the percentage variance of the mean from the desired 200 µL?
(Show all calculations) *(1 mark)*

C38. Convert the following: (2 marks)

1.5 mL	to		µL
3/8	to		%
0.25 kg	to		mg
7.5 cm	to		mm

C39. How many millilitres of alcohol is required to make 2.0 litres of a 70% alcohol bench wash solution? (1 mark)

Total marks: 5

END OF PART 1, SECTION D

PART 1, SECTION E – COMMON SYLLABUS QUESTIONS

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

Section E – Questions 40 to 45

Total marks: 10

C40. Define a notifiable incident according to the Health and Safety at Work Act 2015. (1.5 marks)

C41. Describe the theory and laboratory procedure of decontamination of biohazards and infectious agents in the laboratory. (2.5 marks)

C42. Define patient confidentiality. (1.5 marks)

C43. Define the ISO 15189 standard, what is its function and who it is administered by in New Zealand. (1.5 marks)

C44. Describe precautions taken to ensure safety and security of laboratory data. (1.5 marks)

C45. Define the concept of safe practice within the laboratory. (1.5 marks)

Total marks: 10 marks

END OF PART 1, SECTION E

PART TWO

Discipline Specific

Section A; questions 46-50	6 Marks
Section B; questions 51-52	5 Marks
Section C; questions 53-60	30 Marks
Section D; questions 61-62	20 Marks
Total Part 2:	***61 Marks***

PART 2, SECTION A – DISCIPLINE SYLLABUS QUESTIONS

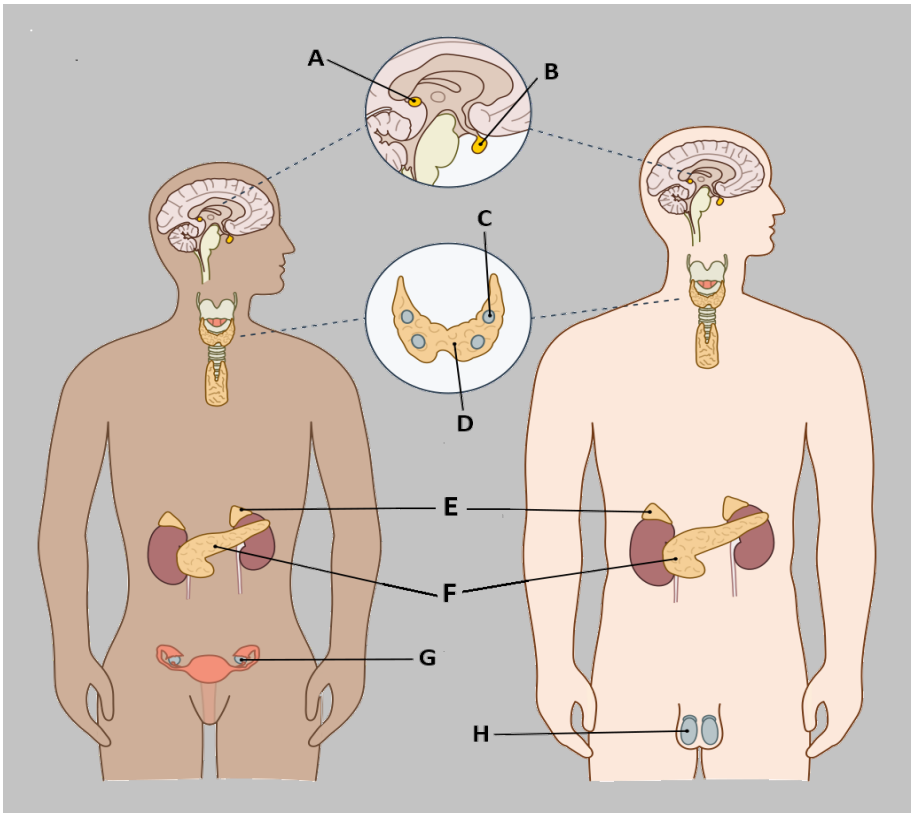
Labelling of diagrams e.g. anatomy, hazard identification, instrument

Questions 46 – 50

Total Marks: 6

D46. Name the following equipment. (0.5 mark)

D47. Label the following diagram. Write your answers in the space provided below the diagram. (4 marks)



A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

H. _____

D48. What is the name of the purple-capped tube in QuantiFERON-TB Gold Plus? (0.5 mark)

D49. Name the tube pictured below: (0.5 mark)

D50. Name the UN number for transporting diagnostic specimens. (0.5 mark)

Total marks: 6 marks

END OF PART 2, SECTION A

PART 2, SECTION B – DISCIPLINE SYLLABUS QUESTIONS

Tables, match column definition

Questions 51 to 52

Total marks: 5

D51. Match the columns **by writing the Roman numeral from the test list in Column B against the correct match in Column A.** (2.5 marks)

Column A	Column B
a. Inflammatory Bowel Disease	i. Hyperuricaemia
b. Exocrine Pancreatic Function	ii. Procollagen Type 1 N-Terminal Propeptide
c. Grave's Disease	iii. Elastase
d. Tumour Lysis Syndrome	iv. Calprotectin
e. Osteoporosis	v. Thyroid-Stimulating Immunoglobulin

Column A	Column B
a. Inflammatory Bowel Disease	
b. Exocrine Pancreatic Function	
c. Grave's Disease	
d. Tumour Lysis Syndrome	
e. Osteoporosis	

D52. Match the columns **by writing the Roman numeral from the test list in Column B against the correct match in Column A.** (2.5 marks)

Column A	Column B
a. Corrosive	i. Mercury
b. Toxic	ii. NaOH
c. Carcinogen	iii. Ether
d. Mutagen & Teratogen	iv. Formaldehyde
e. Ignitable	v. Cyanide

Column A	Column B
a. Corrosive	
b. Toxic	
c. Carcinogen	
d. Mutagen & Teratogen	
e. Ignitable	

Total marks: 5 marks

END OF PART 2, SECTION B

PART 2, SECTION C – DISCIPLINE SYLLABUS QUESTIONS

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

Questions 53 to 60

Total marks: 30

D53. Outline why drugs are usually tested in non-gel tubes. (2 marks)

D54. Define the Pneumatic Tube System (PTS) and how it works. (3 marks)

D55. Describe **TWO (2)** steps to ensure accurate temperature during specimen transportation. (2 marks)

D56. Describe Vancomycin-Resistant Enterococci (VRE) under the following headings: (4 marks)

a. **TWO (2)** organisms involved *(0.5 mark each)*

b. **TWO (2)** Modes of Transmission *(0.5 mark each)*

c. **TWO (2)** Screening Specimens *(0.5 mark each)*

d. **TWO (2)** VRE Detection Methods *(0.5 mark each)*

D57. Explain the principle of a class II biological safety cabinet: (5 marks)

D58. Describe the correct pre-analytical conditions in handling samples for Cryoglobulin testing. (4 marks)

D59. Indicate the mode of action of anticoagulants EDTA, Heparin and Sodium citrate, and the rationale behind the use of additives for haematological and chemistry tests. (6 marks)

D60. List **FOUR (4)** reasons why certain urine tests are required to be acidified. (4 marks)

Total marks: 30 marks

END OF PART 2, SECTION C

PART 2, SECTION D – DISCIPLINE SYLLABUS QUESTIONS

Essays

Questions 61 to 62

Total marks: 20

D61. In essay format, define haemolysis and describe how poor aliquoting technique can lead to it. (10 marks)

D62. In essay format, describe the impact of centrifuge speed and temperature variations on the separation of plasma and serum. How might this influence downstream testing accuracy? (10 marks)

Total marks: 20 marks

END OF PART 2, SECTION D

END OF PAPER

EXTRA PAPER

Question #	Answer