NZIMLS EXAMINATION FOR QUALIFIED MEDICAL LABORATORY TECHNICIAN

GENERAL 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 46-48		6 Marks
Section B; questions 49-50		5 Marks
Section C; questions 51-63		30 Marks
Section D; questions 64-65		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 1

	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. Heart 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. Which of the following is **NOT** a suitable sample for Cytology:

a. Purple top swab

b. ThinPrep vial

c. SurePath vial

d. Red top swab

D14. Which of the following staining methods is used to stain a routine blood film for haematological analysis?

a. Grocott and Gomori

b. Romanowsky

c. Osmium tetroxide

d. Van Gieson

D15. Which organ does the term *hepatic* apply to?

a. Heart

b. Brain

c. Stomach

d. Liver

D16. Centrifugation of an anticoagulated blood sample results in the separation into which fractions?

a. Packed red cells, serum, and buffy coat

b. Packed red cells, serum, and plasma

c. Packed red cells, plasma, and buffy coat

d. Packed red cells, immunoglobulins, and buffy coat

D17. Which of these is the most critical error that can occur when taking a blood sample?

a. Giving the patient a haematoma

b. Not getting any blood

c. Misidentifying the patient

d. Not collecting the tubes in the correct order of draw

D18. What is the Gram stain morphology of *Escherichia coli*?

a. Gram negative bacilli

b. Gram negative diplococci

c. Gram negative cocco-bacilli

d. Gram negative cocci

D19. If a patient's group is unknown what is the safest plasma unit to transfuse in an emergency?

a. Group B

b. Group AB

c. Group A

d. Group O

D20. Under which of the following circumstances could a low blood urea level be detected?

a. Active bleeding

b. Dehydration

c. High-protein diet

d. Pregnancy

D21. Which type of blood cell is associated with infection and inflammation?

a. Platelet

b. Neutrophil

c. Eosinophil

d. Basophil

D22. Which of the following tests may be found on a Liver Function Panel?

a. Creatine kinase

b. Anti-cardiolipin

c. Amino esterase

d. Alkaline phosphatase

D23. Which best describes the cytoplasm of a **normal** monocyte?

a. Scanty cytoplasm that stains a blue-grey colour

b. Scanty cytoplasm that stains a navy blue colour

c. Abundant cytoplasm that stains a blue-grey colour

d. Abundant cytoplasm that stains a navy blue colour

D24. In microbiology, the term *microaerophilic* can refer to:

a. Organisms requiring environments with lower levels of oxygen

b. Organisms requiring oxygenated environments

c. Organisms requiring anoxic environments

d. Organisms requiring environments containing high levels of oxygen

D25. Which of the following meets the **minimum** labelling requirements for a pre-transfusion testing sample:

a. A sticky label with patient's Full Name, Date of birth, NHI and signature of collector

b. Hand labelled with patient's Full Name, Date of birth, NHI and signature of collector

c. Hand labelled with patient's Surname, Date of birth and full name of collector

d. Hand labelled with patient's Full Name, Date of birth and address

D26. Which term describes high numbers of circulating platelets in the blood?

a. Polycythemia

b. Thrombocytopenia

c. Polydipsia

d. Thrombocytosis

D27. Which waste bin should be used to discard paper with patient identifiable information?

a. General waste

b. Paper waste for recycling

c. Confidential waste

d. Biohazard waste

D28. Which of the following analytes can show falsely raised results if the sample has been contaminated with EDTA anticoagulant?

a. Potassium

b. Sodium

c. Calcium

d. Glucose

D29. Ultracentrifugation may be used in which **one** of the following situations?

a. A specimen is grossly clotted

b. A specimen is grossly haemolysed

c. A specimen is grossly icteric

d. A specimen is grossly lipaemic

D30. The correct order of the Gram stain technique is which of the following?

a. Crystal violet, Gram's iodine, decolourisation, counterstain, rinse

b. Crystal violet, rinse, counterstain, decolourisation, Gram's iodine

c. Crystal violet, decolourisation, rinse, Gram's iodine, counterstain

d. Crystal violet, counterstain, rinse, Gram's iodine, decolourisation

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)

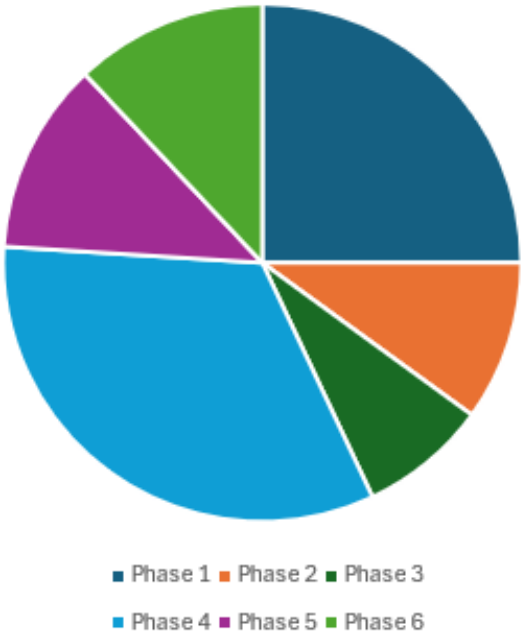
(*0.5 mark per correct answer*)

a.		b.	
c.		d.	

a. _____ b. _____

c. _____ d. _____

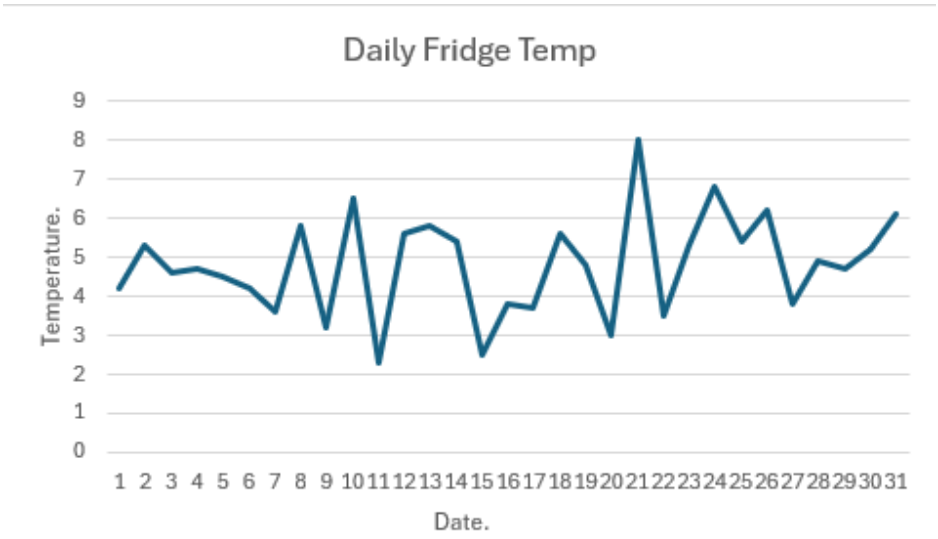
C32. Name the type of graph pictured below: (1 mark)



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. (2 marks)

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

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)*

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 2

Discipline Specific

Section A; questions 46-48	6 Marks
Section B; questions 49-50	5 Marks
Section C; questions 51-63	30 Marks
Section D; questions 64-65	20 Marks
Total Part 2:	***61 Marks***

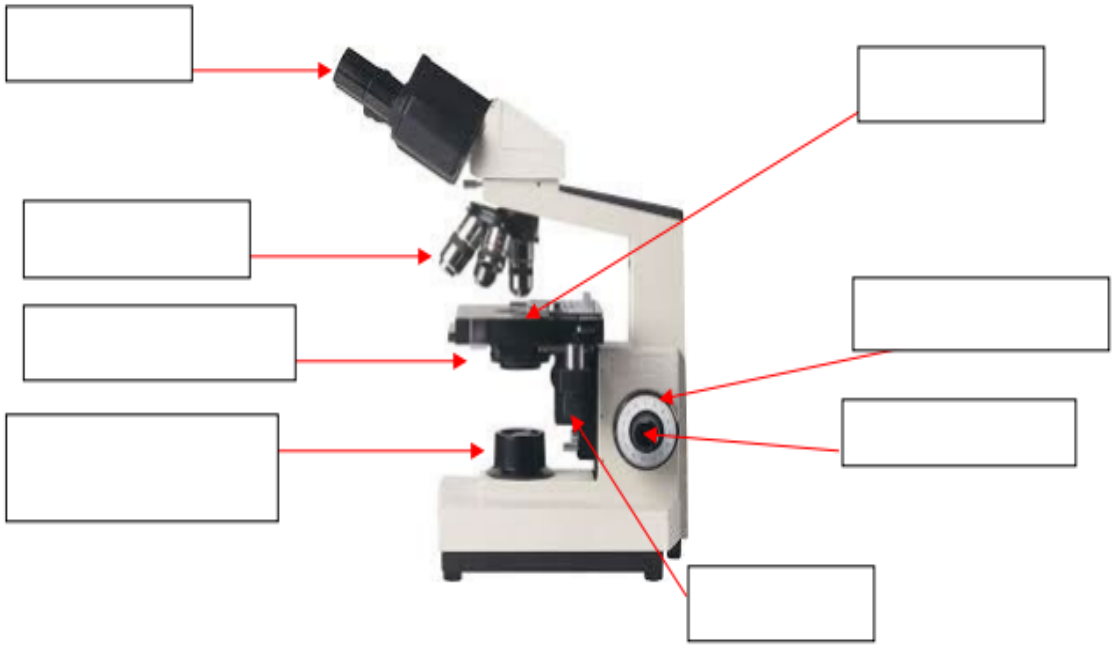
PART 2, SECTION A – DISCIPLINE SYLLABUS QUESTIONS

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

Questions 46 – 48

Total Marks: 6

D46. Label the parts of the microscope: (4 marks)

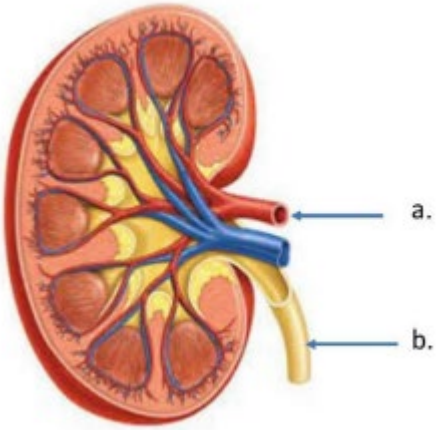


D47. Identify the following pieces of laboratory equipment: (1 mark)

a.		b.	

a. _____ b. _____

D48. Name the anatomical features pictured below: (1 mark)



a. b. _____

Total marks: 6 marks

END OF PART 2, SECTION A

PART 2, SECTION B – DISCIPLINE SYLLABUS QUESTIONS

Tables, match column definition

Questions 49 to 50

Total marks: 5

D49. 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. Kidney	i. Pre-transfusion testing
b. Faeces PCR	ii. *E. coli*
c. Quality control	iii. eGFR
d. Urine	iv. Ova, cysts and parasites
e. Crossmatch	v. Negative bias

Column A	Column B
a. Kidney	
b. Faeces PCR	
c. Quality Control	
d. Urine	
e. Crossmatch	

D50. Expand the following list of abbreviations in Column A. Write your answer in Column B. (2.5 marks)

Column A	Column B
a. NHL	
b. TAT	
c. MHP	
d. µL	
e. EBV	

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 51 to 63

Total marks: 30

D51. List the **FIVE (5)** moments of hand hygiene. (2.5 marks)

D52. Outline the change to full blood count red cell indices in patients with megaloblastic anaemia. (1.5 marks)

D53. Which **TWO (2)** biochemical tests are indicated for suspected megaloblastic anaemia? (1 mark)

D54. Briefly outline the labelling and handling requirements for a pre-booked, fresh tissue, histology sample (sample is not in a fixative solution). (2.5 marks)

D55. Define Point of Care Testing, giving reason for use and locations most commonly used. (1.5 marks)

D56. Define A*bnormal result*. (0.5 mark)

D57 Define *False Negative Result* and give **ONE (1)** example of how this can occur. (1 mark)

D58. List **FOUR (4)** analytes used to monitor renal function and name **TWO (2)** that may be raised in chronic renal disease. (3 marks)

D59. List **SIX (6)** of the NZBS requirements for equipment used to **store** blood for transfusion. (3 marks)

D60. Define the terms “Resistant”, “Intermediate” and “Susceptible” with reference to antibiotic testing. (1.5 marks)

D61. Outline platelet function. (2.5 marks)

D62. (3 marks)

a. What muscle cells are Troponin proteins found in? *(1 mark)*

b. List the **THREE (3)** sub-proteins that make up the troponin protein molecule. *(1.5 marks)*

c. What are **very high** levels of Troponin proteins an indicator of? *(0.5 marks)*

D63. (6.5 marks)

a. Describe the principal of Prothrombin Time (PT). *(5.5 marks)*

b. What does INR stand for and what drug is it associated with? *(1 mark)*

Total marks: 30 marks

END OF PART 2, SECTION C

PART 2, SECTION D – DISCIPLINE SYLLABUS QUESTIONS

Essays

Questions 64 to 65

Total marks: 20

D64. In essay format, describe the correct collection, transport, and safe processing of sputum for routine culture. In the answer, include **TWO (2)** common pathogens, their gram film appearances and the impact of incorrect collection and mishandling on the results. (10 marks)

D65. In essay format, describe *in vitro* causes of haemolysis and the consequent effects on assays in your laboratory. Include specific analytes from **more than one** department in your discussion. (10 marks)

Total marks: 20 marks

END OF PART 2, SECTION D

END OF PAPER

EXTRA PAPER

Question #	Answer