



**American Medical Technologists  
Certified Medical Laboratory Assistant (CMLA) Certification Competencies  
and Examination Specifications**

*Summary Table*

	<b>Work Area</b>	<b>Number of Items</b>	<b>Percentage of Exam</b>
I.	Laboratory Safety and Quality	45	22.5%
II.	Pre-examination (Preanalytical) Considerations	36	18.0%
III.	Examination (Analytical) Considerations	83	41.5%
IV.	Patient Test Management, Communications, and Foundations	36	18.0%
Total		200	100%

*Question Weightings, Work Areas, Task Areas, and Competencies*

**Number of items**  
**45**

**I. LABORATORY SAFETY AND QUALITY (22.5% of exam)**

**1. SAFETY STANDARDS, INFECTION CONTROL PROCEDURES, AND OSHA REGULATIONS**

*A. General knowledge*

1. Know terminology related to safety, infection, and OSHA
 

Standard Precautions	aseptic	pathogen	infection
Universal Precautions	airborne	exposure	SDS
chemical hygiene plan	hazard	pictogram	
transmission-based precautions			

*B. Practices*

1. Know chain of infection
2. Demonstrate knowledge of infection control and safety practices
3. Demonstrate accepted practices for infection control, isolation techniques, aseptic techniques, and methods of disease prevention

4. Comply with federal, state, and locally-mandated regulations regarding safety practices
5. Observe the OSHA Bloodborne Pathogens Standard and Needle Safety Precaution Act
6. Use appropriate practices, as outlined in the OSHA Hazard Communication Standard, including the correct use of the Safety Data Sheet
7. Understand *Globally Harmonized System of Classification and Labeling of Chemicals* (GHS)
8. Employ proper public health reporting for national and state-notifiable diseases (HCV, HIV, lead)

## 2. QUALITY ASSESSMENT, QUALITY CONTROL, AND CONFIRMATORY TESTING

### A. Quality Assessment and Quality Control

1. Know terminology related to quality control and quality assessment to include:
 

precision	linearity	coefficient of variation
reliability	mean value	standard deviation
shift	accuracy	trend
2. Know and perform quality control/quality assessment (QC/QA) within the laboratory assistant's scope of practice
  - a. Know and recognize the difference between QC and QA
  - b. Know the difference between external and internal QC and what is accomplished by each
  - c. Know and understand regulations pertaining to proficiency testing within the laboratory assistant's scope of practice
  - d. Perform QC/QA procedures
  - e. Know daily quality control and use of results
3. Understand the importance of maintaining temperature/humidity logs; Document and take corrective action for out-of-range temperatures
4. Perform instrument maintenance and calibration within the laboratory assistant's scope of practice

### B. Deviations from Prescribed Use of Waived Tests

1. Understand that "off-label use" or modified use of a waived test system defaults the test to high complexity
2. Follow manufacturer's instructions or package inserts precisely to avoid:
  - a. performing the test on a population not indicated based on intended use or limitations
  - b. not reading the test in an appropriate time frame per manufacturer's instructions
  - c. not storing reagents or supplies correctly
  - d. employing an incorrect specimen type (e.g., whole blood vs. serum; throat vs np)

*C. Confirmatory and Supplemental Testing*

1. Follow manufacturer's instructions regarding the necessity for confirmatory and supplemental testing
  - a. confirmatory testing for urine drug screening (GC/MS or LC/MS)
  - b. confirmatory testing for rapid strep screen (culture or approved confirmatory molecular test, influenza immunoassay)
  - c. confirmatory testing for cultures (DFA or approved confirmatory molecular test)

36

**II. PREEXAMINATION (PREANALYTICAL) CONSIDERATIONS (18% of exam)**

**3. PHLEBOTOMY**

*A. General knowledge*

1. Know terminology related to phlebotomy to include:

tourniquet	lancet	safety needle	evacuated tube
adapter	syringe	butterfly	safety lancet
hematoma	petechiae	pulse	syncope
seizure	vein/venous	capillary	artery/arterial
serum	plasma	whole blood	anticoagulant
preservative	transfer device		
2. Know the differences between serum, plasma, and whole blood
3. Understand the difference between clotted and anticoagulated blood

*B. Practice of phlebotomy*

1. Identify correct patient properly
2. Select appropriate containers for specimens and know requirements for container identification
3. Use proper anticoagulants for each analysis and understand effects of improper anticoagulant use
4. Know physiological aspects of blood collection
5. Prepare patient for various tests
6. Select proper venipuncture site
7. Perform venipuncture
8. Collect specimens properly
  - a. observing proper order of draw
  - b. understanding the effect of short draw
  - c. preventing hemolysis, understanding the effect of a hemolyzed specimen
  - d. knowing the limit of time that plasma can set on the cells
9. Perform capillary punctures
10. Perform capillary punctures on infants
11. Provide proper post care of venous puncture sites
12. Handle blood samples to maintain specimen integrity
13. Follow standard operating procedures for labeling, transporting, and processing specimens, including transporting to reference laboratories
14. Describe and follow the criteria for specimens and test results that will be used as legal evidence

#### 4. PREEXAMINATION (PREANALYTICAL) PROCESSES AND SPECIMEN COLLECTION

##### A. Patient Test Management and Specimen Collection

1. Instruct patients in the proper collection and preservation of various urine samples including:
  - a. mid-stream
  - b. random
  - c. clean-catch
  - d. timed collections
  - e. collections for drug screening
2. Recognize the suitability of specimens for urinalysis procedures as relates to:
  - a. test requested
  - b. appropriate patient preparation and method of collection
  - c. time of collection and processing
  - d. specimen storage
  - e. specimen rejection criteria
3. Instruct patients in the collection of other specimens (e.g., semen, feces, sputum)
4. Properly collect and handle specimens with time/temperature requirements
5. Handle and preserve body fluids for chemical analysis
  - a. Know the types and uses of urine preservatives
  - b. Know how to handle and process all body fluids
6. Prepare and stain slides for further analysis
7. Prepare, store, and dispose of specimens for test analyses according to standard operating procedure
8. Process specimens for shipping
9. Identify and report potential preexamination (preanalytical) errors that may occur during specimen collection, labeling, transporting, and processing
10. Recognize patient problems related to syncope (fainting), nausea, and other complications

83

#### III. EXAMINATION (ANALYTICAL) CONSIDERATIONS (41.5% of exam)

##### 5. CHEMISTRY

##### A. General Knowledge

1. Know terminology related to clinical chemistry to include:

hepatic (liver) function tests	carbohydrate (glucose) metabolism tests
kidney (renal) function tests	general chemistry tests
supernatant	endocrinology
decant	electrolytes
serum	plasma

##### B. Instrumentation

1. Know use of instrumentation falling within the laboratory assistant's scope of practice
2. Know cleaning and maintenance of chemistry instrumentation

3. Perform maintenance on chemical analyzers as appropriate
4. Know the operation and principles of commonly-used analyzers

#### *C. Point-of-Care and Waived Testing*

1. Know that point-of-care tests are within the laboratory assistant's scope of practice
2. Perform point-of-care and waived clinical chemistry tests

#### *D. Toxicology*

1. Know what toxicology tests are within the laboratory assistant's scope of practice
2. Perform toxicology tests within the laboratory assistant's scope of practice

### **6. HEMATOLOGY**

#### *A. General Knowledge*

1. Know terminology related to hematology to include:  
hematology      hemoglobin      cells      blood  
reticulocyte      plasma      serum      mononucleosis  
erythrocyte      anemia      hematocrit      complete blood count  
thrombocyte (platelet)      erythrocyte sedimentation rate  
leukocyte (neutrophil, lymphocyte, monocyte, eosinophil, basophil)
2. Know functions of the blood
3. Recognize the functional differences between platelets, erythrocytes, and leukocytes

#### *B. Instrumentation*

1. Follow established quality control procedures
2. Maintain and calibrate instruments

#### *C. Coagulation and Hemostasis*

1. Know terminology related to coagulation to include: heparin, warfarin, protime, PT, PTT
2. Perform the prothrombin time (PT) test and know what medication it monitors
3. Perform the partial thromboplastin time (PTT) test and know what medication it monitors
4. Understand the linear range for International Normalized Ratio (INR)

#### *D. Point-of-Care and Waived Testing*

1. Perform point-of-care and waived hematological tests

### **7. IMMUNOLOGY, SEROLOGY, AND IMMUNOHEMATOLOGY**

#### *A. General Knowledge*

1. Know terminology related to immunology, serology, and immunohematology to include:

antigen    hemolysis    blood serum    plasma    Strep A test    HIV test  
antibody    agglutination    RPR test    RSV test    influenza A and B test  
heterophile agglutination test (mono test)    fibrinogen  
rheumatoid arthritis tests (latex agglutination)  
qualitative and quantitative pregnancy tests

2. Know the principles of antigen-antibody reaction
3. Know that there are blood types, Rh types, and other antigens

#### *B. Point-of-Care and Waived Testing*

1. Perform immunological, serological, and immuno-hematological procedures within the laboratory assistant's scope of practice

### **8. MICROBIOLOGY**

#### *A. General Knowledge*

1. Know terminology related to microbiology to include:

bacteria	aerobic	pathogenic	anaerobic	virus
yeast	fungal	culture	sensitivity	resistance
MIC	gram-negative rod	agar	incubator	inoculate
loop	gram-positive cocci	colony	normal flora	contaminant
A&P disk	alpha, beta, gamma hemolysis		candidiasis	exudates
organelles	agglutination	spores	Strep culture	AFB smear
KOH	Gram stain	wet prep	culture and sensitivity (C&S)	
2. Recognize appropriateness of specimen for type of microbiological test ordered

#### *B. Media, Techniques, and Cultures*

1. Follow special safety procedures and aseptic techniques required for processing microbiological specimens
2. Prepare, store, dispose of, and properly transport specimens for microbiological testing according to standard operating procedure
3. Within scope of practice, recognize appropriateness of microbiological procedure ordered as relates to:
  - a. test requested
  - b. appropriate patient preparation and method of collection
  - c. time of collection and processing
  - d. specimen storage
  - e. specimen rejection criteria
4. Assemble reagents, standards, and controls for microbiological procedures
5. Prepare and stain slides for further analyses

### **9. URINALYSIS**

#### *A. General Knowledge*

1. Know terminology related to urinalysis to include:

random crystals	midstream casts	clean-catch cells	timed (2, 12, 24-hour, etc.)	skin contaminant	specific gravity
artifact	mucus	bacteria	spermatozoa	sediment	refractometer
yeast	trichomonas	pyuria	glycosuria	polyuria	ketones
C&S	hematuria	confirmatory tests	microscopic	macroscopic	proteinuria
chemical analyses					

*B. Point-of-care and Waived Urinalysis Procedures*

1. Prepare, store, dispose of, and properly transport specimens for urinalysis according to standard operating procedure
2. Prepare slides for microscopic examination within the laboratory assistant's scope
3. Perform urinalysis tests within the laboratory assistant's scope of practice

*C. General knowledge of microscopy*

1. Know terminology related to microscopy to include:  
ocular stage base diaphragm light source immersion oil  
condenser objectives lens magnification fine/course adjustment
2. Perform microscopic urinalysis procedures within laboratory assistant's scope of practice
3. Perform general cleaning of microscope

**10. BASIC ANATOMY AND PHYSIOLOGY**

*A. Apply basic knowledge of anatomy*

*B. Apply basic knowledge of physiology*

**36 IV. PATIENT TEST MANAGEMENT, COMMUNICATIONS, AND FOUNDATIONS (18% of exam)**

**11. LEGAL, ETHICAL, CONFIDENTIAL, AND PROFESSIONAL CONSIDERATIONS, HIPAA, AND PATIENT'S BILL OF RIGHTS**

*A. Principles of liability in the laboratory*

1. Know use of consent forms
2. Know use of waiver of liability for Medicare (Advance Beneficiary Notice - ABN)
3. Know regulations for ordering tests
4. Know right of patient to refuse treatment, complying with the American Hospital Association's Patient's Bill of Rights and the Patient's Bill of Rights from the workplace
5. Define and use medicolegal terms and discuss policies and protocol designed to avoid medicolegal problems
6. Know that regulations restrict the performance of provider-performed microscopy (PPM) to providers only

*B. Professional appearance and ethical conduct in the performance of duties*

1. Ensure appropriate personal appearance
2. Employ professional mannerisms and behavior in the conduct of duties
3. Employ professionalism and ethicality when engaging in the use of social media

*C. The Health Insurance Portability and Accountability Act (HIPAA)*

1. Observe tenets of confidentiality
2. Observe tenets of appropriate record release

**12. CLERICAL SKILLS, COMMUNICATIONS, AND INTERPERSONAL RELATIONS**

*A. Chart or file laboratory-generated reports properly*

1. Know what constitutes a complete and final report
2. Know reporting and documentation of abnormal results

*B. Enter, retrieve, and verify patient collection data and special notations using health information technology*

*C. Maintain inventory levels, order and restock supplies*

*D. Manage supplies appropriately recognizing test kit, QC, or reagent expiration date vs. "open date" expiration date*

*E. Employ billing and coding for procedures within the laboratory assistant's scope of practice*

*F. Inform patients of special test requirements*

*G. Acknowledge, report/notify, and document critical values appropriately, understanding the significance of critical values*

*H. Develop and use proper and professional, verbal and non-verbal communication skills with staff, patients, and families*

*I. Use proper technique and etiquette for answering the telephone and providing information*

*J. Understand the importance of time management as applied to the appropriate use of technology (cellular phones, Internet, etc.)*

**Task and Knowledge Inventory Note**

The task and knowledge areas included in this inventory are considered by American Medical Technologists to be *representative* of the medical laboratory assistant's role. This document should be considered dynamic, to reflect the assistant's current role. Therefore, tasks may be added, removed, or modified on an ongoing basis. The content category weights should be considered reliable, but approximate.