

SI Forensics - Full Discipline Demo

Toxicology - No Materials

Final Report - Answer Guide

Institution	Science Interactive University
Session	SI Forensics - Full Discipline Demo
Course	SI Forensics - Full Discipline Demo
Instructor	Sales SI Demo

Test Your Knowledge

Match each drug class with the best description.

Drug classes to match:

- Hallucinogens
- Stimulants
- Alcohol
- Narcotics
- Anti-anxiety
- Barbiturates

Descriptions to match:

- Create relaxed feelings of sleepiness
- Can cause hallucinations and affect normal thought processes
- Affects thought and coordination
- Pain relieving/sleep inducing
- Speed up the central nervous system
- Create relaxed feelings without sleepiness

Correct answers:

- 1 Barbiturates 2 Hallucinogens 3 Alcohol 4 Narcotics
5 Stimulants 6 Anti-anxiety

Match each sampling type with the best scenario for its use.

■ Vitreous humor

■ Blood

■ Urine

■ Hair

1 A suspected drunk driving incident.

2 An employer wants to test a prospective hire for recent drug use with the most minimally invasive procedure possible.

3 A government agency wants to test an individual for security clearance for drug use as far back as possible.

4 A forensic pathologist is performing post-mortem drug testing.

Correct answers:

1 Blood 2 Urine 3 Hair 4 Vitreous humor

Classify each drug listed based on whether or not it would be detected using a Marquis test.

	Detectable	Not Detectable
<input type="checkbox"/> Morphine	1	2
<input type="checkbox"/> Cocaine		
<input type="checkbox"/> Hydrocodone		
<input type="checkbox"/> THC <input type="checkbox"/> Heroin		
<input type="checkbox"/> Methamphetamine		
<input type="checkbox"/> Oxycodone		

Correct answers:

1 Morphine Oxycodone Hydrocodone Heroin Methamphetamine

2 Cocaine THC

Exploration

_____ are chemical substances that biologically affect organisms.

- Poisons
- Toxins
- Drugs ✓

Which sample type would provide the most accurate representation of the active drugs present in a person's system at the time of sample collection?

- Blood ✓
- Hair
- Urine
- All of the above

Presumptive tests can be used to definitively identify a specific drug and the quantity present in a sample.

True

False



Exercise 1

What are the most likely circumstances under which the urine samples you tested would be submitted for analysis?

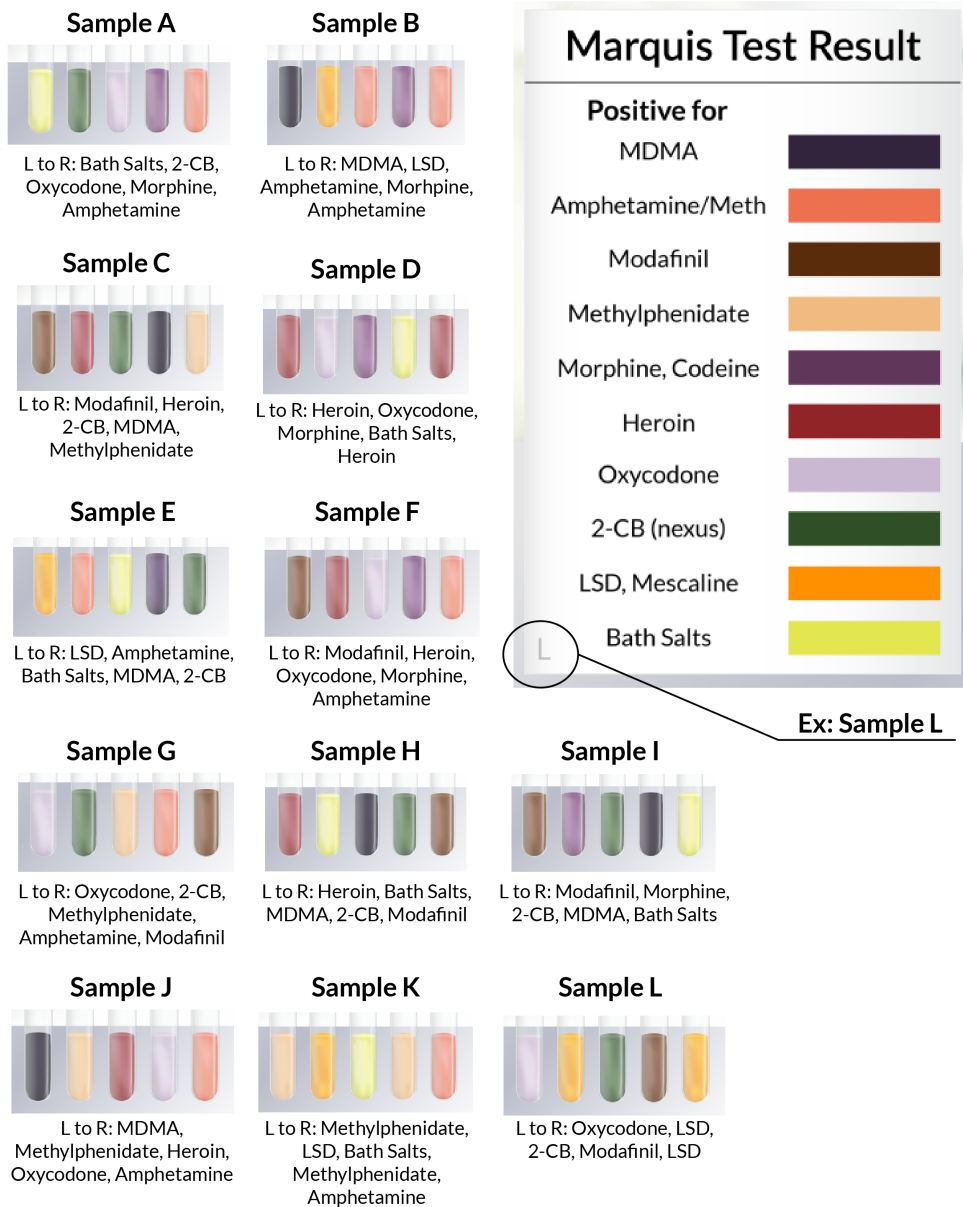
In a forensics urinalysis laboratory, what would be the next steps following the testing performed in this exercise?

Data Table 1: Marquis Test Results
(SAMPLE ANSWER BELOW)

Urine Sample	Final Color	Result
Sample 1	answers provided will vary based on samples received, reference photo 1 below for a full overview of the results	Positive for morphine
Sample 2	None	Negative for opiates
Sample 3	Turned light green	Positive for hydrocodone
Sample 4	None	Negative for opiates
Sample 5	None	Negative for opiates

Photo 1: Marquis Test Results
(SAMPLE ANSWER BELOW)

Marquis Test Results Key



Data Table 2: THC Immunoassay Results
(SAMPLE ANSWER BELOW)

Urine Sample	Final Color	Result
Sample 1	answers provided will vary based on samples received, reference photo 2 below for a full overview of the results	Negative for THC

Sample 2	Turned red	Negative for THC
Sample 3	Turned dark blue/green	Positive for THC
Sample 4	Turned red	Negative for THC
Sample 5	Turned dark blue/green	Positive for THC

Photo 2: THC Immunoassay Results
(SAMPLE ANSWER BELOW)

THC Test Results Key

Sample A

L to R: Positive, Negative, Negative, Positive, Negative

Sample B

L to R: Negative, Negative, Negative, Positive, Positive

Sample C

L to R: Negative, Positive, Negative, Positive, Positive

Sample D

L to R: Negative, Positive, Positive, Negative, Positive

Sample E

L to R: Negative, Negative, Positive, Negative, Negative

Sample F

L to R: Negative, Positive, Negative, Negative, Positive

Sample G

L to R: Positive, Negative, Negative, Negative, Negative

Sample H

L to R: Positive, Negative, Positive, Positive, Positive

Sample I

L to R: Positive, Negative, Negative, Positive, Positive

Sample J

L to R: Positive, Positive, Positive, Negative, Positive

Sample K

L to R: Negative, Negative, Negative, Positive, Negative

Sample L

L to R: Positive, Positive, Negative, Negative, Negative

Sample M

L to R: Negative, Positive, Positive, Positive, Negative

Sample N

L to R: Negative, Positive, Positive, Negative, Negative

THC Test Result

Positive for THC

Negative for THC

L

Ex: Sample L

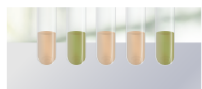
Data Table 3: Cocaine Immunoassay Results
(SAMPLE ANSWER BELOW)

Urine Sample	Final Color	Result
Sample 1	answers provided will vary based on samples received, reference photo 3 below for a full overview of the results	Negative for cocaine
Sample 2	Turned green	Negative for cocaine
Sample 3	Turned green	Negative for cocaine
Sample 4	Turned yellow-orange	Positive for cocaine
Sample 5	Turned green	Negative for cocaine

Photo 3: Cocaine Immunoassay Results
(SAMPLE ANSWER BELOW)


Cocaine Test Results Key

Sample A



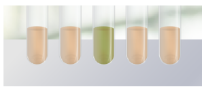
L to R: Positive, Negative, Positive, Positive, Negative

Sample B



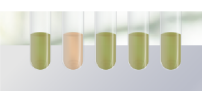
L to R: Negative, Negative, Positive, Positive, Positive

Sample C



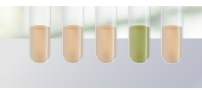
L to R: Positive, Positive, Negative, Positive, Positive

Sample D



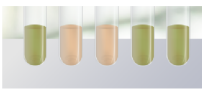
L to R: Negative, Positive, Negative, Negative, Negative

Sample E



L to R: Positive, Positive, Positive, Negative, Positive

Sample F



L to R: Negative, Positive, Positive, Negative, Negative

Cocaine Test Result

Positive for Cocaine

Negative for Cocaine

L
Ex: Sample L

Sample G

Sample H

Sample I

Sample J

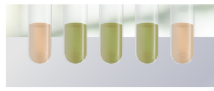


L to R: Negative, Positive, Positive, Positive, Positive

Sample K



L to R: Positive, Negative, Negative, Positive, Negative



L to R: Positive, Negative, Negative, Negative, Positive

Sample L



L to R: Positive, Negative, Positive, Negative, Negative



L to R: Positive, Negative, Negative, Positive, Positive

Sample M



L to R: Positive, Positive, Positive, Negative, Negative



L to R: Negative, Negative, Negative, Positive, Negative

Sample N



L to R: Negative, Positive, Negative, Positive, Positive

Competency Review

Drugs are chemical substances that biologically affect organisms but cannot result in death.

- True
- False ✓

Cocaine is classified as a _____.

- Narcotic
- Stimulant ✓
- Depressant
- Hallucinogen

Which sample type will provide the longest historical record of drug use?

- Blood
- Urine
- Hair ✓
- All of the above

In addition to blood, urine, and hair, tissue samples for postmortem drug testing are also collected from the liver, brain, kidney, spinal fluid, and the vitreous humor.

- True ✓
- False

An immunoassay test is a presumptive test.

- True ✓
- False

Which of the following would not show up in a Marquis test?

- Aspirin
- Alcohol ✓
- Heroin
- Oxycodone

In Exercise 1, a positive THC urine test produced a _____ color.

- dark green ✓
- red
- light blue
- orange

In Exercise 1, several confirmatory tests were performed to test for the presence of different drugs in urine samples.

- True
- False ✓

Extension Questions

Why do forensic toxicology labs run presumptive tests before running confirmatory tests? (SAMPLE ANSWER BELOW)

Confirmatory tests can be expensive and take a long time, therefore it is impractical to run a confirmatory test for every possible drug that could be present in a sample. Presumptive tests help narrow down substances to determine which confirmatory tests should be run, if any.