



## **ANALYST EXAMINATION**

### **Study Guide for Examination Preparation**

Analyst in Forensic Toxicology (A-ABFT)

Examination Content Areas

Recommended References

Sample Questions

August 2022

## STUDY GUIDE FOR EXAMINATION PREPARATION

### Introduction

The ABFT analyst examination challenges the candidate's mastery of fundamental concepts applied to the practice of forensic toxicology. It is recommended that the candidate successfully complete an in-house training program prior to sitting for this examination. Additionally, the candidate may find that in-house procedures and manuals, (e.g., safety, quality) may be of benefit during examination preparation.

The analyst examination consists of 100 single answer, multiple-choice questions. At least 70% of the questions must be answered correctly to pass the examination. Questions are evenly distributed over the content areas listed below.

Candidates will be given three hours to complete the examination.

### Content Areas

- Abbreviations/acronyms/nomenclature
- Basic alcohol toxicology
- Basic toxicology of major drug classes
- Basic gas chromatography/detectors
- Basic liquid chromatography/detectors
- Basic mass spectrometry
- Basic statistics
- Basic toxicology – not related to alcohol
- Buffers/pH
- Drug slang
- Evidence handling
- Immunoassay theory
- Laboratory safety/PPE
- Legal matters
- Metric system/conversions
- Molality/molarity/normality
- Presumptive/confirmatory tests
- Quality assurance/quality control

### Recommended References

The references provided below are intended to serve as a guide for examination preparation and are not exhaustive. Information may be common to several sources. Candidates are encouraged to access the most recent editions of each book cited. Books and journals should be used in conjunction with the candidate's training and practical experience.

### Books

Caplan, Y.H. and Goldberger, B.A. (eds.) (2015) *Garriott's medicolegal aspects of alcohol*, 6<sup>th</sup> edition. Lawyers & Judges Publishing, Tucson, AZ.

- The pharmacology and toxicology of ethanol, specimen collection and storage for ethanol analysis, breath ethanol testing.

Karch, S.B. (ed.) (2006) *Drug abuse handbook*, 2<sup>nd</sup> edition. CRC Press, Boca Raton, FL.

- Criminalistics, pathology, pharmacokinetics, neurochemistry, and treatment of drug abuse in addition to drug testing in sports, the workplace, and postmortem toxicology; the ethical, legal and practice issues are also discussed.

Klaassen, C.D. (ed.) (2013) *Casarett & Doull's toxicology: the basic science of poisons*, 8<sup>th</sup> edition. McGraw-Hill, New York, NY.

- The general principles of toxicology (Unit I), disposition of toxicants (Unit II), and application of toxicology (Unit VII) including an overview of analytical and forensic toxicology in Chapter 32.

Levine, B. and Kerrigan, S. (eds.) (2020) *Principles of forensic toxicology*, 5<sup>th</sup> edition. AACC Press, Washington, DC.

- Comprehensive overview of all aspects in the forensic toxicology practice from forensic toxicology/pharmacology to methodologies, analytes, and special topics including drug stability, postmortem redistribution, alternative matrices, and pharmacogenomics.

Moffat, A.C., Osselton, M.D. and Widdop, B. (eds.) (2011) *Clarke's analysis of drugs and poisons*, 4<sup>th</sup> edition. Pharmaceutical Press, London, U.K.

- Monographs of over 2100 drugs with physical properties, analytical methods, pharmacokinetic data, ultraviolet, infrared and mass spectra, and therapeutic and toxicity effects.

Smith, F.P. and Siegel, J.A. (eds.) (2004) *Handbook of forensic drug analysis*. Elsevier Academic Press, New York, NY.

- Forensic and chemical analytical techniques for cannabis, hallucinogens, cocaine, opioids, and amphetamines.

General Chemistry: Any introductory college/university text intended for science majors.

Statistics: Any introductory college/university text intended for science majors.

Laboratory Safety and Chemical Hygiene: Any manual appropriate for a toxicology laboratory.

### Journals

Forensic Toxicology

Forensic Science International

Journal of Forensic Sciences

Journal of Analytical Toxicology

Sample Questions

Multiple Choice. Choose the best answer.

1. TOF is an abbreviation for:
  - A. top of form
  - B. transfer of funds
  - \* C. time of flight
  - D. time of fracture
  - E. time of file
  
2. Calculate the mean of the following five blood ethanol concentrations:  
 $0.078\% - 0.084\% - 0.091\% - 0.072\% - 0.065\%$ 
  - A. 0.072%
  - B. 0.074%
  - C. 0.077%
  - \* D. 0.078%
  - E. 0.079%
  
3. The highest court of law in the United States is the:
  - A. United World Court
  - B. United States District Court
  - C. United States Final Circuit Court
  - D. United States Federal Court of Appeals
  - \* E. United States Supreme Court
  
4. A male of average size consumes 6 beers in one hour. Thirty minutes after consumption ceases, ethanol could be measured in all of the following specimens EXCEPT:
  - \* A. bone
  - B. brain
  - C. liver
  - D. arterial blood
  - E. venous blood