The scope of the examination is defined in the Forensic Document Examiners Task Inventory. The reference material parallels the nine sections in the inventory so that individuals with limited time at their disposal can prioritize their review. The references are listed in alphabetical order, not in the order of importance. The same reference may be listed in more than one section because different chapters may be relevant. The references selected are from publications, traditional reference books, and the works of selected authors that contain current research and/or information on a specific subject. It is not the Board’s intention to establish any of the cited authors as authoritative; the general knowledge necessary to pass the written examination can be acquired from many other sources and from initial training and continuing education in forensic document examination.

All written questions in the examination are multiple choice. Sample questions are provided. The questions encompass subjects and information used by forensic document examiners routinely or on occasion. We recommend that if an individual does not routinely deal with any one of the listed areas, then a review of the literature is in order. Test development is a continual process. As questions are reviewed and updated to reflect current information, research and technology, additions (or deletions) will be made to this document.

There are approximately 240 question on the multiple choice portion of the test. The test taker is permitted four hours to complete the written examination. Questions are selected randomly from the test database, a specific number of questions assigned to each section. Each section is scored independently and must be passed.

The performance portion of the test consists of examining case work typical of that encountered by document examiners. Each practical examination defines the task addressed, the performance objective, a narrative, and directions or other information necessary for completing the examination. A series of questions is presented for the test taker to answer, including identifying the reasons (basis) for the proffered opinion.

Signature examinations are presented using photographs. The signatures are extracted from documents and arranged together as in a court exhibit. The test taker is provided a form on which to write his or her answers. The salient features that form the basis of the opinion must be identified. Photographs or actual documents may be used for examinations encompassing other areas listed in the Task Inventory.

All written examinations and practical examinations are proctored to insure the integrity of the test and that the test taker completes the test based on his or her own abilities. Tests are graded by Occupational Research and Assessment, Inc., an independent testing company.
Forensic Document Examiners Task Inventory / Testing Areas

A. DEMONSTRATING DOCUMENT EXAMINER FOUNDATION SKILLS
   1. Demonstrate Knowledge of Handwriting Methodology
   2. Demonstrate Knowledge of Handwriting/Hand Printing Identification
   3. Demonstrate Knowledge of Inks
   4. Identify Various Writing Instruments
   5. Demonstrate Knowledge of Fonts and Type Styles
   6. Demonstrate Knowledge of Paper
   7. Demonstrate Knowledge of Printing Devices
   8. Demonstrate Knowledge of Forms and Letterhead (case relevant)
   9. Demonstrate Knowledge of Comparative Analysis Techniques
   10. Demonstrate Professionalism

B. GATHERING EVIDENCE
   11. Maintain Chain of Custody (evidence handling)
   12. Collect Standards of Comparison (handwriting/signature)
   13. Collect Standards of Comparison (other media)
   14. Verify Accuracy of Document Data
   15. Analyze Document Formatting

C. ANALYZING HANDWRITING
   16. Examine Cursive Writing (including signatures)
   17. Examine Hand Printing (alpha and numeric)
   18. Recognize Influences on Handwriting Skills
   19. Identify Letter Design Influences
   20. Recognize Disguised Handwritten Images
   21. Examine Graffiti
   22. Determine Line Sequence and Direction of the Writing Movement

D. ANALYZING FALSIFIED DOCUMENTS
   23. Determine Document Altering Techniques
   24. Identify Counterfeited/Fabricated Documents

E. ANALYZING FEATURES OF PAPER AND MEDIA
   25. Identify Watermark Characteristics
   26. Identify Types and Characteristics of Paper
   27. Identify Physical Characteristics of Paper
   28. Assess Production Characteristics of Paper
   29. Assess Physical Condition of Paper (current)

F. ANALYZING IMPACT AND NON-IMPACT IMAGES
   30. Analyze Copy Machine Images
   31. Analyze Latent Images
   32. Analyze Fax Images
   33. Analyze Printer Images
   34. Analyze Typewriter Images
   35. Analyze Imaging Devices (i.e., rubber stamps, auto pens, embossing seals)
   36. Analyze Non-Impact Pre-Print Images
   37. Analyze Credit Card/Check Security Features

G. USING LAB INSTRUMENTS
   38. Use Microscope and Magnifiers
   39. Use Videospectrum Devices (such as infrared and ultraviolet - including filters)
   40. Use Electrostatic Detection Device
   41. Use Photography (Polaroid, digital, and 35mm)
   42. Use Light Sources (including various filters)
   43. Use Digital Image Equipment
   44. Use Photocopier
   45. Use Measuring Devices
   46. Other Equipment (applicable to document problems)

H. EVALUATING EVIDENCE AND PRESENTING CASE FINDINGS
   47. Evaluate Results of all Analyses Performed
   48. Express Opinion/Assign Level of Certainty (e.g. know levels per ASTM standard)
   49. Prepare Reports (verbal and written)
   50. Prepare for Testimony (including exhibits)

I. DEMONSTRATING KNOWLEDGE OF LEGAL PROCEDURES
   51. Define Legal Terminology
   52. Demonstrate Knowledge of Types of Legal Proceedings
   53. Recognize Legal Precedents (regarding document examination issues)

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Section A — Document Examiner Foundation Skills

**Code of Professional Responsibility**
Board of Forensic Document Examiners

**JOURNAL ARTICLES**


**Classification and Identification of Modern Office Copiers**, James H. Kelly (1983)
The American Board of Forensic Document Examiners


**BOOKS:**

Detecting and Deciphering Erased Pencil Writing, Ordway Hilton
Chapters 2 and 5

Evidential Documents, James V. P. Conway
Chapter(s): Evidential Signatures; The Identification of Handwriting; Hand Printing and Numerals

Examination and Identification of Photocopies and Photocopiers, John S. Gorajczyk
23 AM JUR POF3d 621, Lawyers Cooperative Publishing, Rochester, NY
Sections 5 and 16

Forensic Examination of Ink and Paper, Richard L. Brunelle, Robert W. Reed
Chapters 1, 4, 8, 9, 12 and 13

Forensic Handwriting Identification: Fundamental concepts and principles, Ron N. Morris
Chapters 1, 5, 6, 8 and 12

Fundamentals of Document Examination, Edna W. Robertson
Chapters 10 and 14

Handwriting Identification: Facts and Fundamentals, Roy A. Huber and A. M. Headrick
Chapters 3, 6, 8 and 9

Identification of Handprinting and Numerals, Allan R. Keown
24 AM JUR POF3d 687, Lawyers Cooperative Publishing, Rochester, NY

Questioned Documents (Second Edition), Albert S. Osborn
Chapters VIII, IX and XIII

**Questioned Documents: A Lawyer’s Handbook**, Jay Levinson
Chapter 3
**Scientific Examination of Questioned Documents**, Ordway Hilton  
Chapters 1, 2 and 9

**Stedman’s Medical Dictionary** (26th Edition), Williams & Wilkins  (or equivalent)  
Words relating to diagnostic conditions that affect handwriting (e.g. agraphia, aphasia, dygraphia, dyslexia)

**Suspect Documents**, William R. Harrison);  
Chapter 9

### Section B — Gathering Evidence

**JOURNAL ARTICLES**

“**The taking of handwriting samples in cases of claimed assistance in writing**”, Manfred Hecker  

**BOOKS**

**Evidential Documents**, James V. P. Conway  
Chapters: Evidential Signatures, Handwriting Investigations, Anonymous Letters

**Examination and Identification of Photocopies and Photocopi...**  
23 AM JUR POF3d 621, Lawyers Cooperative Publishing, Section 21

**Examination of Questioned Documents** (Revised Edition), Ordway Hilton  
Chapter 14

**Forensic Handwriting Identification: Fundamental concepts and principles**, Ron N. Morris  
Chapter 15

**Forensic Signature Examination**, Steven A. Slyter  
Chapter 5

**Law of Disputed and Forged Documents**, J. Newton BakerVA  
Chapter VI

**Questioned Documents** (Second Edition), Albert S. Osborn  
Chapter XVII

**The Scientific Examination of Documents: Methods and Techniques**, David Ellen  
Chapter 5

### Section C — Analyze Handwriting

**JOURNAL ARTICLES**


“**Dynamics of the Writing Movement: Physical Modelling and Practical Applications**”, H. J.J. Hardy  

“**Handwriting and signatures of the visually impaired**”, Tull, Pat  

“**Intra-individual changes in handwriting features depending on handwriting velocity**”.  


“The Effects of Alterations to Documents”, Steven A. Slyter, 29 AM JUR POF 3d 549, Lawyers Cooperative Publishing, Rochester, NY

BOOKS

Evidential Documents, James V. P. Conway
Chapter: Evidential Signatures

Forensic Handwriting Identification: Fundamental concepts and principles, Ron N. Morris
Chapter 1

Forensic Signature Examination, Steven A. Slyter
Chapters 2 and 3

Fundamentals of Document Examination, Edna W. Robertson,
Chapters 10, 14 and 15

Handwriting Identification: Facts and Fundamentals, Roy A. Huber and A. M. Headrick
Chapters 2, 3, 6, 8, and 9

Identification of Handprinting and Numerals, Allan R. Keown
24 AM JUR POF3d 667, Lawyers Cooperative Publishing, Rochester, NY

Chapter XVI

Questioned Documents (Second Edition), Albert S. Osborn
Chapter VIII and XIII

Scientific Examination of Questioned Documents, Ordway Hilton.,
Chapter 9

Stedman’s Medical Dictionary (26th Edition), Williams & Wilkins (or equivalent)
Words relating to diagnostic conditions that affect handwriting (e.g. agraphia, aphasia, dygraphia, dyslexia)

Suspect Documents, William R. Harrison
Chapters 10 and 11

The Scientific Examination of Documents: Methods and Techniques, David Ellen
Chapters 3 and 4
Section D — Analyze Falsified Documents

**JOURNAL ARTICLES**

“Distinguishing Between Relative Ink Age Determinations and the Accelerated Aging Techniques”

Examination and Identification of Photocopies and Photocopiers, John S. Gorajczyk
23 AM JUR POF3d 621, Lawyers Cooperative Publishing, Rochester, NY

“Passport Forgeries - What to look for”, Ernie Munden, et al.

“Some observations on the morphology of a ball-point pen stroke”, P.S. Hung, et al.

The Effects of Alternations to Documents, Steven A. Slyter
AM JUR POF3d 549, Lawyers Cooperative Publishing, Rochester, NY

**BOOKS**

Detecting and Deciphering Erased Pencil Writing, Ordway Hilton
Chapter 3

Forensic Examination of Ink and Paper, Richard L. Brunelle and Robert W. Reed
Chapters 1, 8 and 9

Scientific Examination of Questioned Documents, Orway Hilton
Chapters 3 and 11

Suspect Documents, William R. Harrison
Chapter 10

The Scientific Examination of Documents: Methods and Techniques, David Ellen
Chapters 7 and 9

Section E — Analyzing Features of Paper and Media

**JOURNAL ARTICLE**

“Determining the Sequence of Folds and Writing”, Allan R. Keown

**BOOKS**

Forensic Examination of Ink and Paper, Richard L. Brunelle and Robert W. Reed
Chapters 11, 12, and 13
(Partial Compendium of Paper Industry Terms, specifically, the kinds of paper/paper finishes encountered in business documents and terms relating to watermarks)

Fundamentals of Document Examination, Edna W. Robertson
Chapter 20

Section F— Analyze Impact and Non-Impact Images

**JOURNAL ARTICLE**

“Where did this fax come from?”, Rob Shilhanek

**BOOKS**

Classification and Identification of Modern Office Copiers, James H. Kelly
Chapters: Brief History, Copying Processes, Preliminary Examinations, Individual Characteristics
Examination and Identification of Photocopies and Photocopiers, John S. Gorajczyk
23 AM JUR POF3d 621, Lawyers Cooperative Publishing, Rochester, NY
Sections 1 through 4 and 16

Manufacturing of Genuine Credit Cards, Ron Morris

Questioned Documents: A Lawyer's Handbook, Jay Levinson
Chapters 3, 4 and 7

Chapters 2, 3, 4, 5, and 7

The Scientific Examination of Questioned Documents, Ordway Hilton
Chapter 11

The Scientific Examination of Documents: Methods and Techniques, David Ellen
Chapter 9

Section G — Using Laboratory Instruments

JOURNAL ARTICLES
“An Electrostatic Imaging Technique for the Detection of Indented Impressions on Documents”,

“Applications of Experimental Variables to the use of the Electrostatic Detection Apparatus”,

“Electrostatic Detection Apparatus (ESDA): Is it Really Non-destructive to Documents?”

“Importance of absolute humidity in the operation of the electrostatic detection apparatus”.

“Light and Electron Microscopy Approaches to Sequence of Writing Problems,

"Optimum Conditions for Examination of Documents using the Electostatic Detection Appartus (ESDA)
Device to Vizualize Indented Writing", Michael G. Noblett, Elizabeth L. James,

“Some parameters Affecting the Quality of ESDA Results”, I.J. Reibelting and H.J. Kobus,

The Effects of Alternations to Documents, Steven A. Slyter
American Jurisprudence POF3d 549, Lawyers Cooperative Publishing, Rochester, NY

Forensic Imaging, Inc., Victor, NY

BOOKS
Applied Infrared Photography, Kodak Publication.

Classification and Identification of Modern Office Copiers, James H. Kelly
Chapter: Copying Processes

Detecting and Deciphering Erased Pencil Writing, Ordway Hilton
Chapters 3 and 5

Forensic Examination of Ink and Paper, Richard L. Brunelle and Robert W. Reed
Chapters 2, 5, 8, 12 and 13

Fundamentals of Document Examination, Edna W. Robertson
Chapter 5
Section H — Evaluating Evidence and Presenting Case Findings

ASTM Standard E 1658-96, American Society for Testing and Materials

Code of Professional Responsibility, Board of Forensic Document Examiners

JOURNAL ARTICLES


Examination and Identification of Photocopies and Photocopiers, John S. Gorajczyk
   23 AM JUR POF3d 621, Lawyers Cooperative Publishing, Rochester, NY

BOOKS

Forensic Signature Examination, Steven A. Slyter (1995)
   Chapters 10 and 13

Fundamentals of Document Examination, Edna W. Robertson
   Chapter 20

Questioned Documents: A Lawyer’s Handbook, Jay Levinson
   Chapter 4

The Scientific Examination of Documents, David Ellen
   Chapter 4

The Scientific Examination of Questioned Documents, Ordway Hilton
   Chapter 11

Section I —Demonstrating Knowledge of Legal Procedures

Federal Rules of Evidence  Opinions and Expert Testimony, Rules 701-706

Frye v. USA  64 App.D.C. 46 (1923), 293 F. 1013


BOOKS

   Knowledge of legal terms commonly used by legal professionals when conversing with a document examiner (e.g., collateral issue, interpleader, probative value)

The Comprehensive Forensic Services Manual, Steven A. Babitsky, James J. Mangraviti, Christopher J. Todd,
   Chapters 2, 3, 4, 5, 6, 13 and 15

How to Excel During Cross-Examination, Steven Babitsky and James J. Mangraviti, Jr. (Esquires)

NOTE: With permission from the publishers, the BFDE has compiled many of the journal articles into a publication for sale at a nominal price, available only to those applicants who complete the application process, to assist in their review of the literature. The test is currently in the review process. Changes to reference material will be posted accordingly.
SAMPLE TEST QUESTIONS FROM VARIOUS SECTIONS OF THE TEST

(1) Complexity in handwriting is determined by
   A. the number of times the pen changes directions.
   B. the fullness of the curves.
   C. the degree of angularity.
   D. fluency.
   E. the degree of variation in the slope/slant of writing.

(2) In examining a guided hand signature, it is important to have the writing of the guider for comparison because
   A. if the writer is passive, the signature will contain characteristics of the guider.
   B. if the writer is active, the signature will contain characteristics of the guider.
   C. the guider’s writing always controls the pen movement.
   D. the writing will be more consistent with the natural speed of the guider.
   E. there is no reason to obtain the writing of the guider.

(3) Which of the following steps is used in an ink comparison method to determine whether several in samples have the same formula?
   A. Using a micro punch, samples of ink are extracted and dissolved in a solvent, then spotted on specially treated paper.
   B. Using a razor, ink is carefully scraped from a sample and put into a sterile saline solution then spotted on specially treated paper.
   C. Using a pipette, ink from a sample is drawn into the pipette and then put into a tray containing a silicone formula.
   D. Micro samples of ink are lifted from the sample using a fuming method and then put into a tank containing a silicone formula.
   E. Samples of ink are carefully smeared on a glass slide and examined under a microscope.

(4) Using a technique known as Thin Layer Chromatography to examine ink on several different documents requires collecting samples of the ink, and collecting samples of
   A. the pens allegedly used in the writing.
   B. similar inks.
   C. the database identifiers for ink.
   D. the paper.
   E. no other samples are required, only ink samples.

(5) The ________________ should always be considered a suspect when an anonymous note maligns an individual
   A. the victim
   B. the spouse of the victim
   C. the ex-spouse(s) of the victim (if any)
   D. the co-workers of the victim
   E. the boss of the victim

(6) The ballpoint pen can be recognized by
   A. the flat color of the ink and the way it absorbs into the high fibers of the paper.
   B. the way the ink changes color as it dries.
   C. the gloss of the ink and the way it catches the edges of the high fibers of the paper.
   D. the lack of any indication of pressure.
   E. the shading of the upstrokes
(7) Studies of the effect of writing speed by Halder-Sinn and Funsch found which of the following changes in handwriting?

A. Tremor increased significantly with acceleration.
B. Length of retraced lines increased significantly with acceleration.
C. Deformed (illegible) letter structures increased significantly with acceleration.
D. Pen lifts increased significantly with acceleration in the majority of writers.
E. Pen lifts decreased significantly with acceleration in the majority of writers.

(8) One method used to determine if two printed copies were produced on the same offset plate would be to examine

A. the ink for trash marks.
B. for photographic dirt which was not removed from the negative.
C. the spacing patterns and alignment.
D. for dissimilarities between inks used in the printing process.
E. the paper weight and check for dissimilar watermarks.

(9) A rapid technique for separating the organic components of ink is known as

A. treated liquid chromatography.
B. thin layer chromatography.
C. thin liquid chromatography.
D. treated litho chromate.
E. trans liquid chromatography.

(10) If entries were made on a document in January and the same pen was used to make entries in November, but backdated to January, which procedure would be used to determine if the back dating occurred?

A. Infrared spectral scanning.
B. Thin layer chromatography.
C. Raman spectroscopy.
D. Gas chromatography.
E. The correct procedure is not listed.

(11) Which ONE of the following is not used to match a sheet of paper to its batch source?

A. Rag content.
B. Wood pulp content.
C. Finish materials.
D. Trim marks.
E. Deckle edge.

(12) Some paper has a “wire side” which can be observed as

A. a pattern in the surface on one side of the paper.
B. a pattern of holes in the edge where the wire spiral was attached.
C. the presence of a thin line on one margin.
D. the presence of a metallic strip woven into the paper.
E. marks at the edge of the paper, left by the wire gripper.

(13) When conducting a photocopy examination to determine the origin of a photocopy, the FIRST step in the process is to determine

A. the generation of the copy.
B. the copying process.
C. if there was more than one copy process used.
D. the fusing process.
E. the rate of enlargement or reduction of the copy.
A document examiner can read the facsimiles received on a particular kind of machine by “reading the ribbon” used to print the fax. Which BEST describes this kind of machine?

A. Plain paper.
B. Thermal.
C. Thermal transfer.
D. Laser jet.
E. Cloth ribbon.

Intaglio is also known as

A. letterpress.
B. offset lithography.
C. Gravure.
D. Collotype.
E. screen printing.

Which of the following would be a better choice for determining the sequence of writing?

A. A stereo microscope.
B. A light table.
C. Measuring grids.
D. Infrared absorption or reflection.
E. Paper and/or ink fluorescence.

Which ONE of the following examination procedures would be performed on graphite pencil traces?

A. Microscopic analysis.
B. Spot testing.
C. Thin Layer Chromatography.
D. Chemical analysis.
E. Water testing.

Exculpatory evidence is defined as

A. evidence not admissible in trial
B. evidence to clear guilt
C. statements of evidence made without the jury present.
D. a ruling by the court to consider hearsay evidence.
E. declarations made in chambers.

Which of the following steps is used in an ink comparison method to determine whether several in samples have the same formula?

A. Using a micro punch, samples of ink are extracted and dissolved in a solvent, then spotted on specially treated paper.
B. Using a razor, ink is carefully scraped from a sample and put into a sterile saline solution then spotted on specially treated paper.
C. Using a pipette, ink from a sample is drawn into the pipette and then put into a tray containing a silicone formula.
D. Micro samples of ink are lifted from the sample using a fuming method and then put into a tank containing a silicone formula.
E. Samples of ink are carefully smeared on a glass slide and examined under a microscope.

The best way to observe line sequence of ink and laser print is with

A. high intensity light at a 45-degree angle to the document
B. reflected bright field coaxial light
C. oblique (grazing) light at a very low angle
D. transmitted halogen light
E. polarized light