ASCP BOARD OF CERTIFICATION®

# HISTOTECHNICIAN AND INTERNATIONAL HISTOTECHNICIAN, HT(ASCP) AND HT(ASCP$^{i}$)

# HISTOTECHNOLOGIST AND INTERNATIONAL HISTOTECHNOLOGIST, HTL(ASCP) AND HTL(ASCP$^{i}$)

## EXAMINATION CONTENT GUIDELINE & OUTLINE

**EXAMINATION MODEL**

The HT(ASCP), HT(ASCP$^{i}$), HTL(ASCP), and HTL(ASCP$^{i}$) certification examinations are composed of 100 examination questions given in a 2 hour 30 minute time frame. All examination questions are multiple-choice with one best answer. The certification examinations are administered using the format of computer adaptive testing (CAT).

With CAT, when a person answers a question correctly, the next test question has a slightly higher level of difficulty. The difficulty level of the questions presented to the examinee continues to increase until a question is answered incorrectly. Then a slightly easier question is presented. In this way, the test is tailored to the individual's ability level.

Each question in the test bank is calibrated for level of difficulty and is assigned a content area that matches with the subtest area of the content outline for a particular examination. The weight (value) given to each question is determined by the level of difficulty. Therefore, the examinee must answer enough difficult questions to achieve a score above the pass point in order to successfully pass the certification examination.

**EXAMINATION SUBTESTS**

The HT(ASCP), HT(ASCP$^{i}$), HTL(ASCP), and HTL(ASCP$^{i}$) certification examination questions encompass five different subtests within the area of Histotechnology: Fixation, Processing, Embedding/Microtomy, Staining, and Laboratory Operations. Each of these subtests comprises a specific percentage of the overall 100-question certification examination. The subtests for the HT and HTL examinations are described in the following table:

| SUBTESTS | EXAM PERCENTAGES FOR HT AND HTL |
|---|---|
| **Fixation (FIXT)** | **15-25%** |
| **Processing (PRO)** | **10-20%** |
| **Embedding/Microtomy (MICR)** | **15-25%** |
| **Staining (ST)** | **30-40%** |
| **Laboratory Operations (LO)** | **10-15%** |

For a more specific overview of the five subtest areas on the HT(ASCP), HT(ASCP$^{i}$), HTL(ASCP), and HTL(ASCP$^{i}$) certification examinations, please refer to the **CONTENT OUTLINE** on pages 2 – 3.


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# EXAMINATION CONTENT OUTLINE

## HISTOTECHNICIAN AND INTERNATIONAL HISTOTECHNICIAN
## HISTOTECHNOLOGIST AND INTERNATIONAL HISTOTECHNOLOGIST

Examination questions, which are related to the subtest areas outlined below, will be both theoretical and procedural. Theoretical questions measure skills necessary to apply knowledge, calculate results, and correlate reactions/patient results to histology. Procedural questions measure skills necessary to select/perform appropriate laboratory methods, evaluate laboratory reactions/results, and follow quality assurance protocols.

**I. FIXATION (15-25%)**

**A. Tissues**
1. Morphology/anatomy
2. Cell/component preservation
3. Pathology*****
4. Biochemistry principles/theories*****

**B. Procedures**
1. Light microscopy
2. Electron microscopy
3. Special stains
4. Frozen sections/tissues
5. Enzyme histochemistry
6. Immunohistochemistry
7. Artifacts/precipitates/pigments
8. Quality control
9. Cytologic specimens
10. In-situ hybridization

**C. Parameters**
1. Size of specimen
2. Volume of specimen/fixative
3. Time of fixation
4. Temperature of specimen/fixative
5. Other (e.g., pH)

**D. Reagents**
1. Types/components
2. Properties/functions/actions
3. Quality control
4. Chemistry principles/theories*****

**E. Instrumentation** (e.g., microwave)
1. Components
2. Use
3. Maintenance
4. Troubleshooting
5. Quality control

**II. PROCESSING (10-20%)**

**A. Tissues**
1. Morphology/anatomy
2. Cell/component preservation

**B. Procedures**
1. Light microscopy
2. Frozen sections/tissues
3. Enzyme histochemistry
4. Calcified/decalcified tissue
5. Immunohistochemistry
6. Quality control
7. Cytologic specimens
8. In-situ hybridization

**C. Instrumentation**
1. Components
2. Use
3. Maintenance
4. Troubleshooting
5. Quality control

**D. Reagents**
1. Types/components
2. Properties/functions/actions
3. Quality control
4. Chemistry principles/theories*****

**III. EMBEDDING/MICROTOMY (15-25%)**

**A. Tissues**
1. Morphology/anatomy
2. Cell/component demonstration

**B. Procedures**
1. Paraffin
2. Frozen section
3. Gelatin/adhesive
4. Quality control

**C. Instrumentation**
1. Components
2. Use
3. Maintenance
4. Troubleshooting
5. Quality control

## IV. STAINING (30-40%)

**A. Tissues**

1. Morphology/anatomy
2. Cell/component demonstration
3. Function
4. Pathology*****
5. Biochemistry principles/theories*****

**B. Procedures**

1. Nucleus/cytoplasm (e.g., H&E)
2. Bone marrow
3. Carbohydrates
4. Connective/supporting tissue
5. Lipids
6. Microorganisms
7. Nerve
8. Pigments/minerals/granules
9. Tissues/cells/components (e.g., fibrin, mast cells)
10. Enzymes*****
11. Immunohistochemistry (e.g., basic staining theory, retrieval techniques, selection of controls*****, antibody preparation*****)
12. Quality Control
13. Cytological stains (e.g., Papanicolaou)
14. In-situ hybridization*****

**C. Instrumentation**

1. Components
2. Use
3. Maintenance
4. Troubleshooting
5. Quality control

**D. Reagents/Dyes**

1. Types/components
2. Properties/functions/actions
3. Quality control
4. Chemistry principles/theories*****

**E. Mounting Procedures**

1. Media
2. Coverslip
3. Refractive index*****

## V. LABORATORY OPERATIONS (10-15%)

**A. Safety**

1. Storage
2. Disposal
3. Hazards
4. Regulations
5. Procedures
6. Quality control

**B. Laboratory Mathematics**

1. Metric system
2. Percent solutions/dilutions
3. Molar solutions

**C. Ancillary Equipment/Instruments** (e.g., microwave, computers, pH meter, solvent recovery)

1. Components
2. Use
3. Maintenance
4. Troubleshooting
5. Quality control

**D. Management***

1. Theories*****
2. Procedures*****

**E. Education***

1. Theories*****
2. Procedures*****

**F. Regulations***

1. Federal government*****
2. Accrediting agencies*****

***HTL EXAMINATION ONLY**

*All Board of Certification examinations use conventional and SI units for results and references ranges.*

**END OF CONTENT GUIDELINE**

# HT/HTL Summary of Stains for ASCP Computer Examinations

Based on the results of a recent survey, the HT and HTL examinations have been updated to reflect current practices. The following list is not all-inclusive, but contains the majority of the stains that may be included on the computer examination.

**STAINS**

Acid Fast Bacilli - Carbol Fuchsin (Kinyoun, ZN, Fite, auramine-rhodamine)
Alcian Blue with & without hyaluronidase
Alcian Bue/PAS
Aldehyde Fuchsin
Argentaffin
Bielschowsky
Colloidal Iron
Congo Red
Crystal Violet
Diff Quik™
Enzyme Histochemistry* (ATPase, Cytochrome oxidase, Succinic dehydrogenase, NADH, esterase, acid phosphatase)
Giemsa
Gram Stain
Grocott/Gomori Methenamine Silver (GMS)
Fontana Masson (Melanin)
Melanin Bleach
Hall's Bile
Hematoxylin/Eosin (H&E)
Immunohistochemical Stains*
Iron-Prussian Blue
Luxol Fast Blue (LFB/Cresyl Echt Violet)
Mucicarmine
Oil Red O
Papanicolaou
PAS-Digestion (PASD)
PAS- Hematoxylin (PASH)
Periodic Acid Methenamine Silver (PAMS)
Periodic Acid Schiff (PAS)
Reticulin/Reticulum
Spirochete (Steiner, Warthin-Starry)
Sudan Black
Thioflavin T
Toluidine Blue
Trichrome (Gomori, Masson)
Verhoeff Van Gieson (VVG)
Von Kossa

* In addition, the HT examination will now include questions about basic immunology principles, including antigen retrieval and immunohistochemistry staining theory. The HTL examination will continue to include questions about immunohistochemisty quality control, along with more detailed questions about principles, antigen retrieval and immunostaining procedures.