



# TECHNOLOGIST AND INTERNATIONAL TECHNOLOGIST IN HEMATOLOGY, H(ASCP) AND H(ASCP<sup>i</sup>) SPECIALIST AND INTERNATIONAL SPECIALIST IN HEMATOLOGY, SH(ASCP) AND SH(ASCP<sup>i</sup>) EXAMINATION CONTENT GUIDELINE & OUTLINE

## EXAMINATION MODEL

The H(ASCP), H(ASCP<sup>i</sup>), SH(ASCP), and SH(ASCP<sup>i</sup>) 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 H(ASCP), H(ASCP<sup>i</sup>), SH(ASCP), and SH(ASCP<sup>i</sup>) certification examination questions encompass five different subtests within the area of Hematology: Erythrocytes, Leukocytes, Platelets, Hemostasis, and Laboratory Operations. Each of these subtests comprises a specific percentage of the overall 100-question certification examination. The subtests for the H and SH examinations are described in the following table:

SUBTEST	DESCRIPTION	EXAM PERCENTAGES
<b>Erythrocytes (RBC)</b>	Physiology, Disease States, Laboratory Determinations	<b>H: 20 – 25%</b> <b>SH: 20 – 25%</b>
<b>Leukocytes (WBC)</b>	Physiology, Disease States (WHO Classification), Laboratory Determinations	<b>H: 20 – 25%</b> <b>SH: 20 – 25%</b>
<b>Platelets (PL)</b>	Physiology, Disease States, Laboratory Determinations	<b>H: 10 – 15%</b> <b>SH: 10 – 15%</b>
<b>Hemostasis (HEMO)</b>	Physiology, Disease States, Laboratory Determinations, Anticoagulation Monitoring	<b>H: 20 – 25%</b> <b>SH: 20 – 25%</b>
<b>Laboratory Operations (LO)</b>	<b>H:</b> Instrumentation, Quality Assurance, Safety, Laboratory Mathematics, Management/Education	<b>H: 15 – 20%</b>
	<b>SH:</b> Instrumentation, Quality Assurance, Laboratory Administration, Laboratory Mathematics	<b>SH: 15 – 20%</b>

For a more specific overview of the subtest areas on the H(ASCP), H(ASCP<sup>i</sup>), SH(ASCP), and SH(ASCP<sup>i</sup>) certification examinations, please refer to the **CONTENT OUTLINE** on pages 2 – 3.

# EXAMINATION CONTENT OUTLINE

## TECHNOLOGIST AND INTERNATIONAL TECHNOLOGIST IN HEMATOLOGY

### SPECIALIST AND INTERNATIONAL SPECIALIST IN HEMATOLOGY

**IMPORTANT:** 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 patient results to disease states. Procedural questions measure skills necessary to perform laboratory techniques, evaluate laboratory data, and follow quality assurance protocols.

#### I. ERYTHROCYTES (H & SH, 20 - 25%)

##### A. Physiology

1. Production
2. Destruction
3. Function

##### B. Disease States

1. Anemia
  - a. Microcytic
    - 1) iron deficiency
    - 2) thalassemia
    - 3) sideroblastic
    - 4) chronic inflammation
  - b. Normocytic
    - 1) hereditary hemolytic
    - 2) acquired hemolytic
    - 3) hypoproliferative
    - 4) acute hemorrhage
  - c. Macrocytic
    - 1) megaloblastic
    - 2) non-megaloblastic
  - d. Hemoglobinopathies
2. Erythrocytosis
  - a. Relative
  - b. Absolute

##### C. Laboratory Determinations

1. Cell counts (to include Blood and Body Fluids)
  - a. Manual
  - b. Automated
  - c. Reticulocyte
2. Morphological evaluation (to include Blood, Bone Marrow and Body Fluids)
3. Hemoglobin & Hematocrit
4. Hemoglobin analyses
  - a. Quantitative
  - b. Electrophoresis
  - c. Other special studies (e.g. sickle solubility)
5. Indices
6. Hemolytic indicators (e.g. haptoglobin, LD)
7. Special stains
8. Other studies (e.g. G6PD, ESR)

#### II. LEUKOCYTES (H & SH, 20 - 25%)

##### A. Physiology

1. Production
2. Destruction
3. Function

##### B. Disease States (WHO classification)

1. Leukopenia
2. Benign leukocytosis
  - a. Myeloid
  - b. Lymphoid
3. Myeloid neoplasia
  - a. Acute leukemia
  - b. Myelodysplastic syndromes
  - c. Myeloproliferative neoplasms
4. Lymphoid neoplasia
  - a. Acute leukemia
  - b. Chronic leukemia/lymphoma
  - c. Plasma cell dyscrasias
5. Hereditary anomalies

##### C. Laboratory Determinations

1. Cell counts (to include Blood and Body Fluids)
  - a. Manual
  - b. Automated
2. Morphological evaluation (to include Blood, Bone Marrow and Body Fluids)
3. Special stains
4. Flow immunophenotyping
5. Other studies (e.g. BCR-ABL, JAK2)

#### III. PLATELETS (H & SH, 10 - 15%)

##### A. Physiology

1. Production
2. Destruction
3. Function

##### B. Disease States

1. Quantitative abnormalities
  - a. Thrombocytopenia
  - b. Thrombocytosis
2. Qualitative defects

##### C. Laboratory Determinations

1. Cell counts
  - a. Manual
  - b. Automated
  - c. Spurious results
2. Morphological evaluation (to include Blood and Bone Marrow)
3. Functional tests
  - a. Screening (e.g., PFA-100™)
  - b. Diagnostic (e.g., platelet aggregation)

**IV. HEMOSTASIS (H & SH, 20 - 25%)**

**A. Physiology**

1. Coagulation pathways
2. Fibrinolytic pathway
3. Vascular system

**B. Disease States**

1. Coagulation factor deficiencies
  - a. Acquired
  - b. Hereditary
2. Inhibitors
3. Fibrinolytic system
4. Hypercoagulable states
5. DIC
6. HIT

**C. Laboratory Determinations**

1. Screening tests
  - a. PT
  - b. APTT
2. Other tests
  - a. Thrombin time
  - b. Fibrinogen
  - c. Inhibitor assays
  - d. FDP/D-dimer
  - e. Factor assays
  - f. Hypercoagulability tests

**D. Anticoagulation Monitoring (e.g., INR, Anti-Xa)**

**V. LABORATORY OPERATIONS  
TECHNOLOGIST IN HEMATOLOGY ONLY (H, 15 - 20%)**

**A. Instrumentation**

1. Microscopes
2. Cell counters
3. Differential analyzers
  - a. Histograms
  - b. Scatter plots
4. Centrifuges
5. Coagulation analyzers
6. Other instruments

**B. Quality Assurance**

1. Specimen collection/quality
2. Specimen processing
3. Quality control evaluation
4. Compliance (e.g. proficiency testing)

**C. Safety**

**D. Laboratory Mathematics**

**E. Management/Education**

**VI. LABORATORY OPERATIONS  
SPECIALIST IN HEMATOLOGY ONLY (SH, 15 - 20%)**

**A. Instrumentation**

1. Microscopes
2. Cell counters
3. Differential analyzers
  - a. Histograms
  - b. Scatter plots
4. Centrifuges
5. Coagulation analyzers
6. Other instruments (e.g., POCT)

**B. Quality Assurance**

1. Specimen collection, processing, storage, disposal
2. Reagent selection, preparation, storage, disposal
3. Instrumentation, operation, maintenance
4. Quality control evaluation
5. Method performance evaluation
6. Compliance (e.g. proficiency testing)

**C. Laboratory Administration**

1. Financial management
  - a. Budgets
  - b. Capital equipment acquisition
  - c. Cost analysis, reimbursement
  - d. Purchasing, inventory
  - e. Operations management
2. Personnel management
  - a. Motivation
  - b. Intra/interdepartmental relations
  - c. Staffing, productivity
  - d. Counseling/disciplinary action
  - e. Facilities management
  - f. Education/training/competency
3. Safety

**D. Laboratory Mathematics**

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

**END OF CONTENT GUIDELINE**