TASK AND BLUEPRINT LISTS AND CONTENT PERCENTAGES FOR CLINICAL PATHOLOGY FROM THE 2016 JOB TASK ANALYSIS APPROVED BY COUNCIL

TESTABLE

TASK 1: Identify, describe and interpret <u>microscopic</u> abnormalities in blood, bone marrow, body fluids, and tissues (cytology and histology) from domestic and non-domestic animals

- *Tested via glass slides and image-based multiple choice questions (MCQs)*
- *~30% of Phase II*
  <u>Skills and knowledge to</u>*:*
  - Write a coherent, organized descriptive report
  - Write a concise summary relative to the descriptive findings
  - Write an interpretive conclusion(s) and/or diagnosis(es)
  - List appropriate disease(s), condition(s), and/or differential diagnoses
  - List potential causes(s)
  - Describe associated changes in other organ(s)
  - Outline appropriate ancillary tests and anticipated results (e.g. special stains, immunohistochemistry, electron microscopy, PCR-based clonality, flow cytometry, cytology, other specialized laboratory tests in realms of biochemistry, serology, microbiology, immunodiagnostics)

TASK 2: Recognize and interpret static visual test results pertinent to veterinary clinical pathology
- Tested via image-based MCQs
- ~10% of Phase II
  <u>Skills and knowledge for interpretation of:</u>
  - Hematology cytograms
  - Flow cytometry plots
  - Coagulation tracings
  - Platelet aggregation plots
  - Macroscopic hematology test results (eg. Coombs tests)
  - Gross appearance of submitted samples
  - Special and immunochemical stains
  - Electron micrographs
  - Quality assurance and quality control data
  - Protein electrophoretograms and immunofixation reactions
  - PCR clonality results

TASK 3: Interpret and communicate clinicopathologic data from domestic and non-domestic animals
- Tested via case essays and MCQs
- ~30% of Phase II
  <u>Skills and knowledge to:</u>
  - Describe pathophysiology of conditions leading to laboratory abnormalities
  - Integrate laboratory abnormalities into a diagnosis (or differential diagnoses)

- Recommend appropriate ancillary tests to further confirm definitive or differential diagnoses
- Interpret population laboratory data or study set data
- Interpret integrated laboratory results (biochemistry, urinalysis, serology, microbiology, serum protein electrophoresis, immunodiagnostics, coagulation, hematology, etc.)

TASK 4: Apply the principles of commonly used laboratory instrumentation and methods
- *Tested via non-image based MCQs*
- *~10% of Phase II*

  Using knowledge to:
  - Describe analyzer and test procedure methodologies
  - List sample types and collection methods
  - Describe procedures for reference interval determination
  - List errors and interferences (pre-analytical, analytic and post-analytical)
  - Define test properties (sensitivity, specificity, predictive values, ROC, etc.) and selection
  - Describe quality control, quality assurance, relevant statistics
  - Describe procedures for reference interval and method validation principles
  - Describe routine, special and immunochemical stains
  - Describe principles of light microscopy
  - List the rules and regulations for laboratory safety and biosafety

TASK 5: Apply knowledge of the pathophysiology and diagnosis of disease, with emphasis on manifestation in laboratory test data
- *Tested via non-image based MCQs*
- *~20% of Phase II*

  Using knowledge of pathogenesis, etiology and organ-based causes to answer questions concerning the following disease processes:
  - Genetic alteration
  - Disturbance of growth/neoplasia
  - Cell aging/degeneration/injury/death
  - Infection/immunity/inflammation
  - Metabolic/nutritional/deficiency
  - Hemodynamic/vascular disease

TASK 6 Demonstrate knowledge of the basic mechanisms of disease
- *Tested via MCQs, mainly non-image based*
- *100% of Phase I (See Phase I Topic Distribution below)*

  Using knowledge of:
  - Mechanisms fundamental to disease in animals, including principles of:
    - Cellular injury
    - Inflammation and repair
    - Hemodynamic disorders
    - Physical and chemical injury
    - Neoplasia

- Congenital and genetic diseases
- Molecular pathology
- Infectious processes
- Immunology
- Laboratory technology and data analysis
  - Including fundamentals of molecular and immunologic diagnostic testing, immunohistochemistry/immunocytochemistry procedures, application of common histochemical/cytochemical stains, laboratory safety, and basic statistics for data analysis
- Mechanisms are general in nature in that they relate to most animal species

NON-TESTABLE TASKS

TASK 7 Compose and communicate interpretation and significance of results
- Write clinical pathology reports using training, experience, professional judgment and other information in order to convey the interpretation in a clear, concise, and accurate manner.
- Communicate the significance of clinical pathology results using clear, concise oral and written language in order to convey the potential implications for a subject, patient, or population (animal and/ or human).

TASK 8 Demonstrate proficiency in laboratory management and quality practices
- Define standard operating procedures in accordance with prescribed methods in order to ensure acceptable levels of quality and consistency.
- Evaluate specimens, reagents, instruments, and personnel training by inspection, review and documentation in order to ensure the validity of data.
- Evaluate data for evidence of pre-analytical and analytical error through inspection in order to determine if verification and troubleshooting are required to obtain reliable results.
- Demonstrate overall laboratory management aptitude

Phase II Blueprint Category Targets

Distribution by Species (Phase II)
S1 Domestic	70 – 85%
S2 Lab animal	10 – 15%
S3 Non-domestic	5 – 10%

Distribution by Organ system (Phase II)
O1	Hemolymphatic, including coagulation	20 – 25%
O2	Skin/Integument	6 – 12%
O3	Cardiovascular	2 – 4%
O4	Gastrointestinal	2 – 6%
O5	Pancreas, exocrine	2 – 6%
O6	Liver	12 – 15%
O7	Endocrine	8 – 12%

O8	Renal, including urinalysis and urinary tract	15 – 20%
O9	Respiratory	2 – 6%
O10	Nervous and special senses	2 – 4%
O11	Musculoskeletal	2 – 6%
O12	Reproductive	2 – 4%
O13	Multiorgan/Systemic/Other	2 – 6%
O14	Non-organ based*	10 – 20%

*Defined as mostly principles of laboratory technology, from selected items in Tasks 2 and 4.

Distribution by topic   (Phase II)

C1 Genetic	5 – 10%
C2 Disturbance of growth/neoplasia	20 – 30%
C3 Cell aging/degeneration/injury/death	~5%
C4 Infection/immunity/inflammation	25 – 35%
C5 Metabolic/including endocrinopathy, acid base, abnormal biochemistry	10 – 15%
C6 Hemodynamic/vascular disease	~5%
C7 Laboratory technology/analysis	15 – 20%

Phase I (General Pathology Blueprint)

Distribution by topic (Phase I Examination targets, same for both Anatomical and Clinical Pathology)

C1 Genetic	5 – 10%
C2 Disturbance of growth/neoplasia	15 – 25%
C3 Cell aging/degeneration/injury/death	5 – 15%
C4 Infection/immunity/inflammation	35 – 55%
C5 Metabolic/nutritional/deficiency	5 – 10%
C6 Hemodynamic/vascular disease	5 – 10%
C7 Laboratory technology/analysis	3 – 5%