Case 1. Tissue from a cyno.

(NOTE: There may be differences due to significant variations in the submitted sections. One section had a lot of liver and a cross-section through the gall bladder; the one below had a larger section of neoplasm with necrosis.)

MICROSCOPIC DESCRIPTION: Liver: Effacing up to 75% of the section, there is an infiltrative, unencapsulated, moderately cellular, multilobular, well-demarcated neoplasm. (2pt.) The neoplasm is separated into distinct lobules by thick bands of fibrous connective tissue (1pt.), and neoplastic cells are arranged into nests (1pt.), packets, and prominent rosettes (1pt.) and pseudorosettes on a fine fibrovascular stroma (1pt.). Neoplastic cells have indistinct cell borders and a moderate amount of clear cytoplasm. (1pt.) Nuclei are centrally located, oval, with finely clumped chromatin and 1-3 small blue nucleoli. (1pt.) Mitoses are rare. (1pt.) There is extensive EMH throughout the neoplasm. (1pt.) There is varying amounts of necrosis and hemorrhage within several of the lobules. (1pt.) Fibrous septa separating lobules multifocally contains prominent blood vessels and an infiltrate of low to moderate numbers of neutrophils (1pt.), fewer macrophages, and rare lymphocytes and plasma cells, and contain numerous profiles of hyperplastic bile ducts (1pt.) as well as atrophic hepatocytes (1pt.), congested vessels and dilated lymphatics. Hepatocytes within the adjacent liver are mildly swollen and their cytoplasm contains abundant glycogen. (1pt.) There is a small amount of extramedullary hematopoiesis within portal areas and sinusoids.

MORPHOLOGIC DIAGNOSIS: Liver: Hepatoblastoma (4pt.)

O/C: (1pt.)
Case 2. Tissue from a mouse.

(NOTE: There may be differences due to significant variations in the submitted sections. Some sections have good sections of the chorioallantois – the slide described here only had a small amount at the periphery of the section.)

MICROSCOPIC DESCRIPTION: Placenta: This is a section of hemochorial placenta (1 pt.) without attached uterus or membrane, essentially the placental disk. (1 pt.) Approximately 33% of the disk is undergoing a combination of coagulative (1 pt.) and lytic necrosis (1 pt.), with an extensive area in which cellular outlines are maintained, which nuclei are condensed, pyknotic, or simply fade out (1 pt.) (coagulative necrosis). Some of this area is infiltrated by large numbers of admixed with abundant cellular debris (1 pt.) (lytic necrosis), which multifocally extends in a netlike fashion through out the rest of the tissue. (1 pt.) There are also multiple focally extensive areas of hemorrhage (1 pt.), edema, as well as large aggregates of polymerized fibrin (1 pt.). Within the viable areas of the placental disk, there is individual necrosis of trophoblasts (1 pt.) and foci of dystrophic mineralization (1 pt.). In the fetal membranes, which surround the placental disk, there are moderate numbers of viable and degenerate neutrophils (1 pt.), abundant cellular debris, edema, and multiple 100um colonies of small 1-2um cocobacilli. (1 pt.)

MORPHOLOGIC DIAGNOSIS: Placenta and membranes: Placentitis and amniochorionitis (1 pt.), necrotizing (1 pt.), multifocal to coalescing, moderate, with colonies of coccobacilli. (1 pt.).

CAUSE: Pasteurella pneumotropica (2 pt.)

(O/C)- (1 pt.)
Case 3. Tissue from a mouse.

(NOTE: There may be differences due to significant variations in the submitted sections. One section had overlying skin and adjacent salivary gland which simplifies the diagnosis; the section described below did not.)

MICROSCOPIC DESCRIPTION: Fibrous connective tissue containing skeletal muscle and brown fat at the border (1pt). Effacing pre-existent tissue, there is a 1.25x1cm expansile, well-demarcated, partially encapsulated, moderately cellular, multilobular neoplasm (2pt). The neoplasm is composed of nests (1pt) of spindle cells (1pt) which are separated into lobules by a moderate fibrovascular stroma (1pt). Neoplastic cells have indistinct cell borders and a moderate amount of finely vacuolated basophilic cytoplasm, (1pt) and often palisade along the stroma at the edge of the lobules. (1pt) Nuclei are oval to elongate with finely clumped chromatin and 1-2 small basophilic nuclei. (1pt) Mitoses average 1-2 per 400X field. (1pt) Many of the lobules contain large central areas of lytic necrosis. (1pt) At one edge of the section, there is a large area of mature granulation tissue (1pt) with a focus of the previously described neoplasm. Additionally, there is an extensive area of granulomatous inflammation (1pt), containing numerous 20-30um vacuolated histiocytes(1pt) admixed with hemorrhage and hemosiderin-laden macrophages(1pt).

MORPHOLOGIC DIAGNOSIS: Fibrovascular tissue, site unspecified: Myoepithelioma. (4pt)

O/C: (1pt)
CASE 4. Tissue from a rhesus monkey.

(NOTE: There may be differences due to significant variations in the submitted sections. Some section had multiple affected bronchioles; the one described below only had one.)

MICROSCOPIC DESCRIPTION: Lung: Within the section, the wall of a bronchiole is expanded (1pt.) and bands of smooth muscle are separated and surrounded by large numbers of macrophages (1pt.), lymphocytes and plasma cells (1pt.), with fewer eosinophils (1pt.) and rare neutrophils. The wall is further expanded by bands of fibrosis (1pt.) which house much of the inflammatory infiltrate and extend into adjacent alveoli. Many macrophages contain intracytoplasmic golden-brown (1pt.) strongly birefringent (1pt.) pigment (mite pigment) (1pt.). Airway epithelium is diffusely severely attenuated and often lost (1pt.), and replaced with inflammatory cells as previously described, and the dilated airway contains multiple cross sections of adult arthropods (2pt.). Arthropods are approximately 300-500 um in width, and contain a chitinized exoskeleton (1pt.), jointed appendages (1pt.), striated musculature, a body cavity, digestive tract, and neural tissue. There are aggregates of anthracosilicotic pigment in perivascular locations.

MORPHOLOGIC DIAGNOSIS: Lung: Bronchiolitis and bronchitis, pyogranulomatous (1pt.) and eosinophilic, chronic, multifocal, moderate, and bronchiolar intraluminal arthropods (1pt.) with mite pigment (1pt.).

CAUSE: *Pneumonyssus simicola* (2pt.)

O/C: (1pt.)