

CHOOSE THE SINGLE BEST ANSWER FOR QUESTIONS 1 - 138.

Picture #1

1. Which one of the following clinical scenarios best fits with the pathologic findings depicted in the accompanying photomicrograph?
 - A. A still-born infant born at 23 weeks gestation with a chromosomal abnormality.
 - B. A three-day old infant born at 25 weeks gestation with progressive respiratory insufficiency.
 - C. A one-day old hydropic infant born at 35 weeks gestation, dying in the immediate postpartum period.
 - D. A still-born term infant delivered following breach presentation.
 - E. A term infant with a lysosomal storage disorder.

2. If this infant had survived for several months, which of the following conditions could have been a long-term sequel to this condition?
 - A. Erythroblastosis Fetalis
 - B. Surfactant Deficiency
 - C. Lung Hamartoma
 - D. Bronchopulmonary Dysplasia
 - E. Oligohydramnios

Picture #2

3. The illustration show a section of an eyeball obtained from a child with progressive loss of vision in one eye. Given the gross appearance of this lesion, which of the following pathologic processes would be the least reasonable consideration?
- A. An intraocular neoplasm
 - B. An intraocular hamartoma
 - C. An intraocular inflammatory mass
 - D. An intraocular hemorrhage
 - E. A malformative tumor
4. Which of the following histologic features would most characteristically identify an intra-ocular mass as a retinoblastoma?
- A. Focal necrosis
 - B. Flexner-Wintersteiner Rosette
 - C. Multinucleate giant cells
 - D. Cells in mitosis
 - E. Storage material in lysosomes

Picture #3

5. Which of the following vignettes best describes the clinical circumstances surrounding the infant depicted in the photograph?
- A. A history of maternal drug use during early gestation.
 - B. A history of decreased fetal movements for one week prior to delivery.
 - C. A history of maternal exposure to Rubella in mid-gestation
 - D. A family history of genetic disease in male relatives
 - E. A history of maternal exposure to asbestos

6. Which one of the following pathologic processes would be characteristic of the microscopic findings in tissue sections from this individual?
- A. Neoplasia
 - B. Inflammation
 - C. Autolysis
 - D. Lysosomal storage disease
 - E. Dysplasia

Picture #4

7. The abnormality depicted in the photograph is an example of:
- A. A deformation
 - B. A dysraphism
 - C. A duplication
 - D. A dystopia
 - E. A disruption
8. This finding most likely represents a teratogenic event occurring:
- A. Prior to implantation of the fertilized conceptus
 - B. Prior to the second week of gestation
 - C. Prior to the sixth week of gestation
 - D. After the tenth week of gestation
 - E. During labor and delivery

Picture #5A (Gross) & #5B (Microscopic)

9. Picture A is from an autopsy on an 8 month old infant dying of a disease involving progressive dysfunction of liver, spleen, and central nervous system. Given these gross findings, the disease most likely represents an example of:
- A. A neoplasm
 - B. A malformation
 - C. A vascular insufficiency
 - D. A lysosomal storage disease
 - E. Birth injury
10. The microscopic section (5B) shows:
- A. A cluster of neoplastic cells in the liver
 - B. Lipid-like storage material in reticuloendothelial cells in the liver
 - C. Granulomatous inflammation in the liver
 - D. A heterotopia in the liver
 - E. Focal necrosis in the liver
11. Following genetic analysis, which one of the following findings would be expected to characterize this patient?
- A. An autosomal cytogenetic abnormality
 - B. A mutation in a single gene
 - C. A sex chromosomal cytogenetic abnormality
 - D. A triplet repeat
 - E. Amplification of an oncogene

Picture #6

12. The photograph shows a 20-year-old patient. The most likely karyotype of this patient is:
- A. 45, X
 - B. 46, XX
 - C. 47, XXY
 - D. Trisomy 21
 - E. Normal
13. Which one of the following features is not characteristic of this syndrome?
- A. Abnormally short stature
 - B. Primary amenorrhea
 - C. Coarctation of the aorta
 - D. A predisposition to early onset Alzheimer s Disease
 - E. Elevated levels of pituitary gonadotropin

Picture #7

14. What is the principal clinical effect of the karyotype abnormality depicted in the accompanying chromosomal study?
- A. Antisocial behavior
 - B. Severe mental retardation
 - C. Sterility
 - D. Holoprosencephaly
 - E. Asymptomatic

15. The most likely mechanism for this abnormality is:
- A. A deletion of a single gene
 - B. A Robertsonian translocation
 - C. Non-disjunction of sex chromosomes during meiosis
 - D. A frameshift mutation
 - E. Non-disjunction of autosomal chromosomes during meiosis

Picture #8A (low power) & #8B (high power)

16. These low and high power photomicrographs are from the kidney of an infant born with rapidly fatal, severe renal failure. From the histologic appearance, the most likely diagnosis is:
- A. Congenital Wilms tumor
 - B. Chronic pyelonephritis due to TORCH infection
 - C. Infantile polycystic kidney
 - D. Congenital neuroblastoma
 - E. Cystic fibrosis
17. Which of the following syndromes would most likely be associated with this abnormality?
- A. Potter's Syndrome
 - B. Gardner's Syndrome
 - C. Turcot's Syndrome
 - D. WAGR Syndrome
 - E. Sudden Infant Death Syndrome

Picture #9

18. Best diagnosis for blood vessel in Picture 9 (medium magnification, lumen on right):
- A. Fatty streak
 - B. Diabetic microangiopathy
 - C. Organizing thrombus
 - D. Polyarteritis nodosa
 - E. Malignant hypertension

Picture #10

19. Most likely diagnosis for section of kidney shown in Picture 10:
- A. Poststreptococcal glomerulonephritis
 - B. Crescentic glomerulonephritis
 - C. Coagulation necrosis
 - D. Bacterial infection
 - E. Diabetes mellitus

Picture #11

20. Best interpretation for Picture 11 (a kidney at intermediate magnification):
- A. Acute inflammation
 - B. Chronic (mononuclear) inflammation
 - C. Granulomatous inflammation
 - D. Necrotizing tissue injury (secondary to infection)
 - E. Wilms' tumor

21. Parenchymal elements of the kidney shown in the photo morphologically demonstrate:
- A. Hyperplasia
 - B. Hypertrophy
 - C. Atrophy
 - D. Metaplasia
 - E. Infarction

Picture #12

22. Most likely precipitating condition/etiology for the blood vessel shown at low magnification in Picture 12:
- A. Inheritance of abnormal gene
 - B. Stasis of blood flow
 - C. Strep pyogenes infection
 - D. Auto-antibody
 - E. Spirochete infection
23. Most likely consequence of disease process shown in Picture 12:
- A. Fibrinoid necrosis
 - B. Pulmonary infarction
 - C. Mitral stenosis
 - D. Myocardial infarction
 - E. Aortic regurgitation

Picture #13

24. Most likely pathogen/agent/problem responsible for histologic alterations shown in Figure 13 (lung at high magnification):
- A. Thromboembolism
 - B. Vitamin deficiency
 - C. An organism which may exist as trophozoite-like form
 - D. A virus
 - E. A fungus having limited geographic distribution in U.S.
25. Most likely consequence of disease shown in Picture 13:
- A. Pulmonary fibrosis
 - B. Pulmonary infarction
 - C. Lung carcinoma
 - D. Meningitis
 - E. Hypoxemia

Picture #14

26. Most likely etiology/pathogenesis of histologic alterations in Picture 14 (a liver at intermediate magnification):
- A. Extracellular accumulation
 - B. Heart failure
 - C. Viral infection
 - D. Nutritional deficiency
 - E. Autoimmune disease
27. Most likely consequence in alterations in Picture 14:
- A. Hepatomegaly
 - B. Nephrotic syndrome
 - C. Kernicterus
 - D. Diabetes
 - E. Brown discoloration of liver

Picture 15

28. Most likely etiology of pathologic findings in Picture 15 (a lung at intermediate magnification):
- A. Bacterial infection
 - B. Viral infection
 - C. Mycobacterial infection
 - D. Fungal infection
 - E. Thromboembolism
29. Best histologic characterization of findings in Picture 15:
- A. Coagulation necrosis
 - B. Caseous necrosis
 - C. Fibrosis
 - D. Chronic inflammation
 - E. Acute inflammation

Picture #16

30. This tissue section most likely shows:
- A. Kaposi's sarcoma
 - B. A squamous carcinoma
 - C. An adenocarcinoma invading smooth muscle
 - D. An adenoma
 - E. Dysplasia of squamous mucosa
31. What is the most likely predisposing factor for the lesion in Picture 16?
- A. Inherited mutation of oncogene
 - B. Inherited mutation of tumor suppresser gene
 - C. Viral infection
 - D. Immunodeficiency
 - E. Exposure to UVB radiation

Picture #17

32. Most likely diagnosis for histologic changes in Picture 17 (a lung at low magnification):
- A. Liquefactive necrosis
 - B. Coagulation necrosis
 - C. Caseous necrosis
 - D. Pulmonary edema
 - E. Chronic inflammation
33. Most likely underlying etiology/pathogenesis for alterations in Picture 17:
- A. Venous stasis
 - B. Atherosclerosis
 - C. Bacterial infection
 - D. Viral infection
 - E. Sepsis

Picture 18

34. Best interpretation for histologic changes in Picture 18 (a pancreas at low magnification):
- A. Hypertrophy
 - B. Hyperplasia
 - C. Pigment accumulation
 - D. Fibrinoid necrosis
 - E. Atrophy
35. Most likely consequence of alterations on Picture 18:
- A. Adenocarcinoma
 - B. Nephrotic syndrome
 - C. Nutrient deficiency
 - D. Thrombo-embolism
 - E. Metastatic calcification

Picture #19

36. Best diagnosis for Picture 19 (dermis at intermediate magnification):
- A. Rheumatoid nodule
 - B. Scleroderma
 - C. Ultraviolet radiation effect
 - D. Neurofibroma
 - E. Staphylococcal infection

37. Most likely consequence of alterations in Picture 19:
- A. Scarring
 - B. Amyloidosis
 - C. Squamous cell carcinoma
 - D. Sarcoma
 - E. Destructive arthritis

Picture #20

38. Best diagnosis for Picture 20:
- A. Granuloma with caseous necrosis
 - B. Angiogenesis
 - C. Hyalinization
 - D. Granuloma without caseous necrosis
 - E. Adenocarcinoma
39. Most important/relevant mediator of alterations shown in Picture 20:
- A. Bradykinin
 - B. Serum AA protein
 - C. Growth factors
 - D. Basophilic leukocytes
 - E. Interferon alpha
40. Which one of the following cytogenetic abnormalities is least likely to result in production of a live-born infant?
- A. Trisomy 21
 - B. 45, X
 - C. Fragile X Syndrome
 - D. Trisomy 16
 - E. 47, XX

41. Which one of the following pathologic findings would be most likely noted following an examination of a still-born fetus whose mother reported an absence of fetal movements for five days prior to birth?
- A. Necrotizing enterocolitis
 - B. Hyaline membrane disease of the lungs
 - C. Maceration of the skin
 - D. Fresh intracerebral hemorrhage
 - E. Kernicterus
42. What is the Apgar Score at one minute after birth of a blue infant with poor muscle tone, a slow respiratory rate and a heart rate of 70 per minute, who grimaces when a nasal catheter is inserted?
- A. One
 - B. Three
 - C. Five
 - D. Seven
 - E. Nine
43. Which of the following categories of genetic disease is most common?
- A. Cytogenetic abnormalities
 - B. Autosomal dominant single gene abnormalities
 - C. X-lined single gene abnormalities
 - D. Triplet nucleotide repeat
 - E. Multifactorial diseases

44. Which of the following syndromes is most characteristic of congenital chromosomal abnormalities?
- A. A non-progressive syndrome of characteristic malformations
 - B. A predisposition to occurrence of a malignant tumor late in life
 - C. A progressive organ enlargement due to accumulation of storage material
 - D. A history of affected parents
 - E. Normal development
45. Which one of the following statements is false?
- A. The human life expectancy has increased substantially during the last century
 - B. The maximum life span potential is independent of the life expectancy
 - C. The maximum life span potential has increased dramatically during the last century
 - D. The life expectancy is related to the intensity of environmental hazards
 - E. The life expectancy is equivalent to the 50% survival of a group of individuals
46. Which of the following categories of disease does not show an increased frequency in elderly individuals?
- A. Autoimmune diseases
 - B. Neoplasms
 - C. Neurodegenerative diseases
 - D. Inherited enzyme deficiencies
 - E. Infections

47. Which of the following diseases is not an example of a lysosomal storage disease?
- A. Niemann-Pick Disease
 - B. Tay-Sachs Disease
 - C. Fabry's Disease
 - D. Ehlers-Danlos' Disease
 - E. Hurler's Disease
48. The ability of the 23-25 week gestation premature fetus to survive in an extrauterine environment is chiefly limited by:
- A. Immaturity of the heart
 - B. Immaturity of the lung
 - C. Immaturity of the liver
 - D. Immaturity of the immune system
 - E. Immaturity of the kidney
49. Which of the following germ cell neoplasms is not considered to be malignant?
- A. Dysgerminoma
 - B. Mature teratoma
 - C. Yolk sac carcinoma
 - D. Immature teratoma
 - E. Embryonal carcinoma
50. Which of the following tumors is least likely to occur during the first four years of life?
- A. Leukemia
 - B. Neuroblastoma in the adrenal gland
 - C. Carcinoma of the lung
 - D. Cystic hygroma in the neck region
 - E. Teratoma of the sacrococcygeal region

51. Which of the following factors is associated with a more favorable outcome in children with neuroblastoma?
- A. Diagnosis of disease under one year of age
 - B. Stage-IV Disease
 - C. Deletion of the short arm of chromosome I
 - D. Amplification of N-myc oncogene
 - E. Hepatomegaly, ascites, and bone pain

TRUE/FALSE

For questions 52 - 59 decide whether the statement is true or false and mark your choice on the answer sheet as follows:

- A. true
- B. false

- 52. The aging immune system is characterized by a decrease in T-cell function.
- 53. The accumulation of intracellular lipofuscin ultimately impairs cell function.
- 54. The co-localization of the amyloid beta gene and the neurofibromin gene on chromosome 21 is associated with an increased frequency of Alzheimer's disease in patients with neurofibromatosis Type I.
- 55. In multifactorial diseases, the rate of recurrence is the same for all first degree relatives.
- 56. The basic event in the pathogenesis of Potter's sequence is oligohydramnios.
- 57. Kernicterus in the premature infant results from systemic hyperbilirubinemia in the presence of an immature blood brain barrier.
- 58. Germinal matrix hemorrhage in the brain is a common manifestation of intrapartum injury in the term infant.
- 59. Infection of the developing embryo during the embryonic period may result in a malformation.

60. Least likely to be caused by Vitamin A deficiency:
- A. Corneal ulceration
 - B. Night blindness
 - C. Squamous metaplasia of respiratory tract mucosa
 - D. Impaired immune response
 - E. Fatty liver
61. Least likely to be characteristic of, or associated with, Kwashiorkor:
- A. Decreased serum albumin
 - B. Cutaneous sores
 - C. Enlarged liver
 - D. Normal mental/neurological status
 - E. Anemia
62. An adult patient presents with fatigue, speech impairment and ankle edema. Your physical exam reveals hyporeflexia in the lower extremities. Body mass index is normal. Which of the following is most likely:
- A. Beri beri
 - B. Scurvy
 - C. Folate deficiency
 - D. Marasmus
 - E. Vitamin E deficiency
63. Most likely to be antagonized by a therapeutic medication:
- A. Thiamine
 - B. Vitamin K
 - C. Vitamin C
 - D. B₁₂
 - E. Vitamin E

64. Acts as a teratogen when present at abnormally high levels in tissues:
- A. Vitamin K
 - B. Vitamin D
 - C. Vitamin A
 - D. Folate
 - E. Thiamine
65. Least likely finding in iron deficiency anemia:
- A. Decreased rbc mean corpuscular volume
 - B. Decreased serum transferrin
 - C. Increased total iron binding capacity
 - D. Decreased serum ferritin
 - E. Negative Prussian blue stain in liver
66. Vitamin deficiency least likely to be caused by/associated with impaired gastrointestinal absorption:
- A. Vitamin C
 - B. Vitamin K
 - C. Vitamin A
 - D. B₁₂
 - E. Vitamin D
67. Hematologic/serologic finding least likely to be observed in B₁₂ deficiency:
- A. Increased rbc volume
 - B. Increased PMN nuclear lobes
 - C. Serum auto-antibody
 - D. Decreased serum hemoglobin
 - E. Cytoplasmic immaturity relative to nucleus in hematopoietic precursor cells

68. Step in HIV life cycle which is most directly antagonized by "protease inhibitor" antiviral medications:
- A. Internalization following fusion to plasma membrane
 - B. Translocation to the nucleus prior to integration
 - C. Activity of reverse transcriptase
 - D. Viral assembly/budding from infected cell
 - E. Proviral genome transcription
69. Least likely to be observed in AIDS (CDC Group IV HIV infection):
- A. Peripheral blood CD 4+ count = 150
 - B. Weight loss
 - C. Low viral "load" in peripheral blood
 - D. Lymphoma
 - E. Atrophy of lymphoid tissues
70. What is detected by ELISA test utilized to screen for HIV infection?
- A. Viral RNA
 - B. Viral DNA
 - C. Host antibody vs. non-virus encoded protein
 - D. Host antibody vs. viral structural component
 - E. Host antibody vs. reverse transcriptase
71. Circulating "atypical lymphocytes" in patients with "mononucleosis" due to EBV infection most likely represent which of the following?
- A. Neoplastic B cells
 - B. Activated CD 4+ cells
 - C. Virus-infected B cells
 - D. Virus-infected T cells
 - E. Monocytes

72. Least likely to be present in uncomplicated EBV infection in an otherwise normal host:
- A. Monoclonal B cell proliferation
 - B. Antibodies vs. non-human antigen
 - C. Enlarged spleen
 - D. Enlarged lymph nodes
 - E. Infection of epithelial cells
73. Most likely to be present/correct with respect to infections with Giardia lamblia:
- A. Blood in stool
 - B. Infection via arthropod vector
 - C. Organisms in extra-intestinal tissues
 - D. Impaired function of small intestinal mucosal cells
 - E. Characteristic skin rash
74. Least characteristic feature in patients with Lyme disease:
- A. Travel to or residence in endemic area
 - B. Infection occurs with larval stage of the pathogen
 - C. Destructive arthritis
 - D. Characteristic annular skin lesions
 - E. Cardiac manifestations
75. Least likely to be associated with/caused by Chlamydia trachomatis:
- A. Inclusions visible on Pap smear
 - B. Blindness
 - C. Genital ulcer
 - D. Encephalitis
 - E. Arthritis

76. Incorrect statement about moderate dysplasia of the uterine cervix:
- A. Comprised of cells having DNA mutation(s)
 - B. Cells have greater proliferative rate than normal cervical mucosa
 - C. Comprised of cells with nuclear hyperchromasia
 - D. Most progress to invasive carcinoma in 3 months or less
 - E. Often associated with HPV infection
77. Most likely description for a malignant neoplasm:
- A. 3cm soft, pedunculated polyp
 - B. 2.5cm solid mostly hard mass with foci of softening and hemorrhage
 - C. A mobile subcutaneous nodule
 - D. Well circumscribed pink, uniform, fleshy 5cm mass
 - E. 5cm thin walled multilocular cyst filled with serous fluid
78. Most likely description of an invasive breast carcinoma:
- A. Ill-defined soft, hemorrhagic region
 - B. Multilocular cystic lesion
 - C. Very firm, gritty mass having stellate interface with surrounding tissue
 - D. Expansile intraductal nodule with arborescent surface
 - E. Dilatation of multiple ducts
79. Most rapidly growing neoplasm:
- A. Prostatic adenocarcinoma
 - B. Acute lymphoblastic leukemia
 - C. Follicular thyroid carcinoma
 - D. Low grade sarcoma
 - E. Colorectal adenoma

80. Incorrect statement about chemical carcinogenesis:
- A. The promotion step may be completed with non-mutated cells
 - B. The initiation step requires cell division
 - C. Some carcinogens may act as initiators and promoters
 - D. Initiation and promotion steps may be separated by lengthy time intervals
 - E. Hormones may act as promoters
81. Condition least likely to cause or be associated with abnormal calcium deposits in tissues:
- A. Acute pancreatitis
 - B. Hemochromatosis
 - C. Atherosclerosis
 - D. Vitamin D excess
 - E. CMV infection
82. Least likely to be associated with increased cell volume:
- A. B₁₂ deficiency
 - B. Folate deficiency
 - C. Lipofuscin accumulation
 - D. Hypoxic cell injury (sublethal)
 - E. Sustained arterial hypertension
83. Least likely to be associated with angiogenesis:
- A. Healing wound
 - B. Rheumatoid arthritis
 - C. Invasive adenocarcinoma
 - D. An immunosuppressed leukemic who dies in 3 days from disseminated fungal infection
 - E. Atherosclerosis

84. Least likely to be associated with fibrin deposition/accumulation in tissue section:
- A. Venous thrombus
 - B. Polyarteritis nodosa
 - C. Acute rheumatic fever
 - D. Bacterial pneumonia
 - E. Healed myocardial infarct
85. Most likely to be present in/associated with an area of liquefactive necrosis in lung tissue:
- A. Pneumocystis carinii
 - B. Loss of tissue architecture
 - C. Thrombus in an artery
 - D. Thickening of alveolar septa by epithelioid macrophages
 - E. Cell proliferation among PMN s which have previously migrated to the area
86. Derived from macrophage but not from neutrophil:
- A. Myeloperoxidase
 - B. Collagenase
 - C. IL-8
 - D. Oxygen derived free radicals
 - E. Acid proteases

87. A previously healthy 17-year-old woman suffered partial thickness cutaneous burns to her entire left arm as she attempted to escape a fire in her bedroom. Her initial hospital course was good , but she died 12 days later, MOST likely because:
- A. The surface area of the burn was too extensive.
 - B. She had congestive heart failure.
 - C. She developed hypovolemic shock.
 - D. She suffered an inhalation injury during the fire.
 - E. She developed severe hypoxia during the fire.
88. Ionizing radiation with high linear energy transfer (High LET) can damage cells and tissues, resulting in all the following alterations EXCEPT:
- A. Necrosis
 - B. Angiogenesis
 - C. Karyorrhexis
 - D. Inhibition of mitosis
 - E. Gene mutations
89. Radiation exposure may be associated with each of the following statements EXCEPT:
- A. Radiated tissues may show irregular mitoses with chromosomal bridging.
 - B. A late complication of radiation therapy is bone marrow failure.
 - C. Malignant muscle tumors are generally radioresistant.
 - D. Labile cell populations tend to display greater radiosensitivity.
 - E. Tissue fibrosis can be a complication of radiotherapy.

90. Which of the following statements is INCORRECT?
- A. Arsenic's ability to substitute for inorganic phosphate (P_i) in biological reactions is a primary mechanism for arsenic toxicity.
 - B. Partial thickness cutaneous burns generally do not require skin grafting.
 - C. Localized hypothermia (frostbite) results in vascular endothelial damage and the potential for thrombosis and infarction of the affected area.
 - D. A cherry-red coloration to the skin and mucous membranes is one of the few physical findings in individuals dying from acute carbon monoxide poisoning.
 - E. Whole-body ionizing radiation exposure in the range of 200 to 500 rad (rem) will usually cause death related to the CNS syndrome.
91. An 81 year old woman received severe cutaneous burns (partial and full thickness) in a fire caused by defective holiday tree lights in her home. Her eventual post burn survival is LEAST likely to depend upon which of the following factors:
- A. Pulmonary inhalation injury
 - B. Percent of body surface area burned
 - C. Her age
 - D. Her gender.
 - E. Presence of burn wound infection.
92. Mutational events in the genome have been clearly linked to exposure to:
- A. Lead vapors from battery burning
 - B. Arsenic compounds
 - C. Inorganic mercury ingestion
 - D. Sulfur dioxide
 - E. Carbon monoxide

93. Least typical consequence/potential consequence of low calorie diets:
- A. Weight loss during first week
 - B. Electrolyte imbalance
 - C. Increased metabolic rate at cellular level
 - D. Water loss
 - E. Food Craving
94. Statement about obese/overweight patients which is least likely to be correct:
- A. Their cardiovascular disease risk in part reflects anatomic distribution of body fat
 - B. They are at risk for early mortality relative to those having normal weight
 - C. Most would exceed Ideal body weight by at least 20%
 - D. Their need to lose weight would, in part, depend upon the presence of other medical conditions
 - E. They could not become malnourished while overweight.
95. Skin rash/lesion in which no pathogenic organisms would be present (i.e. within skin involved by rash):
- A. Erythema marginatum
 - B. Erythema chronicum migrans
 - C. Skin lesions in a patient with Blastomycosis
 - D. Primary syphilis
 - E. Secondary syphilis

96. Disease/process in which oxygen-derived free radical species have the least pathogenetic significance:
- A. Hemochromatosis
 - B. Marfan's syndrome
 - C. Atherosclerosis
 - D. Initiation stage of carcinogenesis
 - E. Radiation injury

Match the following statements (97-101) with the corresponding injuries or exposures listed A-E. Each answer may be used once, more than once or not at all.

- A. Full thickness cutaneous burns
- B. Chronic lead poisoning
- C. Acute high dose ozone exposure
- D. Acute whole-body radiation exposure of approximately 1,000 rads
- E. Sulfhydryl (thiol) containing compounds

- 97. *Pseudomonas aeruginosa* septicemia is a significant associated complication
- 98. Reduce free radical-induced (indirect) radiation injury
- 99. Peroneal nerve demyelination in a 48 year old female
- 100. Failure of fluid homeostasis, shock, septicemia and death 3 to 7 days after exposure
- 101. Hyalin membrane formation

Match each item 102-106 with its characteristic necrosis from those listed A-E. Use each alternative once only.

- A. Fibrinoid necrosis
- B. Caseous necrosis
- C. Liquefactive necrosis
- D. Fat necrosis
- E. Coagulation necrosis

- 102. A lump in the female breast following trauma
- 103. An abscess caused by pyogenic bacteria
- 104. A subcutaneous nodule in rheumatoid arthritis
- 105. A myocardial infarct
- 106. Pulmonary infection by *Mycobacterium tuberculosis*

Match each item 107-111 with its corresponding hyaline from those listed A-E. Use each alternative once only.

- A. Mallory hyalin
- B. Amyloid
- C. Excess basal laminar material
- D. Intracellular hyaline "droplets"
- E. Aged collagen of scar

- 107. In an intravenous drug abuser with long-standing pyogenic infections of the skin, glomerular deposits result in the nephrotic syndrome
- 108. In the nephrotic syndrome, the evidence of proteinuria seen in renal tubular lining epithelium
- 109. The hyalinized (sclerosed) glomerulus
- 110. Results from alcoholic injury
- 111. Arteriolar hyalinization

Match the Vitamin (A-D) to the most likely site of direct biological activity (112-116)

- A. Vitamine E
- B. Vitamin K
- C. Vitamin C
- D. Vitamin D
- E. Vitamin A

- 112. Small bowel absorptive cells
- 113. Plasma membrane, many types of cells
- 114. Nucleus of epithelial cells
- 115. Growing bone
- 116. Hepatocyte cytoplasm

Match the gross description of lung tissue (A-E) to the most likely disease (117-121). Use each choice once only.

- A. Wedge shaped subpleural hemorrhagic area
- B. Left and right upper lobe cavities surrounded by collagenous scar
- C. Hyalinized right lower lobe round nodule
- D. Liquefactive necrosis distal to obstructed bronchus
- E. Pleural surface covered with soft, focally bloody, stringy material

117. Active tuberculosis

118. Squamous cell carcinoma

119. SLE

120. Pulmonary infarct

121. Infection with *Histoplasma capsulatum* in normal host

Classify each of the following diseases according to the following general categories.

- A. Cytogenetic disease
- B. Autosomal mendelian genetic disease
- C. Sex-linked mendelian genetic disease
- D. Multifactorial disease
- E. Other

122. Neurofibromatosis - Type I

123. Diabetes Mellitus

124. Periventricular leukomalacia

125. Cystic fibrosis

126. Turner s Syndrome

Classify the following malformations according to the terms listed.

- A. Agenesis
- B. Dysraphism
- C. Involution failure
- D. Atresia
- E. Heterotopia

127. An infant with a congenital focal narrowing of the proximal duodenum associated with absence of the lumen at that site.

128. An infant born without a corpus callosum in the brain.

129. An infant born with a nodule of thyroid tissue at the base of the tongue

130. An infant with syndactyly (a web of tissue joining adjacent fingers on the hand).

131. An infant with spina bifida

Match the disease (A-E) to the most likely gross pathologic alteration (132-136). Use each choice once only.

- A. Beri beri
- B. Amyloidosis
- C. Systemic hypertension
- D. Tertiary syphilis
- E. chronic rheumatic heart disease

- 132. Obstruction to left ventricular inflow from left atrium at mitral valve
- 133. Thickened left ventricle due to increased cell size
- 134. Increased consistency and slight but diffuse change of color, right and left ventricle
- 135. Dilated left ventricle, valves normal
- 136. Dilated aorta

137. A 52 year old male with a history of chronic alcoholism comes to the emergency room because of severe hematemesis (vomiting blood). Despite emergency treatment, his status deteriorates and he dies. The MOST likely pathology, demonstrated at autopsy, to account for the bleeding is:
- A. Fatty liver
 - B. Chronic calcifying pancreatitis
 - C. Minute hemorrhages in the mammillary bodies (Wernicke's encephalopathy)
 - D. Esophageal varices (Mallory-Weiss syndrome)
 - E. Hemorrhagic infarct of the lung
138. A 45 year old male professional lifeguard (maybe an ex-Baywatch star!) develops a persistent ulcer on the cheek just below his left eye. Which of the following changes would be MOST consistent with this skin lesion?
- A. Full thickness UV burn
 - B. Basal cell carcinoma
 - C. Elastosis
 - D. Acute epidermal single cell necrosis
 - E. Chronic UV-induced depigmentation