Final Examination

Supporting Structures
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1. Your patient that has been referred to you for evaluation of his scoliosis is tall and thin, with long fingers, and a pectus excavatum. You would expect him to have (or at least evaluate him for the presence of) all of the following EXCEPT:

a. Aortic root dilatation  
   b. Occular lens dislocation  
   c. High arched palate  
   d. Hydronephrosis  
   e. Dislocating patellae

2. Your long-term patient with Morquio syndrome comes to see you. His mother notes that he has become more unsteady on his feet lately. Your exam notes clonus in the lower extremities, increased reflexes in the upper and lower extremities, a wide based gait, and a Babinski sign. Your next step is:

a. Refer to a physical therapist  
   b. Order Cspine films to rule out C1-C2 instability and spinal cord compression, leading to ataxia  
   c. Order a brain MRI to rule out mucopolysaccharide storage in the brain  
   d. Order liver function tests to evaluate for liver failure  
   e. Check urinary heparin sulfate levels

3. In children, osteomyelitis usually effects which region of the long bones:

a. Metaphysis  
   b. Diaphysis  
   c. Growth plate  
   d. Articular cartilage  
   e. None of the above

4. Children with Achondroplasia often have all of the following EXCEPT:

a. Bowed, short extremities  
   b. Foramen magnum stenosis  
   c. Lumbar spinal stenosis  
   d. Thoracolumbar kyphosis  
   e. Blue sclerae and teeth — ΟΣ

5. In a bone metastasis, bone is resorbed by the:

a. tumor cell  
   b. osteoblast  
   c. osteoclast  
   d. osteocyte  
   e. macrophage
6. The primary organic and nonorganic components of bone are:
   a. type II collagen and hydroxyapatite
   b. type II collagen and calcium sulfate
   c. osteonectin and hydroxyapatite
   d. osteocalcin and calcium sulfate
   e. type I collagen and hydroxyapatite

7. The mechanism that would best explain why a femoral head affected by avascular necrosis develops a subchondral fracture is:
   a. autolysis
   b. fatigue failure
   c. thrombosis
   d. calcium resorption
   e. hydroxyapatite deposition

8. The enzyme used by osteoclasts to resorb bone is:
   a. alkaline phosphatase
   b. acid phosphatase
   c. glutaraldehyde dehydrogenase
   d. calcium dehydrogenase
   e. parathyroid hormone

9. Wolff’s Law essentially says that:
   a. form follows function
   b. skeletal maturity is hormonally regulated
   c. height is a function of weight
   d. a solid rod of bone is stronger than a hollow cylinder of bone
   e. proximal tubule reabsorption of calcium decreases with age

Matching 10-15
Choose the primary lesion most closely associated with each of the following conditions from the list immediately following it:

10. Tinea versicolor
11. Vitiligo
12. Molluscum contagiosum
13. Herpes simplex
14. Squamous cell carcinoma
15. Lentigo maligna

   a. Macule
   b. Papule
   c. Nodule
   d. Patch
   e. Vesicle
16. The skin of an African-American is least likely to differ from the skin of a Caucasian in which of the following characteristics:

   a. Amount of melanin
   b. Risk of development of melanoma
   c. Number of melanocytes
   d. Number of melanosomes
   e. Size and shape of melanosomes

17. Which cells are most responsible for presentation of the causative plant resin to the immune system in poison ivy?

   a. Keratinocyte
   b. T-lymphocytes
   c. B-lymphocytes
   d. Langerhans cell
   e. Merkel cell

18. Which of the following is true of lesions of vitiligo?

   a. Melanocytes are present in lesions, but transfer of pigment to keratinocytes is abnormal
   b. Melanocytes are absent in lesions
   c. Melanocytes are present in lesions, but there is a defect in melanin synthesis due to an enzyme defect.
   d. Melanocytes are present in lesions, but there is a mutation in a gene which encodes a membrane transport protein crucial for melanin synthesis
   e. Melanocytes are present in lesions, but there is a reduction in the number and size of melanosomes.

19. A 72-year-old white female presented with intensely pruritic urticarial plaques and tense bullae primarily located on flexural surfaces. The bullae were distributed on urticarial plaques and normal appearing skin. He reported one painful oral ulcer on the buccal mucosa one week prior to the cutaneous presentation. His only medication was Lipitor for hypercholesterolemia, which he began five years ago. The most likely diagnosis is:

   a. staphylococcal scalded skin syndrome
   b. dermatitis herpetiformis
   c. bullous pemphigoid
   d. pemphigus vulgaris
   e. toxic epidermal necrolysis
20. Biopsy of a tense bulla reveals:

a. intergranular vesicle with few acantholytic cells
b. papillary dermal neutrophil rich microabscesses
c. subepidermal vesicle with eosinophils
d. suprabasilar acantholysis forming an intraepidermal vesicle with "tombstoning"
e. full thickness epidermal necrosis

21. Direct immunofluorescent studies of perilesional skin reveals:

a. no immunoglobulin or complement deposition
b. granular IgA in the papillary dermis
c. linear IgG and C3 at the basement membrane zone
d. intercellular IgG and C3
e. rare globular C3 and IgM in epidermis

22. The pathogenesis involves:

a. an exfoliative toxin produced by bacteria
b. dietary glutens which stimulate production of IgA
c. autoantibodies to hemidesmosomes (destructive of basement membrane zone)
d. autoantibodies to desmosomal components resulting in acantholysis
e. cytotoxic T cells attacking the epidermis

23. What proportion of all cancers arise on the skin in the US?

a. 5%
b. 10%
c. 20%
d. 50%
e. 75%

24. Which of the following usually arise on the face?

a. Basal cell carcinoma
b. Squamous cell carcinoma
c. Malignant melanoma
d. a & b
e. a & c
25. What is the approximate likelihood of death from a melanoma 4mm in Breslow thickness?
   a. 5%
   b. 20%
   c. 50%
   d. 75%
   e. 95%

26. About how many cases of skin cancer are diagnosed each year in the US?
   a. 1,000
   b. 10,000
   c. 100,000
   d. 1,000,000
   e. 10,000,000

27. A 1yo child presents with an itchy rash that has been intermittently present since 2 months of age. On exam, erythematous crusted patches are present on the face peri-orally, on the neck, in the antecubital fossae and in the popliteal fossae. There is a family history of asthma. The most likely diagnosis is:
   a. psoriasis
   b. atopic dermatitis
   c. allergic contact dermatitis
   d. tinea corporis
   e. scabies

28. Severe flares this disease may be due to superinfection with
   a. Staph aureus
   b. Herpes simplex
   c. Mycobacterium marinum
   d. a & b
   e. all of the above

29. A 12yo female develops vesicles, oozing and crusting of her earlobes after wearing costume jewelry earrings but not with 18 karat gold earrings. The earlobes are very pruritic. She has a similar reaction on her abdomen from the metal snap on her jeans. This disease is an example of:
   a. Type I immediate hypersensitivity reaction
   b. Type II hypersensitivity reaction
   c. Type III hypersensitivity reaction
   d. Type IV delayed hypersensitivity reaction
   e. Type V hypersensitivity reaction
30. The diagnosis of this disease may be confirmed by:

a. Tzanck preparation
b. KOH examination
c. patch testing
d. Wood's lamp examination
e. Darier's sign

31. Patient Y is 44 years of age. She complains of an 8 week history of severe buttock and right lower extremity pain. There was no antecedent injury. Pain is increased with sitting and bending forward. Symptoms are partially relieved by standing and bedrest. Gait analysis shows that her right foot slaps down immediately after heel strike. Neurologic examination reveals decreased strength in the right great toe extensor and peroneal muscles. Sensation is diminished over the foot dorsum; reflex exam is normal. What is the most likely cause of this patient's symptoms and signs?

a. compression of the peroneal nerve in the lower leg
b. multiple sclerosis
c. lumbosacral plexopathy due to a pelvic tumor
d. herniation of a lumbar intervertebral disc
e. stenosis of the lumbar spinal canal due to arthritic changes

32. Based on the history and physical signs, what neurologic structure is likely involved by the pathologic process?

a. spinal cord
b. fifth lumbar nerve root
c. first sacral nerve root
d. lumbosacral plexus
e. peroneal nerve

33. Which of the following diagnostic tests will best define the pathologic anatomy in Patient Y?

a. radiographs of lumbar spine
b. CT scan of lumbosacral spine
c. MRI scan of lumbosacral spine
d. MRI scan of the cervicothoracic spine
e. MRI scan of the pelvis
34. Which pathophysiologic process is involved in the production of Patient Y’s clinical picture?

a. damage to the corticospinal tract fibers of the spinal cord
b. impaired conduction through a peripheral nerve in the leg
c. direct compression of the lumbosacral plexus
d. inflammation of a lumbar nerve caused by chemical mediators derived from the intervertebral disc
e. none of the above

A 32 year old woman complains of three months of pain and stiffness in both hands, wrists, elbows and feet. She notes that it is difficult for her to get out of bed in the morning because of stiffness. She has difficulty opening jars and picking up small objects. She denies fever, rash or chest pain.

On exam her PIPs, MCPs and wrists are swollen and tender bilaterally. There are firm bumps over both elbows. Laboratory testing reveals: hemoglobin 10.6, creatinine 0.8, ESR 42, rheumatoid factor 1:80, ANA – negative.

35. Which ONE of the following extra-articular findings are LEAST LIKELY to result in this patient?

a. ocular inflammation
b. interstitial lung disease
c. glomerular nephritis
d. carpal tunnel syndrome
e. neutropenia and splenomegaly

36. When considering the pathogenesis of the joint disease in this patient, which ONE of the following statements is TRUE?

a. a common amino acid sequence is present in the Class I major histocompatibility complex in many patients with this arthritis
b. the synovial tissue is infiltrated by polymorphonuclear leukocytes
c. The antigen that initiates this form of arthritis is well characterized
d. TH1 cells, a class of T helper cells, produce proinflammatory cytokines including IL-2, INF gamma, and TNF alpha
e. the T cell receptor recognizes antigen independent of the major histocompatibility complex

37. Many of the systemic inflammatory features of this disease can be attributed to the action of TNF alpha and IL-1. These cytokines are responsible for all of the following EXCEPT:

a. activate the complement cascade on the cell surface
b. stimulation of macrophages to release other proinflammatory cytokines and chemokines
c. cause endothelial cells to express adhesion molecules and vascular endothelial growth factors
d. cause hepatocytes to produce C reactive protein
e. stimulate type B synovial cells to produce matrix metalloproteinases
38. A 56 year old woman complains of pain in her hands, right hip and right knee. She reports hard painful bumps over her DIP joints in both hands. These bumps were painful initially but now just limit her ability to close a fist. Her hip and knee hurt when she walks and feels stiff for a few minutes when she wakes up in the morning and after sitting in the car for a long trip. Which ONE of the following statements is INCORRECT about her arthritis?

✓ a. she suffers from the most common form of arthritis  
b. it is likely that her mother had similar bumps on her fingers  
c. in addition to her peripheral joints, she needs to be evaluated for subluxation of her cervical spine  
✓ d. the arthritis in her hip and knee may have been precipitated by a prior injury  
✓ e. her knee is likely to have a non-inflammatory joint effusion

39. The pathogenesis of her arthritis involves all of the following EXCEPT:

✓ a. the subchondral bone becomes sclerotic and may develop cystic changes  
✓ b. the cartilage surface becomes fibrillated and soft  
✓ c. the chondrocytes are stimulated to produce more proteoglycan and collagen  
✓ d. matrix metalloproteinases are upregulated and there is a decrease in the natural inhibitors of these proteinases, TIMPs  
✓ e. osteoclasts become activated and cause erosion of subchondral bone - use as a pharmacology question

40. A 49 year old man with a 10 year history of rheumatoid arthritis complains of persistent joint pain and swelling. He has 3 hours of morning stiffness and 18 painful and swollen joints. He is taking methotrexate, prednisone, and a COX-2 inhibitor. You decide that it's time to add a biologic agent to his treatment plan. Which ONE of the following therapies is NOT APPROPRIATE for this patient given your understanding of the pathogenesis of rheumatoid arthritis?

✓ a. receptor antagonists to IL-1  
✓ b. monoclonal antibodies to TNF alpha  
✓ c. recombinant Interleukin-10 and Interleukin-4  
✓ d. rheumatoid factor receptor antagonists  
✓ e. recombinant soluble TNF alpha receptor

41. A 48 year old man presents with a swollen left knee. His medial meniscus was removed 25 years ago following a high school football injury. The knee is now cool with a moderate amount of fluid in it. His other peripheral joints are normal. The following features are characteristic of this joint effusion EXCEPT:

a. the fluid is an ultrafiltrate of plasma  
b. the fluid contains hyaluronic acid, albumin, lubrican and metabolites of synovial cells  
c. the fluid has a WBC – 50,000, with 75% neutrophils  
✓ d. the fluid is clear and viscous  
e. the character of the fluid can not differentiate osteoarthritis from osteonecrosis
42. The following features about cyclooxygenase (COX)-1, and COX-2 are true EXCEPT:

a. both enzymes convert arachidonic acid to prostaglandins
b. COX-1 prevents platelet aggregation

c. COX-2 has a "side pocket" that is important in binding COX-2 specific inhibitors
d. COX-2 is upregulated by proinflammatory cytokines such as TNF alpha
e. COX-1 is important in regulating gastric blood flow, gastric mucous and bicarbonate secretion

43. A 72 year old woman presents with pain and swelling of her right wrist for the past week. She has a low grade fever and is having difficulty using her right hand. An x-ray reveals calcification of the triangular cartilage in the wrist. Arthrocentesis of the joint demonstrates positively birefringent rhomboid shaped crystals. You should screen her for which of the following medical conditions EXCEPT:

a. hypothyroidism
b. hyperparathyroidism
c. hemochromatosis
d. hypercalcemia
e. hypercholesterolemia

44. A twenty year old college student complains of fatigue, joint aches and a rash. She has had problems with her hands becoming white and painful in the cold. You send her for some bloodwork and her ANA is strongly positive. Regarding the immune system abnormalities that might contribute to her disease, all of the following are true EXCEPT:

a. inflammation is a pathologic hallmark
b. you would not expect to find immune complex deposition in affected organ systems
c. B cells contribute to immune system dysregulation
d. T cells contribute to immune system dysregulation
e. vasculitis is a pathologic hallmark

45. Antibodies to double stranded DNA are negative. You conclude:

a. she does not have lupus
b. there is no need to send a urinalysis as a negative double stranded DNA rules out associated kidney disease
c. this result is likely laboratory error
d. positive antibodies to Smith antigen would not be expected
e. this result may change in the future; a positive test might be associated with kidney disease
46. On physical exam, she exhibits an ulceration of her hard palate, swelling in the joints of her hands, a systolic heart murmur, and an erythematous rash across her cheeks and chest. All of the following might be expected EXCEPT:

a. a reduced likelihood of becoming pregnant  
b. a positive lupus band test  
c. a skin biopsy with IgG and complement deposition at the dermo-epidermal junction  
d. mitral valve vegetations consisting of immune complexes, inflammatory cells, and necrotic debris  
e. below-normal serum complement levels

47. You counsel her regarding several things she can do to help minimize disease triggers. You recommend all of the following EXCEPT:

a. avoiding sun exposure  
b. using estrogen-containing oral contraceptives for birth control  
c. minimizing stress if possible  
d. using sunblock which blocks both UVA and UVB rays  
e. contacting her physician prior to initiating any new medications

48. The following characteristics of articular cartilage are true EXCEPT:

a. on a weight basis, collagen is the largest component of articular cartilage  
b. early in the course of osteoarthritis, chondrocytes respond by increasing the amount of collagen and proteoglycan they produce  
c. hyaline cartilage is avascular, has no nerve supply and no lymphatic drainage  
d. proteoglycans and water provide elasticity and resiliency to cartilage  
e. type 2 collagen fibers are oriented to resist tensile stress and absorb joint loading

49. A 52 year old man presents to the emergency department with an acutely painful, swollen and red foot. He is unable to put on his shoe and has difficulty walking because of severe pain. He describes several similar episodes of arthritis in the past involving both feet and one ankle. All of the following risk factors may contribute to the development of his arthritis EXCEPT:

a. alcohol consumption  
b. rheumatoid arthritis  
c. lactic acidosis  
d. renal impairment  
e. hemolytic disorders

50. Appropriate treatment options for this patient while he is present in the emergency room include all of the following EXCEPT:

a. indomethacin  
b. colchicine  
c. Allopurinol  
d. oral prednisone  
e. intra-articular corticosteroids
51. All of the following factors are important in the triggering of a gout attack EXCEPT:

- a. low pH
- b. low temperature
- c. exposure to cyclosporine
- d. dietary purine consumption
- e. apolipoprotein E

52. A 20 year pre-med basketball player complains of knee pain, swelling and giving way after an injury to her knee. Her examination is consistent with a lateral meniscus tear (knee, tender lateral joint line and a positive McMurray sign.)
You advise the patient that:

- a. meniscal and articular cartilage injuries have no potential for healing.
- b. meniscal and articular cartilage injuries heal with predominantly type II collagen.
- c. meniscal cartilage efficiently dissipates load bearing stress and shock absorption of articular cartilage but is unimportant for joint stability.
- d. meniscal cartilage has the potential for healing with peripheral tears.
- e. the preferred treatment is arthroscopic surgery with removal of her entire meniscus (total meniscectomy) in order to prevent re-injury and further surgeries.

53. Her risk for development of osteoarthritis is increased with all of the following EXCEPT:

- a. weight gain
- b. joint malalignment
- c. increased age
- d. muscle atrophy
- e. osteoporosis

54. Articular cartilage response to injury with superficial laceration that does not cross the tide mark is characterized by all of the following EXCEPT:

- a. loss of proteoglycan
- b. increased permeability
- c. fibrin clot formation
- d. no healing of defect
- e. progressive injury (fraying and cleft formation)

55. Which of the following features of ligament tissue accounts for the toe region in a stress-strain curve?

- a. the crimp pattern
- b. the tissue viscoelastic properties
- c. tensile strength
- d. ultimate failure strength
- e. biochemical bonding
56. Which of the following is NOT true of tendons?
   a. attach muscles to bone
   b. provide dynamic joint stability
   c. heal by direct formation of new tendon tissue
   d. degenerate with aging
   e. tears are always treated with surgery

57. A shoulder dislocation would be classified as which of the following types of sprain?
   a. grade 3
   b. grade 2
   c. grade 1
   d. none of the above

58. Which of the following is true of the anterior cruciate ligament?
   a. it is an extra-articular structure
   b. it has an indirect insertion into bone
   c. it heals after a complete tear
   d. it is a primary stabilizer of the knee joint
   e. primary repair of a tear is usually successful

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Pharmacology Test Questions for Supporting Structures Exam on May 11th, 2004

Total Score = 100 Points. Each question counts the same: 25 Questions: 4 Points Each.

Choose the single most appropriate answer:

59. All of the following are effects of NSAIDs, EXCEPT:
   A. Fever reduction.
   B. Prolongation of gestation
   C. Relief of dysmenorrhea
   D. Increase in renal blood flow
   E. Facilitation of closure of the ductus arteriosus.
60. Which enzyme in platelets is inhibited irreversibly by aspirin?

A. Phospholipase A2
B. Cyclooxygenase-1 (COX-1)
C. Cyclooxygenase-2 (COX-2)
D. Prostacyclin synthetase
E. Thromboxane synthetase

61. The most common toxicity associated with the use of aspirin relates to:

A. The gastrointestinal tract.
B. The respiratory tract.
C. Liver function.
D. Acid-base imbalances.
E. The central nervous system.

62. Hypersensitivity to aspirin or NSAIDs is generally due to:

A. Antigen-specific IgE actions
B. An immune-complex reaction
C. Inhibition of bradykinin metabolism
D. Shunting of arachidonic acid to leukotriene formation
E. Direct stimulation of mast cell degranulation

63. Which drug is not effective as an antiinflammatory agent?

A. Aspirin
B. Colchicine
C. Acetaminophen (Tylenol)
D. Ibuprofen (Motrin)
E. Sulindac (Clinoril)

64. All of the following statements about DMARDs are correct, EXCEPT:

A. The most common toxicity is bone marrow suppression.
B. They should be the drugs of first choice after initial diagnosis of RA.
C. They generally require weeks to months before clinical benefit is observed
D. They should not be used in conjunction with glucocorticoids
E. They can halt progression / induce remission in RA.
65. Which of the following DMARDs is associated with retinal toxicity or macular damage?

A. Hydroxychloroquine  
B. Methotrexate  
C. D-Penicillamine  
D. Gold salts  
E. Azathioprine

66. Which of the following drugs works by binding to and preventing TNFα from producing its joint destructive actions?

A. Entercept  
B. Infliximab  
C. Leflunomide  
D. A & B  
E. A, B and C

67. Which of the COX-2 inhibitors are contraindicated in patients with hypersensitivity to sulfa drugs?

A. Rofecoxib  
B. Celecoxib  
C. Valdecoxib  
D. A and B  
E. B and C

68. Traditional or first generation antihistamines may block additional receptors leading to either secondary therapeutic benefit or unwanted side effects. Which of the following is *not likely* to be a target of antihistamines?

A. Dopamine receptors  
B. IL-1 receptors  
C. Serotonin receptors  
D. Cholinergic receptors

69. Which of the following antihistamines is *least likely* to produce sedation?

A. Azatadine  
B. Diphenhydramine  
C. Loratadine  
D. Promethazine
70. Side effects associated with long term systemic glucocorticoid therapy include all of the following *EXCEPT*:

A. Osteoporosis  
B. Cataracts  
C. Behavioral changes  
D. Hypertension  
E. Hypoglycemia

71. Carbidopa is generally used along with L-dopa to:

A. Increase conversion of L-dopa to dopamine in the CNS  
B. Enhance oral absorption of L-dopa from the intestinal mucosa  
C. Increase levels of dopamine in the periphery  
D. Enhance the amount of L-dopa available to cross the blood-brain barrier

72. Although L-dopa is a very effective anti-Parkinsonian drug, it is often not used as the first therapeutic treatment because:

A. High doses are needed for absorption into the CNS  
B. The development of hallucinations, confusion and the on/off syndrome represent significant hazards  
C. Dopamine receptor antagonists have a longer duration of action and thus produce a more constant level of relief of symptoms  
D. It cannot cure Parkinson’s disease  
E. It reduces the effectiveness of MAO inhibitors and muscarinic antagonists

73. In the treatment of Parkinson’s disease, administration of L-dopa along with which other agent can produce a life-threatening hypertensive crisis?

A. A peripheral decarboxylase inhibitor  
B. Ropinirole  
C. Benztropine  
D. Amantadine  
E. An inhibitor of both MAO A and B
74. Which of the following compounds can produce mild improvement for patients with Alzheimer's disease?

A. Amphetamine
B. Lecithin
C. Donepezil (Aricept)
D. Benztropine (Cogentin)
E. All of the above

75. All of the following classes of drugs can be used to ameliorate the symptoms of Parkinson's disease EXCEPT:

A. Acetylcholinesterase inhibitors
B. Dopamine receptor agonists
C. Dopamine precursors
D. Muscarinic receptor antagonists
E. MAO inhibitors

76. Indicate which of the following drug: description matchups are CORRECT?

A. Entacapone: COMT inhibitor
B. Memantine: NMDA receptor antagonist
C. Trihexyphenidyl: Dopamine receptor antagonist
D. A and B
E. B and C

77. For psoriasis involving less than 15% of the body surface the first choice for therapy is:

A. A topical retinoid
B. A topical glucocorticoid
C. Methotrexate
D. Photochemotherapy
E. A systemic glucocorticoid

78. All of the following factors increase the percutaneous absorption of drugs EXCEPT:

A. Increased temperature
B. Occlusion
C. Sunlight
D. Increased hydration
E. Being a preterm infant
79. All of the following factors are true regarding the properties of vehicles used for the topical delivery of drugs *EXCEPT*:

A. Can increase drug metabolism
B. Are classified as either monophasic, biphasic or triphasic
C. Can have beneficial effects
D. Can influence the rate of drug absorption
E. Can be a grease, powder or liquid

80. Which of the following statements is *NOT* true?

A. Topical delivery of drugs typically has less side effects compared to systemic delivery
B. Oral retinoids are potent teratogens
C. Generic and brand name topical medications are equivalent
D. Most side effects of glucocorticoids are dose dependent
E. Oral glucocorticoids are used for severe dermatological illnesses

81. All of the following influence the rate of absorption of topical drugs *EXCEPT*:

A. Thickness of the stratum corneum
B. The partition coefficient of the drug
C. The concentration of the drug in the vehicle
D. The diffusion coefficient of the drug
E. The thickness of the cream applied

82. All of the following are potential toxic side effects of a high potency topical steroid *EXCEPT*:

A. Purpura
B. Hepatic malfunction
C. Overgrowth of fungus and bacteria
D. Hypopigmentation
E. Skin atrophy

83. Indicate which of the following prescription writing practices would be considered *INCORRECT*:

A. Telephoning in a prescription after reviewing a patient’s chart
B. Signing a blank prescription form
C. Writing a prescription in pencil
D. A and B
E. B and C
84. All of the following have been implicated as risk factors for squamous cell carcinoma of the cervix except: (3 points)

- A. Initial coitus at early age
- B. HPV 6, 8, 10
- C. Male partner with multiple sex partners
- D. Multiple sex partners
- E. Cigarette smoking

The large “horsehead”-shaped nucleus demonstrated in the section to the left appeared near the superficial layer of a cervical biopsy taken from the transformation zone of a 22 year old woman with a history of multiple sex partners.

Probably true (A) or probably false (B) (1 point each)

85. This nucleus contains abundant HPV DNA

86. Finding of this cell confirms the diagnosis of HGSIL (high grade squamous intraepithelial lesion), CIN III, or carcinoma-in-situ

87. This cell predisposes to adenocarcinoma
Fill in the blank (1 point)

88. This pathognomonic cell is called a **kaiocyte**

Pap smears (A and B) from the cervix and a cervical biopsy are depicted below.

![Smear A and B](image)

**Cervical Biopsy**
89. Which Pap smear, (A) or (B), is most likely to be from the same patient as the biopsy? (2 points)

Fill in the blank or blanks

90. The diagnosis you would render regarding the biopsy is (1 point)

   cervical carcinoma in situ - CIN III

This is an x-ray of a neonate who died at 1 day of age. There are multiple fractures in the ribs, femora, humeri, and elsewhere.

91. The infant probably died as the result of pulmonary hypoplasia

92. The disorder is the result of defective genes for type 2 collagen and elastin

Fill in the blanks (1 point)

93. The disorder is called osteogenesis imperfecta
94. All of the following may be associated with osteomyelitis except: (3 points)

- A. Sequestra
- B. Subperiosteal abscesses
- C. Codman Triangle
- D. S. aureus
- E. Brodie abscess

Below are a gross specimen and microscopic section from the upper tibia of a 15 year old boy who complained of pain and an enlarging mass in that region.

95. All of the following are true about this lesion except: (3 points) Choose the one best answer.

a. This patient’s presentation is not unusual.

b. This tumor produces bone matrix and that fact is illustrated in the section above.

c. A plot of the age distribution of this tumor shows a bell-shaped curve with peak at age 20

d. Mutations in the Rb gene or p53 gene are sometimes involved in the development of this tumor.

e. This tumor may occur secondarily in Paget disease.
Match the features A-E with the bone disease or lesion in each numbered question. Use the one best answer for each and use all 5 letters. (1 point each)

A. Enlarged costochondral junctions forming a “rosary”
B. Hyperparathyroidism
C. Inactive, postmenopausal woman
D. Decreased mineralization of mature skeleton due to lack of vitamin D
E. Sickle cell disease

96. Osteitis fibrosa cystica or brown tumor of bone

97. Osteomalacia

98. Spinal compression fracture

99. Avascular necrosis

100. Rickets

Match the lettered term with the feature in the numbered questions. (1 point each)

A. Acanthosis
B. Acantholysis
C. Lichenification
D. Parakeratosis

101. Thickened and rough skin with prominent skin markings

102. Retention of nuclei in the stratum corneum

103. Loss of intercellular connections

104. Epidermal hyperplasia
105. This biopsy is from a case of acute contact dermatitis. All of the following are true except: (3 points)

✓ A. Spongiosis is present
✓ B. It is difficult to see at this magnification but lymphocytes are probably entering the epidermis (exocytosis)
✓ C. A vesicle is present

D. Contact dermatitis can be differentiated from urticaria by the absence of eosinophils
✓ E. This entity can be due to either allergens or irritants

106. Which of the following statements is true. (3 points)

A. The depicted skin lesion is a nevus, perhaps dysplastic, but not a malignant melanoma.
B. Congenital nevi, even if large, cannot progress to malignant melanoma.
C. In reference to dysplastic nevi, the term dysplastic refers to gross appearance. There is no cellular atypia.
✓ D. The prognosis in malignant melanoma is related to depth of invasion into the skin layers.
✓ E. Prognosis is more closely related to radial growth of a melanoma than to depth of invasion.
107. Cutaneous horns are commonly seen in basal cell carcinoma

108. Actinic keratoses are precursor lesions of squamous cell carcinoma

109. Verruca vulgaris is usually caused by herpes simplex virus

110. Seborrheic keratoses are precursor lesions of basal cell carcinoma

111. Acanthosis, hyperkeratosis, and parakeratosis are features of psoriasis

112. In normal skin, there are no nuclei in the stratum corneum

113. A lentigo features linear melanocytic hyperplasia which results in a hyperpigmented basal layer

114. An ephelid (freckle) is characterized by increased production of melanin by melanocytes and spread of melanin to keratinocytes
115. This endometrial biopsy is most consistent with which one of the following: (3 points)
A. Endometrial carcinoma
B. Anovulatory endometrium
C. Secretory endometrium on days 16-17
D. Menstrual endometrium
E. Atypical endometrial hyperplasia

116. All of the following are associated with an increased incidence of endometrial carcinoma except: (3 points)
A. Obesity
B. Hypertension
C. Unopposed estrogen
D. Multiparity
E. Age 55-65 years

Fill in the blanks (1 point each)

117. A leiomyoma ("fibroid") microscopically consists of whorled bundles of _spindle_ cells. (2 or 3 words will do) 

118. A predominantly solid or entirely undifferentiated adenocarcinoma of the endometrium is grade 3.

119. Histologically, the distinction of leiomyomas from leiomyosarcomas is based on the degree or number of _nuclear atypia_ (name any one of three recognized distinctions)

120. When there is abnormal uterine bleeding in the presence of a functional disturbance with no organic lesion of the uterus (e.g. in polycystic ovary syndrome), it is referred to as _dysfunctional uterine bleeding_.
