A & P 1 –Unit 2 Review & Practice Questions

Mary Stangler Center for Academic Success

This review is meant to highlight basic concepts from unit 2. It does not cover all concepts presented by your instructor. Refer back to your notes, unit objectives, labs, handouts, etc. to further prepare for your exam.

1. Skin: Structures and Functions – Describe the functions of skin and the tissue type and location of each layer:
   a. Functions:

   b. Epidermis:

   c. Dermis:

   d. Hypodermis:

2. Epidermis: Cell Layers – describe the structure and function of each layer of the epidermis, include cell types present:
   a. Stratum Corneum :

   b. Stratum Lucidum :

   c. Stratum Granulosum :

   d. Stratum Spinosum:

   e. Stratum Basale (Stratum Germinativum):

3. Dermis: Tissue Layers – describe the structure and function of each layer of the dermis, include special features or tissue types:
   a. Fibroblasts:

   b. Elastin:

   c. Collagen:

   d. Papillary Layer :

   e. Reticular Layer:

4. Dermis: Glands– describe the structure and function of each type of gland in the dermis:
   a. Sebaceous gland:

   b. Sweat glands:

      i. Merocrine gland:

      ii. Apocrine gland :

      iii. Ceruminous gland :

iv. Mammary gland:

5. Describe functions and location of the accessory structures of the skin:
   a. Blood capillaries:

   b. Nerve endings:

   c. Lamellar (Pacinian) corpuscles:

   d. Tactile corpuscles:

6. Describe the structures and functions of the hypodermis:

7. Compare and contrast hard keratin and soft keratin as to their locations and functions:

8. Describe the various pigments affecting skin color and explain dark skin versus light skin:
   a. Melanin:

   b. Eumelanin:

   c. Pheomelanin:

   d. Carotene:

9. Describe the structures of the hair:
   a. Hair follicle:

   b. Hair bulb:

   c. Hair shaft:

   d. Hair receptors:

   e. Arrector pili:

   f. Cuticle:

   g. Cortex:

   h. Medulla:

10. Describe what accounts for different hair texture and color:
    a. Straight:

    b. Wavy:

    c. Curly:

    d. Black/Brown:

e. Red:

f. Blond:

g. Gray/white:

11. Hair Types and Functions - briefly describe the type of hair and where found:
    a. Lanugo:

    b. Vellus :

    c. Terminal :

    d. Describe some of the functions of hair:

12. Describe the 3 phases of the hair cycle:
    a. Anagen:

    b. Catagen:

    c. Telogen:

13. Nail Structure - answer the following questions and identify the parts of the nail:
    a. What are nails are made up of?

    b. _____ – hard part of nail

    c. _____ – skin underlying nail plate

    d. _____ – growth zone of stratum basale, at proximal end of nail

    e. _____– white crescent at proximal end of nail

    f. _____ (Cuticle) – narrow zone of dead skin over base of nail

    g. _____– epidermis at distal portion of nail bed

14. Inflammation – Describe why the 4 cardinal signs of inflammation occur, include the inflammatory mediators that cause these effects:
    a. Redness:

    b. Heat :

    c. Swelling:

    d. Pain:

15. Healing of Skin Cuts - explain what happens following a cut

a. Immediately After Injury: the area bleeds, eventually a _____will temporarily fill the hole; a scab protects the injury site, _____ (WBC's) clean up cellular debris.

b. Tissue Regeneration: Production of same type of functional tissue, _____ cells from epidermis migrate to cover the edge of a wound, these cells divide to push out blood clot and scab.

c. Tissue Replacement (Fibrosis): Production of nonfunctional connective tissue, _____ (type of cells in dermis produce fibrous tissue) produce a scar, sutures draw the edges of the stratum _____ together.

16. Describe the 3 degrees of burns, include when a skin graft might be used:

17. Describe how the rule of 9's is used to determine the percentage of surface area burned:

18. Describe the following conditions of the integument:
    a. Decubitus ulcers:

    b. Skin cancer (3 types):

    c. Rashes:

    d. Eczema:

    e. Psoriasis:

    f. Acne:

    g. Impetigo:

    h. Cellulitis:

    i. Tinea infections:

    j. Herpes Viruses:

    k. HPV:

19. Bones: List the functions of skeletal system:

20. Long bones: describe the following structures of long bones including location:
    a. Diaphysis

    b. Epiphyses

    c. Epiphyseal (Growth) Plate:

d. Epiphyseal Line:

e. Compact (Dense) Bone:

f. Spongy (Cancellous) Bone:

g. Marrow (Medullary) Cavity:

h. Red Bone Marrow:

i. Yellow Bone Marrow:

j. Periosteum:

k. Endosteum:

l. Nutrient Foramina:

m. Articular Cartilage:

n. Spongy (Cancellous) Bone:

o. Trabeculae:

21. Compare and contrast red bone marrow and yellow bone marrow with regard to location and function.

22. Describe the anatomy of a flat bone:

23. Bone cells: fill in the blanks to identify the type of bone cell:
    a. _____ - Stem cells in periosteum and endosteum, produce new osteoblasts

    b. _____ - Mature bone cells trapped in bone tissue, maintain bone in matrix

    c. _____**-** Bone-dissolving cells under periosteum and endosteum, secrete HCl (acid) and acid phosphatases

    d. _____ - Bone-forming cells in periosteum and endosteum, secrete collagen protein fibers for deposit of Ca^{2+}

24. Bone matrix: list the 2 major components of bone matrix and where each comes from:

25. Osteons: fill in the blanks to identify the parts of an osteon, describe the arrangement of these parts:
    a. **_____**– connect lacunae

    b. **_____ -** houses blood vessels, nerves

    c. **_____** – bone matrix around circumference

d. _____ – bone matrix which makes up osteons

e. _____ – house osteocytes

f. _____ – bone cell

g. _____ – connects central canals

h. Describe how the arrangement of collagen fibers within the lamellae allow compact bone to resist twisting and stress:

26. Bone growth and development: Endochondral Ossification :
    a. What type of tissue does endochondral ossification occur in?

    b. Briefly describe what is happening in each ossification center, and where each is located:

        i. Primary Ossification Center :

        ii. Secondary Ossification Center :

    c. Why does this process end in the early 20's?

27. Bone growth and development: Intramembranous Ossification:
    a. What type of tissue does intramembranous ossification occur in?

    b. What is a fontanel?

28. Bone growth and development: Appositional remodeling:
    a. What is appositional remodeling?

    b. What cells have a role in it?

29. Explain the following terms of calcium homeostasis;
    a. Absorption:

    b. Deposition:

    c. Resorption:

30. Calcium Homeostasis – give the organ each hormone is secreted from, the target tissue, and function of each hormone:
    a. Calcitriol :

    b. Calcitonin, Estrogen, Testosterone:

    c. Parathyroid Hormone (PTH)

31. Bone Fractures: fill in the blank to identify the type of bone fracture;
    a. _____ – fracture of distal end of radius and ulna (break fall with hand)

b. _____– bone broken into three or more pieces (shattered)

c. _____ - (Open) – skin broken, bone protrudes through skin

d. _____ – vertebral bones broken, due to trauma

e. _____ – broken portion of bone concave (as in skull fractures)

f. _____ – break at epiphyseal growth plate of child

g. _____ – one side of bone incompletely broken, other side bent

h. _____– fracture at distal end of tibia, fibula, or both (common in sports)

i. _____ - (Closed) – skin not broken

j. _____ – fracture spirals along long axis of bone

32. Healing of Bone Fractures- list 4 steps of bone healing:
    a. 1.
    b. 2.
    c. 3.
    d. 4.

33. Bone fracture treatment: Fill in the blank to identify methods of treating fractures:
    a. _____ - Used to treat femur fractures in children
    b. _____ - Bone fragments surgically repaired with plates, screws, and pins to realign fragments
    c. _____ - Bone fragments manipulated back into normal positions, without surgery
    d. _____ - Immobilizes broken bone

34. Why does an epiphyseal fracture not heal well?

35. Bone tissue disorders: Fill in the blank to identify the disorder:
    a. _____ - Severe loss of bone Ca^{2+} and density, lack of dietary calcium and/or calcitriol (vitamin D), softening and severe weakening of bones, not caused by aging
    b. _____ - Genetic disorder in which bones do not grow properly throughout life, lack of growth hormone, normal proportions but small stature
    c. _____- Severe loss of bone Ca^{2+} and density, lack of dietary Ca^{2+}, decreased estrogen/testosterone due to aging

d. _____ -Bacterial or fungal infection of bone, Common with open fractures

e. _____– softening of bones, possibly during pregnancy due to lack of Calcium in diet

f. _____ - Genetic disorder in which bones are brittle, inflexible, and break very easily, lack of collagen protein fibers in bone

g. _____ - Genetic disorder in which long bones stop growing in childhood, normal torso, short limbs

36. Types of Bones: Define the 6 types and give an example of each:
    a. Long Bones:
    b. Short Bones:
    c. Flat Bones:
    d. Irregular Bones:
    e. Sesamoid Bones:
    f. Sutural Bone:
37. Give examples of the bones that make up the axial skeleton and appendicular skeleton:
38. USE YOUR NOTES and TERMS LIST TO STUDY THE BONES, THEIR SURFACE FEATURES, AND ANY SPECIAL FUNCTIONS EACH MAY HAVE.
39. Skeletal system disorders: Fill in the blank to identify the disorder:
    a. _____ - Hunchback – exaggerated thoracic curvature, Caused by osteoporosis
    b. _____ - Swayback – exaggerated lumbar curvature, Caused by pregnancy or obesity
    c. _____ - Lateral curvature – usually in thoracic region, body and arch fail to develop properly on one side of vertebrae; Common in adolescent girls
    d. Spinal Disc Disorders
        i. _____ – padding wearing down
        ii. _____ – bone spur
        iii. _____ – severely protruding against spinal column, as contents of disc bulge or break open
        iv. _____ – breaking down

v. _____ – protruding against spinal column

40. Joint Tissues: fill in the blank to identify the tissues found at joints:
    a. _____ - Scattered cells; densely packed protein fibers running in same direction; not much ground substance; Tendons and ligaments
    b. _____ - Cells (chondrocytes) and large bundles of collagen fibers running in parallel rows, Intervertebral discs; pubic symphysis
    c. _____ - Cells (chondrocytes) in lacunae (spaces) in glassy-looking matrix (fibers not visible); articular cartilage at joints; costal cartilage of ribs; rings around trachea and bronchi; larynx; fetal skeleton; growth plates of long bones
41. Describe the 4 major classes of joints:
    a. Bony joints –
    b. Fibrous joints –
    c. Cartilaginous joint –
    d. Synovial joint –
42. Describe and give an example of each of the following fibrous joints;
    a. Sutures:
    b. Gomphoses:
    c. Syndesmoses:
43. Describe and give an example of each of the following cartilaginous joints:
    a. Synchondroses:
    b. Symphyses:
44. Describe the structures of a synovial joint:
    a. Joint Capsule –
    b. Fibrous Capsule –
    c. Synovial Membrane –
    d. Joint Cavity –
    e. Synovial Fluid –
    f. Articular Cartilage –

45. Synovial Joints Accessories– define the following:
    a. Ligament – attaches _____
    b. Tendon – attaches _____
    c. Bursa – _____filled with synovial fluid
    d. Articular Disc – _____between bones
    e. Meniscus (pl. Menisci) – fibrocartilage pads at knee joint
46. Types of Synovial Joints – Describe the 6 types of joints and give an example of each:
    a. Gliding (plane) joint:
    b. Hinge joint:
    c. Pivot joint:
    d. Ellipsoid (condyloid) joint:
    e. Saddle joint:
    f. Ball and socket joint:
47. USE YOUR NOTES and TERMS LIST TO STUDY THE STRUCTURES OF THE KNEE.
48. Why is exercise important for the maintenance of articular cartilage?
49. Joint disorders: Fill in the blank to identify the disorder:
    a. _____ - Autoimmune attack – antibodies attack synovial membrane and cause inflammation, Enzymes degrade articular cartilage, Connective tissue fills joint capsule
    b. _____ Wear-and-tear – articular cartilage wears away with age, Exposed bone tissue develops spurs
    c. _____ -Tearing of ligament fibers or meniscus pads, Heal slowly – no blood vessels