Membranes / Integument

Work Problems: Answer the following questions:

1. The two components of the integument are the: **Cutaneous Membrane & Accessory structures**

2. The two layers of the dermis are the: **Papillary region (Layer) & the reticular region (Layer)**

3. The integument is connected to underlying tissue with a loose fatty connective tissue layer called the: **Subcutaneous or Hypodermis**

4. The exocrine glands which are directly associated with the hair follicles, functioning to oil and lubricate: the hair shaft are called: **Sebaceous Glands**

5. All accessory structures of the integument are derived from which of the four adult primary tissue types: **Epithelial Tissue**

6. What is the function of the arrector pili muscles: **To stand the hair upright by pulling the follicle**

7. The layer of the epidermis responsible for the production of all epidermal cells is the: **Stratum Germinativum or Stratum Basale**

8. The cone shaped projection of dermis into the hair bulb supplying the epidermal hair follicle with nutrient rich blood and nerve fibers: **Hair papillae**

9. The most superficial layer of the epidermis: **Stratum Corneum**

10. The cells responsible for producing skin pigmentation: **Melanocytes**

11. The gland cells which secrete a viscous, odoriferous substance: **Apocrine Glands**

12. The protein secreted by cells of the epidermis which functions to harden and make cells more water resistant is called: **Keratin**

13. The layer of integument which functions to house and support a majority of the epidermal accessory structures: **Dermis (reticular layer of dermis)**

14. The network of blood vessels within the subcutaneous which supplies the skin: **Cutaneous Plexus**

15. The keratinized (cornified) region of the hair which is exposed at the skin surface: **Shaft**

16. **Merkel** are the specialized epithelial cell and nerve fiber connections which provides areas of skin without hair and increased ability to sense light touch.

17. The superficial region of the dermis primarily composed of Areolar Connective Tissue: **Papillary Region**
18. Specialized nerve fibers surrounded by connective tissue which are located within the dermal papillae of the skin: ___Meissner’s corpuscle________________________

**Matching:**

1. Epidermis 6. Keratin responsible for protecting underlying tissue from damaging UV light
2. Subcutaneous 8. Sebaceous Gland ___b. Oil secreting gland often associated with the hair follicle
3. Meissner’s Corpuscle 4. Hair bulb ___c. Enlarged region at the base of the hair follicle; contains the actively dividing germinative cells
4. Hair bulb 7. Arrector Pili Muscle ___d. Ribbon of smooth muscle associated with the follicle; responsible for raising and standing the hair upright
5. Dermal Papillae 11. Stratum Germinativum (Basle) ___e. Deepest layer of cuboidal epithelial cells responsible for the mitotic division and production of all overlying epidermal cells
6. Keratin 9. Melanin ___f. Dark pigment secreted into the epidermal cells; responsible for protecting underlying tissue from damaging UV light
7. Arrector Pili Muscle 18. Synovial Membrane ___g. Serous Membrane which specifically lines the interior of blood vessels and the heart
8. Sebaceous Gland 5. Apocrine gland ___h. “Nipple” or cone shaped projection of dermal tissue into epidermal tissue
9. Melanin 10. Merkel Cells ___i. Specialized sensory epithelial cells. In areas of skin which lack hair
10. Merkel Cells 1. Stratified Squamous Epithelium comprising the surface of the cutaneous membrane
11. Stratum Germinativum (Basle) 14. Reticular Region ___k. The Dense irregular connective tissue region of the dermis; primarily functions to support and house the integument’s accessory structures
12. Papillary Plexus 2. The specialize connective tissue functioning to connect the integument down to underlying muscle; Hypodermis
13. Hair Follicle 17. The connective tissue specific to mucous membranes
14. Reticular Region 3. Specialized nerve fibers surrounded by connective tissue are located within the dermal papillae of the skin
15. Apocrine gland 12. The small network of blood vessels (capillaries) residing within the dermal papillae; supplying nutrients of epidermal tissue
16. Synovial Membrane 15. Primarily located in the axilla, areola of breast, & anogenital area. Secretory products are more viscous and tend to have a stronger odor
17. Lamina Propria  
13___q. Invagination of the epidermis into the dermis; Epidermal structure responsible for the production of hair

18. Endothelium  
16___r. Membranes line and enclose freely moveable joints (elbow, knee, hip).

**Complete the following:**

1. How does the skin of your forearm differ from the skin of your finger tip:

   Thickness of the epidermis: The stratum corneum is much thicker in the finger tip due to the increases physical forces and abrasion of the hands. Thus the more highly stratified epidermis provides a better physical barrier and protection than is required in the forearm.

2. Describe the difference between the basement membrane and the subcutaneous layer:

   The basement membrane is the combination of epithelial tissue secretion (Basal Lamina) and loose areolar connective tissue (Reticular lamina) immediately below the basal surface of epithelial tissue. The subcutaneous is the connective tissue (loose areolar and adipose tissue immediately below the cutaneous membrane (Below the reticular layer of the dermis).

3. Describe the functional significance of the stratum germinativum (basale):

   The stratum germinativum (Basale) is the highly mitotic regenerative cells responsible for replacing all cells of the epidermis.

4. What is the functional significance of dermal papilla and hair papilla:

   Dermal papillae bring blood vessels from the underlying connective tissue closer to the avascular epithelium. (delivery of nutrients and respiratory gases).

5. Describe the differences between the eccrine and the apocrine glands:

   Eccrine glands secrete a watery thermoregulatory (temp regulating) secretion or sweat. Apocrine glands secrete the odoriferous thicker secretion (phermones). Both are actually merocrine glands because they secrete in a merocrine fashion (the apocrine glands were misnamed).

6. What is the functional significance for the presence of meissner’s corpuscles in the finger tips?

   Meissner’s corpuscles increase the ability to perceive light touch in areas of the body without hair.

**Label the following diagrams:**
Stratum corneum

Stratum granulosum

Stratum spinosum

dermis

Dermal papilla
Meissner’s corpuscle

Epidermis

Dermis

Subcutaneous

Cutaneous Plexus

Papillary region

Reticular region

Pacinian Corpuscles

Hair shaft

Sebaceous Gland

Hair Follicle

Arrector Pili Muscle

Hair Root

Hair Bulb

Hair Papilla