1. Functions of the Skin
List five functions of the integumentary system.

1) ____________________________________________
2) ____________________________________________
3) ____________________________________________
4) ____________________________________________
5) ____________________________________________

2. Structure of the Skin
Select the structure described by each statement.

Dermis  Epidermis  Stratum basale
1) Contains abundant adipose tissue.
2) Innermost layer of the epidermis.
3) Composed of stratified squamous epithelium.
4) Contains collagen and elastic fibers.
5) Attaches skin to underlying tissues.
6) Lacks blood vessels.
7) Outermost layer of the epidermis.
8) Contains sensory receptors of the skin.
9) Forms new epidermal cells.
10) Formed of dead keratinized cells.
11) Provides insulation for the body.
12) Provides strength and elasticity of skin.
13) Inner layer of the skin.
14) Outer cells are continuously sloughed off.
15) Formed of fibrous connective tissue.

Hypodermis  Stratum corneum
Stratum corneum  Hypodermis

Epidermis  Dermis

3. Skin Color
a. Provide the term described by each statement.

1) Three pigments that determine skin color. Indicate the color of each pigment.

2) Protects against ultraviolet radiation.
3) Cells producing melanin.
4) Stimulates melanin production.
5) Ultimate determiner of skin color.

Hemoglobin, red
Carotene, yellow
Melanin, black
Melanin
Melanocytes
U-V radiation
Genes (heredity)
b. Explain why a summer tan is only temporary. **Epidermal cells with increased melanin move to the surface and are sloughed off within a few weeks.**

4. **Diagram of the Skin**

Label the diagram

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12. Arrector pili muscle
16. Blood vessels
7. Capillary
2. Dermis
14. Eccrine sweat gland
1. Epidermis
13. Hair follicle
4. Hair shaft
15. Nerve fiber
11. Sebaceous gland
8. Stratum basale
6. Stratum corneum
3. Subcutaneous layer
10. Sweat gland duct
5. Sweat gland pore
9. Touch receptor
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5. **Accessory Structures**

Provide the term that matches each statement.

1) Tubular sheath surrounding hair root. **Hair follicle**
2) Gland producing sebum. **Sebaceous**
3) Muscle raising hair more erect. **Arrector pili**
4) Gland producing perspiration. **Sweat (sudoriferous)**
5) Gland producing cerumen. **Ceruminous**
6) Sweat gland opening into hair follicle. **Apocrine**
7) Sweat gland producing watery perspiration.  
8) Protein in cells forming hair and nails.  
9) Basic function of hair and nails.  
10) Secretion containing salts and urea.  
11) Oily secretion that helps keep skin soft.  
12) Waxy secretion found in external ear canal.  
13) Normal color of nail beds.

6. Temperature Regulation

Provide the missing words in the paragraph below.
Humans have a normal body temperature of ___1___ °C, or ___2___ °F. The heat that maintains the body temperature is generated as a by-product of cellular ___3___, especially in active organs like the liver and skeletal ___4___. Overall regulation of body temperature is controlled by the ___5___, while the ___6___ serves as an important regulatory organ.

When the body temperature falls below normal, the flow of ___7___ to the skin is decreased, which reduces secretion of ___8___ by sweat glands and minimizes heat ___9___ by radiation. Shivering increases cellular respiration in muscles, which generates more ___10___.

When the body temperature rises above normal, blood flow to the skin is ___11___, which increases heat loss by ___12___ and activates ___13___ glands to produce perspiration. The ___14___ of perspiration from the surface of the skin increases ___15___ loss and cools the body surface.

7. Aging of the Skin

Indicate whether each statement is true (T) or false (F).

_T__ A baby’s skin is thinner than an adult’s.
_T__ A decrease in melanin production often occurs in the elderly.
_F___ Wrinkled skin results from an excess of active elastic fibers.
_T__ Ultraviolet radiation accelerates the aging of the skin.
_F___ Excess subcutaneous fat increases sensitivity to temperature changes.
8. Disorders of the Skin

Write the name of the disorder described by each statement.

1) Results from a chronic deficiency of circulation to a portion of skin. ____________________________________________  
   **Bedsores**  
   **Melanoma**

2) Cancer of the melanocytes. ____________________________________________  
   **Hives**  
   **Warts**  
   **Moles**  
   **Third degree**  
   **Alopecia**  
   **Calluses**

3) Numerous red, itchy bumps resulting from an allergic reaction. ____________________________________________  
   **Eczema**

4) Skin-colored tumors caused by a virus. ____________________________________________  
   **Impetigo**  
   **Psoriasis**

5) Slow-growing, pigmented tumors. ____________________________________________  
   **Dandruff**  
   **Fever blisters**  
   **Athlete's foot**  
   **Boil**  
   **Dermatitis**

6) A burn that destroys all of the dermis. ____________________________________________

7) Loss of hair as in male pattern baldness. ____________________________________________

8) Thickened areas of skin on hands and feet. ____________________________________________

9) Inflammation causing red, itching, scaling skin; may involve sebaceous glands. ____________________________________________

10) Contagious infection in which pustules rupture and form a yellow crust. ____________________________________________

11) Reddish, raised scaly patches on scalp, knees, or elbows. ____________________________________________

12) Condition caused by excessive shedding of epidermal cells of the scalp. ____________________________________________

13) Blisters on lips caused by *Herpes simplex*. ____________________________________________

14) Itching, flaking skin between toes due to a fungus infection. ____________________________________________

15) Bacterial infection of a hair follicle, sebaceous gland, and surrounding tissues. ____________________________________________

16) The general term for any inflammation of the skin. ____________________________________________

9. Clinical Applications

a. Name two major clinical problems expected in a patient with third-degree burns. ____________________________________________

   **Dehydration; Infection**

b. Subcutaneous injections of medications are frequently used. Why is the subcutaneous layer especially good for rapid absorption of medications? ____________________________________________

   **Because it contains many blood vessels.**