9. Using the key choices, choose all responses that apply to the following descriptions. Enter the appropriate letter(s) or term(s) in the answer blanks.

**Key Choices**

A. Stratum basale  
B. Stratum corneum  
C. Stratum granulosum  
D. Stratum lucidum  
E. Stratum spinosum  
F. Papillary layer  
G. Reticular layer  
H. Epidermis as a whole  
I. Dermis as a whole

**Stratum lucidum**  
1. Translucent cells, containing keratin

**Stratum corneum**  
2. Strata containing all or mostly dead cells

**Papillary layer**  
3. Dermis layer responsible for fingerprints

**Dermis**  
4. Vascular region

**Stratum basale**  
5. Epidermal region involved in rapid cell division; most inferior epidermal layer

**Stratum corneum**  
6. Scalelike cells full of keratin that constantly flake off

**Dermis**  
7. Site of elastic and collagen fibers

**Stratum basale**  
8. Site of melanin formation

**Epidermis**  
9. Major skin area from which the derivatives (hair, nails) arise

**Stratum corneum**  
10. Epidermal layer containing the oldest cells

**Dermis**  
11. When tanned becomes leather

10. Circle the term that does not belong in each of the following groupings.

1. Reticular layer  
   - Keratin  
   - Dermal papillae  
   - Meissner’s corpuscles

2. Melanin  
   - Freckle  
   - Wart  
   - Malignant melanoma

3. Prickle cells  
   - Stratum basale  
   - Stratum spinosum  
   - Cell shrinkage

4. Meissner’s corpuscles  
   - Lamellar corpuscles  
   - Merkel cells  
   - Arrector pili
11. This exercise examines the relative importance of three pigments in determining skin color. Indicate which pigment is identified by the following descriptions by inserting the appropriate answer from the key choices in the answer blanks.

**Key Choices**

<table>
<thead>
<tr>
<th>A. Carotene</th>
<th>B. Hemoglobin</th>
<th>C. Melanin</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Melanin</strong>&lt;br&gt;1. Most responsible for the skin color of dark-skinned people</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carotene</strong>&lt;br&gt;2. Provides an orange cast to the skin</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Melanin</strong>&lt;br&gt;3. Provides a natural sunscreen</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hemoglobin</strong>&lt;br&gt;4. Most responsible for the skin color of Caucasians</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Melanin</strong>&lt;br&gt;5. Phagocytized by keratinocytes</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Carotene</strong>&lt;br&gt;6. Found predominantly in the stratum corneum</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Hemoglobin</strong>&lt;br&gt;7. Found within red blood cells in the blood vessels</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

12. Complete the following statements in the blanks provided.

- heat
- subcutaneous adipose
- D
- elasticity
- oxygen
- Cyanosis

1. Radiation from the skin surface and evaporation of sweat are two ways in which the skin helps to get rid of body _**(1)**_.

2. Fat in the _**(2)**_ tissue layer beneath the dermis helps to insulate the body.

3. A vitamin that is manufactured in the skin is _**(3)**_.

4. Wrinkling of the skin is caused by loss of the _**(4)**_ of the skin.

5. A decubitus ulcer results when skin cells are deprived of _**(5)**_.

6. _**(6)**_ is a bluish cast of the skin resulting from inadequate oxygenation of the blood.

**Appendages of the Skin**

13. For each true statement, write T. For each false statement, correct the underlined word(s) and insert your correction in the answer blank.

- sweat
- keratin
- T
- shaft
- dermis

1. A saltwater solution is secreted by sebaceous glands.

2. The most abundant protein in dead epidermal structures such as hair and nails is **melanin**.

3. Sebum is an oily mixture of lipids, cholesterol, and cell fragments.

4. The externally observable part of a hair is called the **root**.

5. The **epidermis** provides mechanical strength to the skin.
14. Figure 4–3 is a diagram of a cross-sectional view of a hair in its follicle. Complete this figure by following the directions in steps 1–3.

1. Identify the two portions of the follicle wall by placing the correct name of the sheath at the end of the appropriate leader line.

2. Use different colors to color these regions.

3. Label, color-code, and color the three following regions of the hair.
   - Cortex
   - Cuticle
   - Medulla

![Figure 4-3](image)

15. Circle the term that does not belong in each of the following groupings.

1. Luxuriant hair growth  Testosterone  Poor nutrition  Good blood supply

2. Vitamin D  Cholesterol  UV radiation  Keratin

3. Stratum corneum  Nail matrix  Hair bulb  Stratum basale

4. Scent glands  Ecrine glands  Apocrine glands  Axilla

5. Terminal hair  Vellus hair  Dark, coarse hair  Eyebrow hair

16. What is the scientific term for baldness? **Alopecia**
17. Using the key choices, complete the following statements. Insert the appropriate letter(s) or term(s) in the answer blanks.

**Key Choices**

A. Arrector pili  
B. Cutaneous receptors  
C. Hair  
D. Hair follicle(s)  
E. Sebaceous glands  
F. Sweat gland (apocrine)  
G. Sweat gland (eccrine)

1. A blackhead is an accumulation of oily material produced by (1).
2. Tiny muscles attached to hair follicles that pull the hair upright during fright or cold are called (2).
3. The most numerous variety of perspiration gland is the (3).
4. A sheath formed of both epithelial and connective tissues is the (4).
5. A less numerous variety of perspiration gland is the (5). Its secretion (often milky in appearance) contains proteins and other substances that favor bacterial growth.
6. (6) is found everywhere on the body except the palms of the hands, soles of the feet, and lips, and it primarily consists of dead keratinized cells.
7. (7) are specialized nerve endings that respond to temperature and touch, for example.
8. (8) become more active at puberty.
9. Part of the heat-liberating apparatus of the body is the (9).
10. Secretin contains bacteria-killing substances.

18. Circle the term that does not belong in each of the following groupings.

1. Sebaceous gland  Hair  Arrector pili  Epidermis
2. Radiation  Absorption  Conduction  Evaporation
3. Cortex  Medulla  Cuticle  Epithelial sheath
4. Scent glands  Eccrine glands  Apocrine glands  Axilla
5. Cyanosis  Erythema  Wrinkles  Pallor