1. The 2 major components of the cutaneous membrane (skin) are the:

2. The type of cells that form the strata in the epidermis are
   A) adipocytes.
   B) keratinocytes.
   C) fibroblasts.
   D) melanocytes.
   E) dendritic cells.

3. The layer of dividing cells at the base of the epidermis is the
   A) stratum corneum.
   B) stratum lucidum.
   C) stratum germinativum.
   D) stratum granulosum.
   E) stratum spinosum.

4. The layer of the skin that contains the blood vessels and nerves that are closest to the surface of the skin is the ________ layer.
   A) papillary
   B) reticular
   C) epidermal
   D) subcutaneous
   E) hypodermal

5. Glands that discharge an oily secretion into hair follicles are ________ glands.
   A) ceruminous
   B) apocrine sweat
   C) merocrine sweat
   D) sebaceous
   E) mammary

6. An important vitamin that is formed in the skin when it is exposed to sunlight is
   A) vitamin A.
   B) vitamin B.
   C) vitamin C.
   D) vitamin D.
   E) vitamin E.
7. When the arrector pili muscles contract,  
   A) “goose bumps” are formed.  
   B) hairs are shed.  
   C) sweat is released from sweat glands.  
   D) shivering occurs.  
   E) the skin changes color.

8. The primary pigments contained in the epidermis are  
   A) carotene and xanthophyll.  
   B) carotene and melanin.  
   C) melanin and chlorophyll.  
   D) xanthophyll and melanin.  
   E) none of the above

9. A surgical incision parallel to the lines of cleavage  
   A) closes and heals with relatively little scarring.  
   B) has a tendency to reopen.  
   C) heals slower than incisions made perpendicular to the lines of cleavage.  
   D) does not affect the healing process.  
   E) requires no sutures.

10. The ________ in keratinocytes protects the epidermis and dermis from the harmful effects of sunlight.  
    A) sebum  
    B) hemoglobin  
    C) melanin  
    D) carotene  
    E) keratin

11. The most abundant mineral in the human body is ________________.

12. The humerus is an example of a ______ bone.  
    A) long  
    B) short  
    C) flat  
    D) irregular  
    E) sesamoid

13. Large, multinucleated cells that can dissolve the bony matrix are called  
    A) osteocytes.  
    B) osteoprogenitor cells.  
    C) osteoblasts.  
    D) osteoclasts.  
    E) chondrocytes.
14. The central canal of an osteon contains
   A) bone marrow.
   B) osteocytes.
   C) concentric lamellae.
   D) blood vessels.
   E) lacunae.

15. The medullary cavity of bones contains
   A) compact bone.
   B) osteons.
   C) cartilage.
   D) marrow.
   E) periosteum.

**Bonus Questions** (Note: 100% is maximum quiz score):

_______ sweat glands are widely distributed across the body surface, ________ glands are located wherever hair follicles exist, and ________ sweat glands are found only in a few areas.
   A) Sebaceous; merocrine; apocrine
   B) Apocrine; merocrine; sebaceous
   C) Merocrine; sebaceous; apocrine
   D) Merocrine; apocrine; sebaceous
   E) Apocrine; sebaceous; merocrine

When the epiphyseal plate is replaced by bone,
   A) puberty begins.
   B) interstitial bone growth begins.
   C) appositional bone growth begins.
   D) long bones have reached their adult length.
   E) the bone becomes more brittle.