Al-imra primary and secondary school

Subject: Biology **Class:**form4 **Date:**29/11/2020

CHAPTER Three

THE SKELETAL, MUSCULAR AND INTEGUMENTARY SYSTEM

Dr: zaki

Q1 CHOOSE THE CORRECT ANSWE FROM THE ANSWERS

1. Exoskeleton And endoskeleton different in that :

   a. An exoskeleton is rigid , and an endoskeleton is flexible

   b. Endoskeleton are found in the only in vertebrate s

   c. Exoskeleton are composed of calcium , and endoskeleton build from chitin

   d. Exoskeletons are external from the soft tissues and endoskeletons are internal

2. How I can osteocytes remains live within bone?

   a. Bones are composed of only dead or dormant cell

   b. Harversian canals are bone structures that contains blood vessels that provides materials for the osteocytes

   c. Osteocytes Have the membrane extension that protrude from bones and allow them to exchange materials with the surrounding fluids

   d. Bones are hallow in the middle and the law pressure there draws fluids from the blood that nourish the osteocytes

3. Where would you find the type of joints shown elbow?

   a. Hip **c. elbow**

   b. Vertebrae d. Skull



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4. Which is not function of the bones ?

a. **Production of vitamin D** c. protection of internal organs
b. Internal support d. Storage of calcium

5. What is the characteristics of the portion of the bone indicated by the arrow ?



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a. It contains no living cells
b. It contains Bone marrow
c. It the only type of bone tissue bin the long system
d. It made of overlapping osteon system

6. Which set of terms is mustached ?

a. Cranium — Sutures
b. Wrist — pivot joints
c. shoulder —ball-and socket joint
d. d. knee —Hinge joints

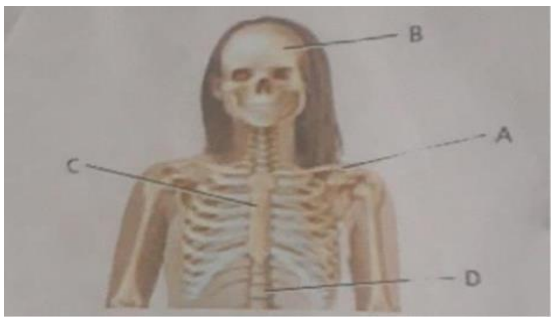
7. Which is not part of the axial skeleton ?

a. Skull **c. Hip Bones**
b. Ribs d . Vertebral column

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8. Which is the part of the appendicular skeletons ?



. A . **A** **c. C**

b. B d. D

9. The main structural protein in the extracellular matrix of the bone that is responsible for its flexibility is

a. Osteocytes c. Haversian canal

d. Osteons d **collagen**

10. Which type of bones is classified as irregular ?

a. Legg bones c. . Vertebrae

b. Skull d. wrist Bones

11. Who muscles move your hand space ?

a. By contraction
b. By attaching to two bones across a joint
c. By lengthening
d. Both a & B are correct

12. Which of the following best describes the sliding filament of mechanism of muscle contraction?

A. Actin and myosin filament do not shorten but , rather , slide past each other
B. **Actin and myosin filament shorten and slide past each other**
C. As they slide past each other , actin filament shorten , But myosin filament do not shorten

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D. As they slide past each other , myosin filament shorten , but actin filament do not shorten

13. Which requires ATP?

a. Muscle contraction
b. Muscle relaxation
c. **Both muscle contraction and relaxation**
d. Neither muscle contraction and relaxation 14.

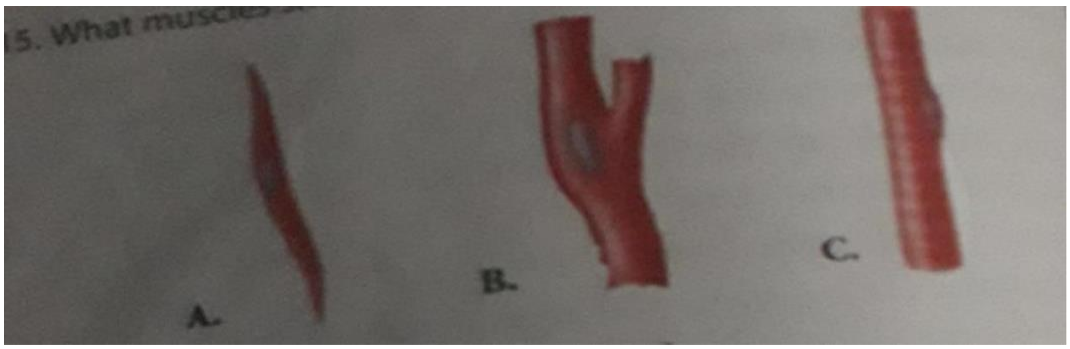
What is the characteristics of the fast-twitch muscle fiber?

a. They contain more myoglobin than slow-twitch fiber
b. They are resident to fatigue
c. **They have fewer mitochondria than slow--twitch fiber**
d. They require high amount of oxygen in order to function

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15. What muscle shown below are classified as voluntary Muscle



a. The muscle type shown In A

b. The muscle type shown In B
c. The muscle type shown In C
d. The muscle type shown In D

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16. An injection is administrated through the skin using Hypodermic needle Identify the firstintegumentary structure through which the needle will pass .

a. Reticular layer c. Papillary layer

b. **Epidermis** d. Hypodermis

17. Sebaceous Gland are located in all of the flowing area , except the :

a. **Palms and soles** c. abdominal regions

b. Scalp d. thoracic regions

18. The epidermis is composed of which of the following tissue ?

a. Stratified Columnar epithelial Tissue c. Dense irregular ConnectiveTissue

b. **Keratinized Stratified Squamous epithelial Tissue** d. Areolar Connective Tissue

19. What is the primary function of the melanin

a. To produce vitamin D c. To produce sebum

b. To waterproof of the skin **d. To provide protection** against the sun's UV rays

20. Which of the following is the most important in determining skin coloration ?

a. Collagens c . Carotene

b. **Melanin** d. Keratin

21. Which of the following is **Not** Function of the skin ?

A. **Respiratory Exchange** c. Regulation of the

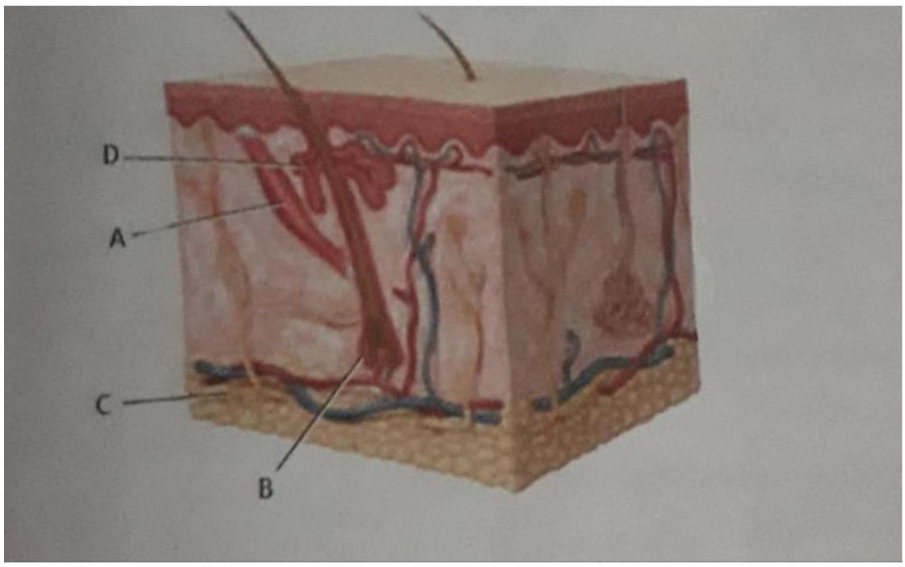
B.

b. Preventing Unnecessary water loss d.

Use the Diagram below to answer Question 7

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22. Which Tissue Type is responsible For standing the hair Upright

a. A **b. B** c. C d. D

23. When the blackheads formed ?

a. When the sebaceous Gland become clogged

A. When there is an excess of keratin produced
B. When grooves in the epidermis gather dirt
C. **When hair follicles grow inward rather than outward.**

24. How does skin regulates body temperature ?

a**. By increasing sweet production** c. By producing Vitamin D
b. By retaining water d. by regulating fat content in the epidermis 25. Which are **Not** found in the epidermis?

a. Muscle c. Nerve cell
b. Sweat and gland **d. Fat cell**

Q2 ANSWER ALL OF THE FOLLLWOING QUESTIONS

1) Define between

a. Axial and appendicular skeletons
b. Bones and cartilages
c. Exoskeleton and Endoskeleton

Answer:-

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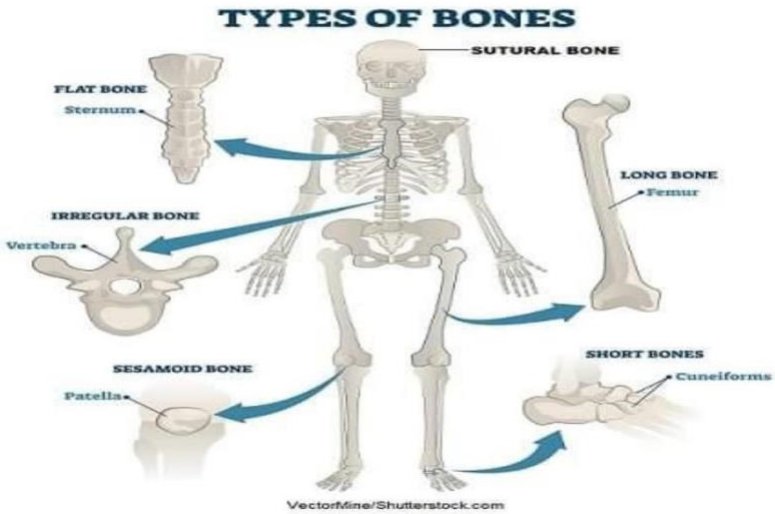
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- ✓ The **Axial skeletons :**Includes the skull , the vertebral column, the ribs and the sternum
- ✓ The appendicular skeletons includes the bones of the shoulders , arms , hands, hips ,legs and the feet.
- ✓ **Bones** are defined as connective tissue that has many shapes and sizes
- ✓ Cartilages is an elastic connective tissue that can withstand constrict pressure and friction .
- ✓ **Exoskeleton** : is a rigid , had case that surrounding the body . it found insects , lobsters and snails
- ✓ **Endoskeletons** : is a rigid internal skeletons that forms the body's framework and often the surface for muscle attachment . it is found in vertebrate Animals

2) Describe the shapes of the major bones and bone formation ?

Answers:-

Bones are classified as:- long , short , irregular , flat and seamed

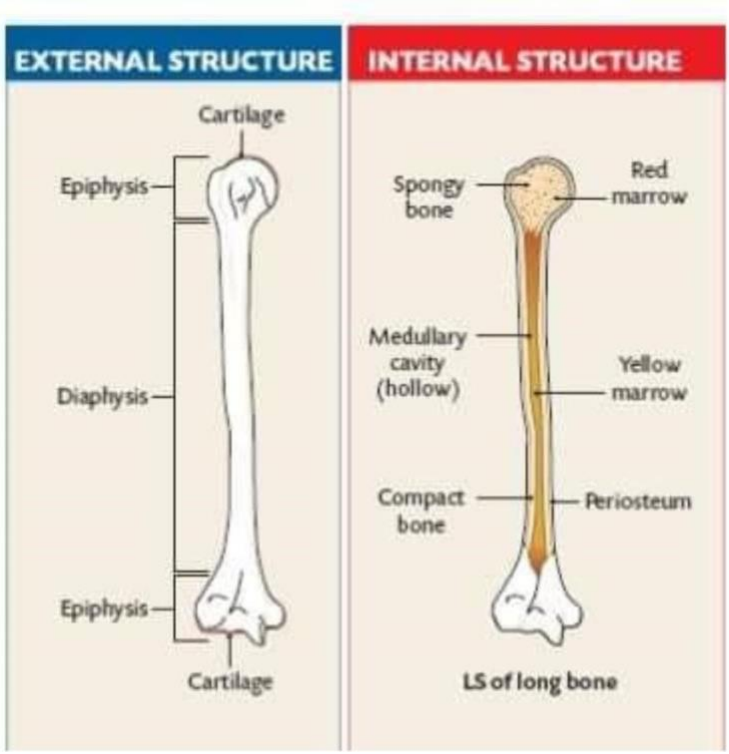


While the bone formation is the formation of bones from osteoblasts is called ossification

3) Draw a labeled the diagram of the structure of long bone

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4) Identify the types of joints with respect to form and function?

Answers : there are three major kinds of joints are found in the human body .it includes the Fixed ,

- ✓ Semi-movable joints and
- ✓ Movable joints

- ❖ **Fixed joints are :** fixed joints prevents the movements . they are found in the skull
- ❖ **Semi-movable joints** : Semi-Movable joints permit only limited movements .they are found vertebral Colum

Movable joints : All other joints of the body movements these joints include : Hinge joints , Ball-and-socket joints , Pivot joints , the saddle joints , and gliding joints

5) Outline the functions of the skeletal System ?

- ➢ Functions of the skeletal system are summarized the following

1. Support
2. Protection
3. Formation of blood cells

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4. Reservoir
5. Movements

6) Describe arthritis . what are the two common forms of arthritis ? and which type of arthritis is not related to the age ?

- **Arthritis** :is the inflammation of the joints . Two most common types are **osteoarthritis** and **rheumatoid arthritis rheumatoid arthritis** is affecting the lining joints and is not related to the age it can be causing painful swelling that can be eventually result in bone erosion and joint deformity

7) For healthy bones , sun exposure advice justify that ?

Answer : Lack Vitamin D , which produce the sun exposure leading rickets , osteoporosis and other bone diseases

8) Define Osteoprocess

- **Osteoprocess** is related to the fractures most commonly occur in the hip , wrist , or spine

9) What is the significance of synovial fluids?

Answer: synovial fluids supplies nutrients to the avascular articular cartilages

10) What is the major kinds of joints in the human body ?

Answer : there are three major kind of joints found in the human body and they are

- ✓ Fixed joints
- ✓ Semi-movable joints
- ✓ Movable joints

11) Define ossification ?

Answer **Ossification** is the formation of bones from the osteoblasts is known as ossification

12) Compare between Types of Muscles with respect to from and function ?

Answer The are three Types of muscle Tissue are:-

Skeletal , Smooth Muscular and Cardiac Muscles

- **Skeletal Muscles** are attached to the bones and allows voluntary Movement of the body
- **Smooth Muscles** they generate involuntary movements , from the parts of the walls of the esophagus stomach , intestine , bronchi , uterus , urethra , bladder , and the blood vessels among other portions of the body
- **Cardiac Muscles** is the involuntary and is found only in the heart

13) Describe microscopic structure of striated Muscle fibers ?

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Answer A sarcomere is the basic unit of **muscle** tissue in both cardiac and skeletal **muscle**.

Sarcomeres appear under the **microscope** as striations, with alternating dark and light bands. **14)** Explain the mechanism of muscle contraction or sliding filament theory ?

Answer Muscle contraction when a muscle contracts , myosin filaments and actin filaments
interact to shorten the sarcoma myosin filament have extension shaped like oval "Head" actin filament looks like a

twisted strands of bead

15) Give an account the common Muscle injuries inflicted on the football players

Answer Knee **injuries** in **football** are the **most common**, especially those to the anterior or posterior cruciate ligament (ACL/PCL) and to the menisci (cartilage of the knee). These knee **injuries** can adversely affect a **player's** long-term involvement in the sport.

16) Differentiate between fast – twitch and slow-twitch ?

- **Fast-twitch Muscles fibers** have fewer capillary and mitochondria than slow-twitch fiber and do not as much myoglobin .fast -twitch can respire anaerobically by using large storage of glycogen and high concentration of glycolytic enzymes ***while***

Slow-twitch Muscle fibers have rich capillary supply , numerous mitochondria and aerobically respiratory enzyme and A high concentrations of myoglobin pigments .

17) Constrict the function of flexors and extensors

- **Extensor muscle**, any of the muscles that increase the angle between members of a limb, as by straightening the elbow or knee or bending the wrist or spine backward. The **movement** is usually directed backward, with the notable exception of the knee joint.
- **Flexor muscle**, any of the **muscles** that decrease the angle between bones on two sides of a joint, as in bending the elbow or knee. Several of the **muscles** of the hands and feet are named for this **function**

18) What cause of muscles become fatiaged ? and why do think the heart muscles never suffers from fatigue?

- **Muscle** fatigue weakness is commonly due to lack of exercise, ageing, **muscle** injury or pregnancy. It can also occur with long-term conditions

such as diabetes or heart disease. There are many other possible **causes**, which include stroke, multiple sclerosis, depression, fibromyalgia and chronic **fatigue** syndrome (ME) **while Cardiac muscle** resists **fatigue** so well because it's got more mitochondria than skeletal **muscle**. With so many power plants at its disposal, the **heart** doesn't need to stop and chill out. It also has a steady supply of blood bringing it oxygen and nutrients.

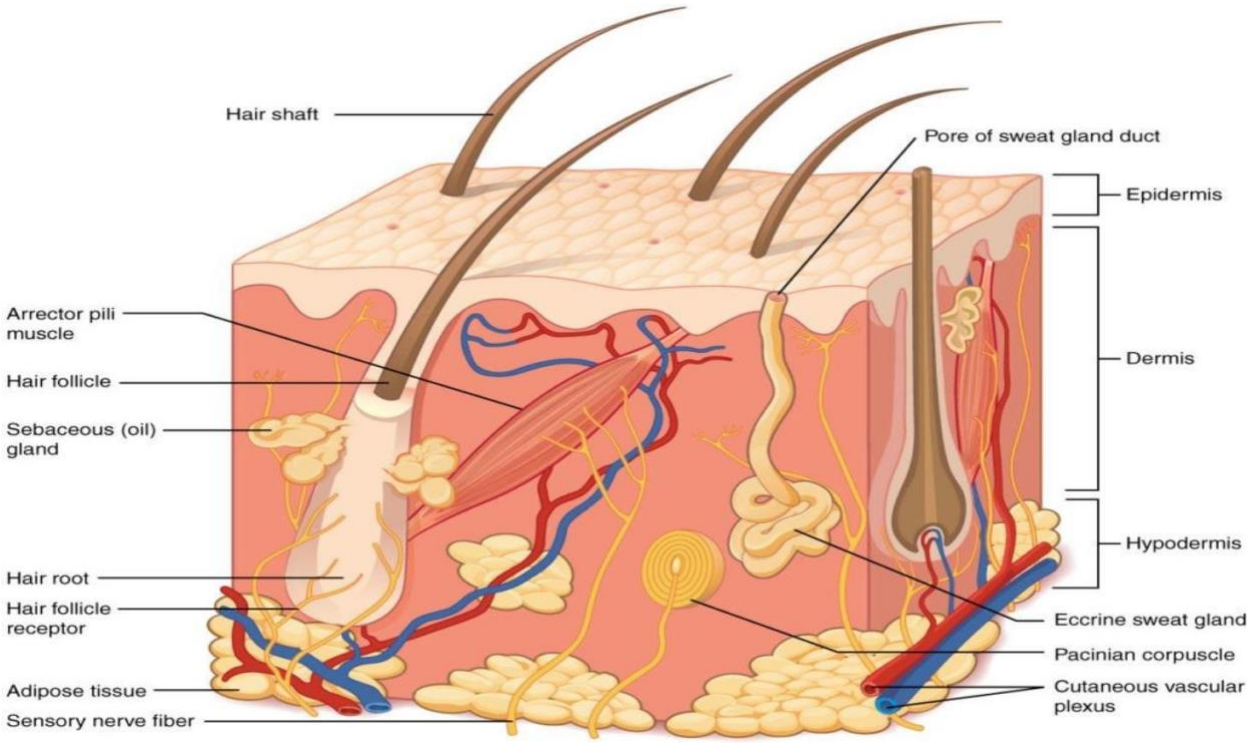
19) Explain briefly the structure and function of the skin ?

- he skin consists of two layers:
  - the **epidermis** and
  - the **dermis .**

.: The skin has five main functions

- ✓ **protection**,
- ✓ **regulation of the body temperature ,**
- ✓ **production of vitamin D ,**
- ✓ **sensation and excretion**

Figure the structure of the skein



20) Describe the derivatives of the skin?

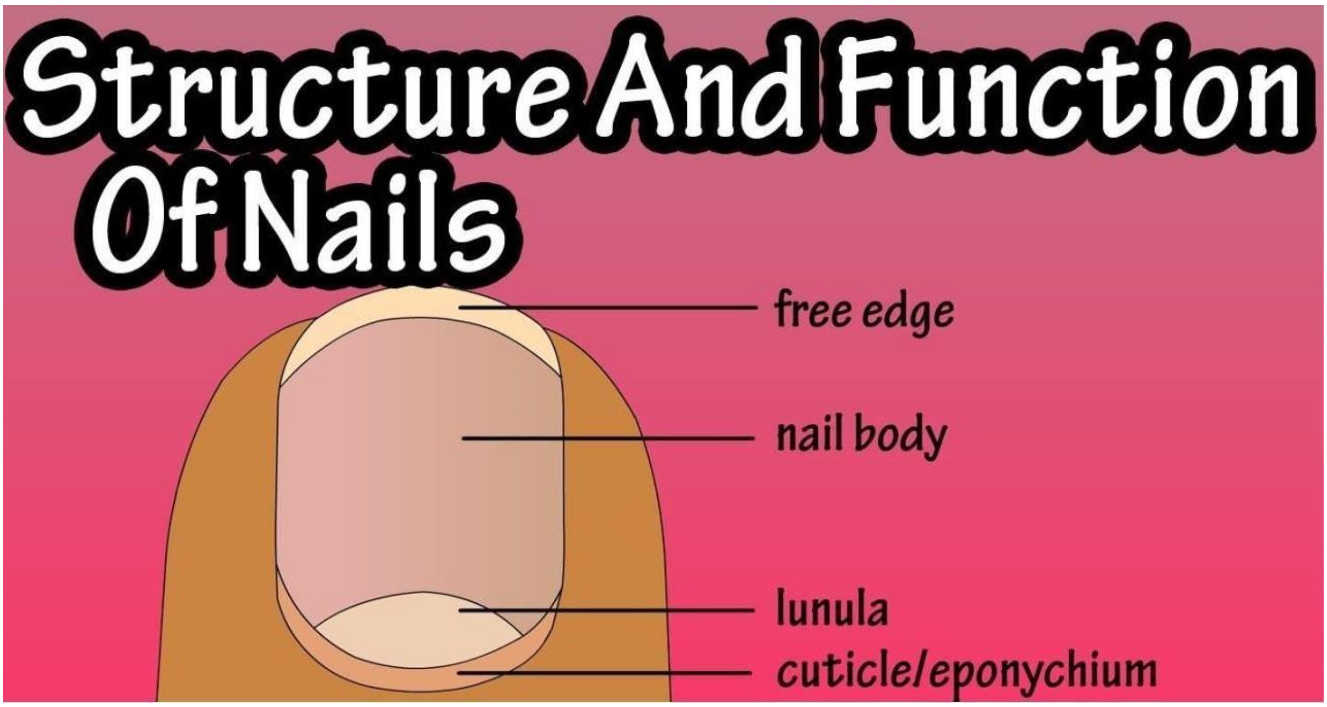
- derivatives (**sweat glands**, **sebaceous glands**, **mammary glands**, **hair**, **nails**, claws, hooves, horns, antlers, combs, wattles, and feathers)

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21) Identify the types of the gland found in the skin and describe their functions ?

- **Glands** of the **Skin**. Two **types of glands are present in the skin** over most of the body.

These are sweat **glands** and sebaceous **glands**. Sweat **glands s**weat glands and sebaceous glands produce sweat and sebum, respectively. Each of these fluids



has a role to play in maintaining homeostasis. Sweat cools the **body** surface when it gets overheated and helps excrete small amounts of metabolic west

22) Describe the structure of nails and hairs?

- **Hair and Nails**. Along with the skin, the integumentary system includes the **nails** and **hair**. Both the **nails** and **hair** contain the tough protein, keratin. The keratin forms fibers, which makes your **nails** and **hair** tough and strong.

23) Recognize the diseases and disorders of the Integumentary system.

- The two common disorders are eczema and acne . Eczema is an inflammatory condition and occur individuals of all ages . while Acne is involves the clogging of pores , which can lead to infection and inflammation and is often seen in adolescents

24) Identify the substance that prevents the hair and skin form draying out and the gland where this substance is produced ?

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- Sebaceous **glands** are oil **producing glands** which help inhibit bacteria, keep us waterproof and **prevent** our **hair and skin from drying out**. Ceruminous **glands**

produce earwax which **keeps** the outer surface **of** the eardrum pliable and **prevents drying**.

End Chapter Three.

"DADAAL WACAN"

"MAHADSANIDIIN"

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