1. **Which of the following cell types is responsible for synthesizing the organic component of bone matrix?** 
   1. **Chondrocytes**
   2. **Osteoblasts**
   3. **Osteocytes**
   4. **Chondroclasts**
   5. **2 of the above**

Top of Form

Bottom of Form

1. **Which of the following hormones acts to stimulate osteoclast activity and thus increase bone resorption?** 
   1. **Growth Hormone**
   2. **Parathyroid Hormone**
   3. **Calcitonin**
   4. **Insulin**
   5. **Creatinine**

Top of Form

Bottom of Form

1. **Which of the following statements about bone is TRUE?** 
   1. **Bone matrix lacks collagen**
   2. **Bone is a dynamic tissue which changes in response to hormonal demands**
   3. **Bone has an organic component made of calcium phosphate**
   4. **Bone tissue in the appendicular skeleton lacks osteocytes**

Top of Form

Bottom of Form

1. **Which of the following is NOT a characteristic of bone tissue?** 
   1. **Periosteum**
   2. **Calcium phosphate crystals**
   3. **Lacunae that contain 2-4 cells each**
   4. **None of the above**

Top of Form

Bottom of Form

1. **Which of the following statements about osteoblasts is TRUE?** 
   1. **Osteoblasts are inactive bone cells stuck within the bone matrix**
   2. **Osteoblasts secrete osteoid, which contains only the inorganic component of bone matrix**
   3. **Osteoblasts increase their activity in response to parathyroid hormone**
   4. **Osteoblasts maintain contact with each other via cytoplasmic processes known as canaliculi**

Top of Form

Bottom of Form

1. **Which of the following cells is primarily responsible for bone resorption?** 
   1. **Osteoblast**
   2. **Osteocyte**
   3. **Osteoclast**
   4. **Chondrocyte**
   5. **Chondroblast**

Top of Form

Bottom of Form

1. **Which of the following cell types extend cytoplasmic processes through canaliculi?** 
   1. **Osteoclasts**
   2. **Osteocytes**
   3. **Osteoblasts**
   4. **Endothelial cells**
   5. **Fibroblasts**

Top of Form

Bottom of Form

1. **Removal of the organic component of bone matrix makes the bone...** 
   1. **Lose its shape**
   2. **Stretchable but not flexible**
   3. **Flexible but not stretchable**
   4. **Smaller**
   5. **More fragile and more readily breakable**

Top of Form

Bottom of Form

1. **Which of the following can be found in cartilage and bone tissue?** 
   1. **Lacunae**
   2. **Protein fibers**
   3. **Blood vessels**
   4. **All of the above**

Top of Form

Bottom of Form

1. **These cells are located in bone tissue:** 
   1. **Chondroblasts**
   2. **Osteocytes**
   3. **Fibroblasts**
   4. **Chondrocytes**
   5. **More than one of the above**

Top of Form

Bottom of Form

1. **The dense connective tissue covering the outer surface of bone diaphyses is known as the:** 
   1. **Perichondrium**
   2. **Periosteum**
   3. **Endosteum**
   4. **Epiosteum**
   5. **Exofibrium**

Top of Form

Bottom of Form

1. **These 2 components of bone are responsible for its hardness and pliability.** 
   1. **Osteoclasts and collagen**
   2. **Mineralized salts and osteocytes**
   3. **Mineralized salts and collagen**
   4. **Collagen and elastin**
   5. **Collagen and metastatin**

Top of Form

Bottom of Form

1. **A fracture in the shaft of a long bone would be a break in the:** 
   1. **Epiphysis**
   2. **Metaphysis**
   3. **Diaphysis**
   4. **Arthrosis**
   5. **Atalaphysis**

Top of Form

Bottom of Form

1. **Yellow marrow consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_ tissue.**

Top of Form

Bottom of Form

1. **Chondroblasts produce \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

Top of Form

Bottom of Form

1. **\_\_\_\_\_\_\_\_\_\_\_\_\_ carry blood vessels along the long axis of a bone.** 
   1. **Perforating canals**
   2. **Canaliculi**
   3. **Lacunae**
   4. **Foramina**
   5. **Central canals**

Top of Form

Bottom of Form

1. **The cell type that maintains the previously formed bone matrix is the:** 
   1. **Osteoclast**
   2. **Osteocyte**
   3. **Osteoblast**
   4. **Fibrocyte**

Top of Form

Bottom of Form

1. **Soft connective tissue membranes between the cranial bones at birth are:** 
   1. **An indication of microcephaly**
   2. **Frontal sinuses**
   3. **Epiphyseal plates**
   4. **Cribifrom plates**
   5. **Fontanelles**

Top of Form

Bottom of Form

1. **Which of the folllowing is NOT a cranial suture?** 
   1. **Epiphyseal**
   2. **Lambdoidal**
   3. **Coronal**
   4. **Sagittal**
   5. **Squamous**

Top of Form

Bottom of Form

1. **Which of the following is TRUE?** 
   1. **Articular cartilage can be either hyaline or elastic cartilage**
   2. **Synovial fluid is formed from blood**
   3. **Ligaments are only found in symphyses**
   4. **Synovial joints never contain hyaline cartilage**
   5. **None of the above**

Top of Form

Bottom of Form

1. **The atloaxial joint is an example of a:** 
   1. **Condyloid joint**
   2. **Hinge joint**
   3. **Pivot joint**
   4. **Synarthrotic joint**
   5. **Petrous joint**

Top of Form

Bottom of Form

1. **Hypofunction of the ovaries that resulted in low plasma [estrogen], would cause the rate of bone resorption to:** 
   1. **Increase**
   2. **Decrease**
   3. **Not change**

Top of Form

Bottom of Form

1. **As plasma [Ca2+] decreases, the amount of PTH released by the parathyroid glands will:** 
   1. **Increase**
   2. **Decrease**
   3. **Not change**

Top of Form

Bottom of Form

1. **As joint activity increases, the viscosity of synovial fluid will:** 
   1. **Increase**
   2. **Decrease**
   3. **Not change**

Top of Form

Bottom of Form

1. **As plasma [sex hormone] levels increase dramatically at puberty, the width of epiphyseal plate will:** 
   1. **Increase**
   2. **Decrease**
   3. **Not change**

Top of Form

Bottom of Form

1. **In a bone that experienced a marked decline in mechanical stress, the amount of new bone matrix deposited would:** 
   1. **Increase**
   2. **Decrease**
   3. **Not change**

Top of Form

Bottom of Form

1. **Which of the following is NOT a function of the skeletal system?** 
   1. **Protection of the nervous tissue**
   2. **Mineral storage**
   3. **Energy storage**
   4. **Synthesis of white blood cells**
   5. **None of the above**

Top of Form

Bottom of Form

1. **Which of the following bones has protection as its primary function?** 
   1. **Frontal bone**
   2. **Ulna**
   3. **Radius**
   4. **Navicular bone of the foot**
   5. **Fibula**

Top of Form

Bottom of Form

1. **99% of the body’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is stored in bone.** 
   1. **Phosphorous**
   2. **Hydrogen**
   3. **Hydroxyapatite**
   4. **Chromium**
   5. **Calcium**

Top of Form

Bottom of Form

1. **Osteocytes are:** 
   1. **Derived from osteoclasts**
   2. **Metabolically inactive cells**
   3. **Found in spongy bone**
   4. **Not found in the calcaneus**
   5. **None of the above**

Top of Form

Bottom of Form

1. **All of the following facilitate the distribution of nutrients and oxygen to osteocytes EXCEPT:** 
   1. **Gap junctions**
   2. **Cytoplasmic extensions**
   3. **Bone matrix**
   4. **Central canals**
   5. **Canaliculi**

Top of Form

Bottom of Form

1. **Which of the following cell types is responsible for skeletal muscle regeneration?** 
   1. **Myoepithelial cell**
   2. **Myofibril**
   3. **Satellite cell**
   4. **Myofibroblast**
   5. **Fibroblast**

Top of Form

Bottom of Form

1. **How many T-tubules lie within a single skeletal muscle sarcomere?** 
   1. **1**
   2. **2**
   3. **3**
   4. **4**

Top of Form

Bottom of Form

1. **Sarcoplasmic reticulum is the name given to which of the following?** 
   1. **Rough endoplasmic reticulum in smooth muscle cells**
   2. **Smooth endoplasmic reticulum in cells of the epimysium**
   3. **Smooth endoplasmic reticulum in all muscle cells**
   4. **Rough endoplasmic reticulum in cardiac muscle cells**

Top of Form

Bottom of Form

1. **The connective tissue layer that bundles skeletal muscle fibers into fascicles is the:** 
   1. **Perichondrium**
   2. **Perineurium**
   3. **Perimysium**
   4. **Epimysium**
   5. **Endomysium**

Top of Form

Bottom of Form

1. **An overlap of actin and myosin filaments occurs in the:** 
   1. **A Band**
   2. **I Band**
   3. **Z Line**
   4. **H Band**
   5. **M Line**

Top of Form

Bottom of Form

1. **In skeletal muscle, a triad refers to which of the following?** 
   1. **A T tubule sandwiched between 2 dilated cisternae of the sarcoplasmic reticulum**
   2. **A Z line flanked by 2 A bands**
   3. **An A band flanked by 2 I bands**
   4. **An H zone flanked by 2 A bands**
   5. **A Z line flanked by 2 sarcomeres**

Top of Form

Bottom of Form

1. **Which of the following does not describe skeletal muscle fibers?** 
   1. **Striated**
   2. **Typically voluntary**
   3. **Multinucleate**
   4. **Branched**

Top of Form

Bottom of Form

1. **Intercalated disks:** 
   1. **Are found only in smooth muscle**
   2. **Are found in skeletal and cardiac muscle**
   3. **Are part of the neuromuscular junction in bipennate muscles**
   4. **Are located at the M line**
   5. **Contain desmosomes and gap junctions**

Top of Form

Bottom of Form

1. **Motor units:** 
   1. **Are found only in cardiac muscle**
   2. **Are largest in muscles responsible for delicate movements**
   3. **Consist of a muscle fiber and all the nerves that supply it**
   4. **Consist of a motor neuron and all the muscle fibers it supplies**
   5. **Are the same as neuromuscular junctions**

Top of Form

Bottom of Form

1. **The cell type least likely to contain more than one nucleus is a(n):** 
   1. **Skeletal muscle fiber**
   2. **Osteoclast**
   3. **Cardiac muscle cell**
   4. **Smooth muscle cell**

Top of Form

Bottom of Form

***For the next 5 questions, use the following 4 choices.  
Answers may be used once, more than once, or not at all.***

* 1. **Epimysium**
  2. **Perimysium**
  3. **Endomysium**
  4. **None of the above**

1. **Surrounds individual myofilaments**
2. **Epimysium**
3. **Perimysium**
4. **Endomysium**
5. **None of the above**

Top of Form

Bottom of Form

1. **Surrounds whole named muscles**
2. **Epimysium**
3. **Perimysium**
4. **Endomysium**
5. **None of the above**

Top of Form

Bottom of Form

1. **Surrounds individual fascicles**
   1. **Epimysium**
   2. **Perimysium**
   3. **Endomysium**
   4. **None of**
2. **T**
3. **he above**

Top of Form

Bottom of Form

1. **Surrounds individual muscle fibers**
2. **Epimysium**
3. **Perimysium**
4. **Endomysium**
5. **None of the above**

Top of Form

Bottom of Form

1. **The connective tissue wrapping around a muscle that is continuous with tendons is the:** 
   1. **Perimysium**
   2. **Endomysium**
   3. **Epimysium**
   4. **Ectomysium**

Top of Form

Bottom of Form

1. **In muscle tissue, neurotransmitter receptors are located:** 
   1. **In synaptic vesicles**
   2. **On the motor neuron axon terminals**
   3. **In the synaptic cleft**
   4. **On the motor end plate**

Top of Form

Bottom of Form

1. **An action potential is:** 
   1. **A migrating region of membrane potential reversal**
   2. **A flow of electrons along the sarcolemma**
   3. **A nucleophilic reaction between Na and K ions**
   4. **Something that is only caused by acetylcholine**

Top of Form

Bottom of Form

1. **Acetylcholinesterase:** 
   1. **Produces acetylcholine**
   2. **Is the acetylcholine receptor in muscle tissue**
   3. **Is responsible for smooth but not skeletal muscle contraction**
   4. **Degrades the neurotransmitter which is found in the neuromuscular junction**

Top of Form

Bottom of Form

1. **Tetanus toxin causes convulsive paralysis by:** 
   1. **Blocking acetylcholine from binding to the muscarinic acetylcholine receptor**
   2. **Inhibiting acetylcholinesterase**
   3. **Causing motor neurons to release massive amounts of acetylcholine**
   4. **Blocking acetylcholine from being released by motor neurons**

Top of Form

Bottom of Form

1. **A person suffering from nerve gas exposure is given atropine to counter the effects because:** 
   1. **Atropine will bind to and electrophilically inactivate the nerve gas**
   2. **Atropine blocks the nerve gas receptor**
   3. **Atropine blocks the acetylcholine receptor which prevents the lingering excess ACh from having adverse effects**
   4. **Atropine inactivates acetylcholinesterase**

Top of Form

Bottom of Form

1. **Which of the following is NOT TRUE?** 
   1. **All muscle tissue is contractile**
   2. **Skeletal muscle is voluntary but smooth muscle is not**
   3. **Superficial fascia holds skin to muscle**
   4. **Muscles use the skeleton as leverage points as they push against bones to produce body movement**

Top of Form

Bottom of Form

1. **Skeletal muscle is described by all of the following EXCEPT:** 
   1. **Striated**
   2. **Voluntary**
   3. **Multinucleate**
   4. **Autorhythmic**
   5. **Contractile**

Top of Form

Bottom of Form

1. **The walls of hollow organs and some blood vessels contain this type of muscle tissue.** 
   1. **Striated**
   2. **Skeletal**
   3. **Cardiac**
   4. **Voluntary**
   5. **Smooth**

Top of Form

Bottom of Form

1. **Which of the following is unique to cardiac muscle tissue?** 
   1. **Involuntary**
   2. **Striated**
   3. **Non-striated**
   4. **Contains actin AND myosin**
   5. **Contains intercalated disks**

Top of Form

Bottom of Form

1. **Approximately, what percentage of heat is generated by muscle tissue?** 
   1. **15%**
   2. **35%**
   3. **65%**
   4. **85%**
   5. **95%**

Top of Form

Bottom of Form

1. **A muscle fascicle is a bundle of:** 
   1. **Myofibrils**
   2. **Sarcomeres**
   3. **Fibers**
   4. **Muscles**
   5. **Muscle cells**
   6. **2 of the above**

Choose the most appropriate answer from the alternatives A-D that best fits the question

1. What is the action of the Occipitofrontals
2. Mastication
3. Depresses the mandible
4. Raises the eyebrow, wrinkling of forehead
5. Closure of the eyes
6. What is the action of the Platysma
7. Depresses the mandible
8. Raises the eyebrow, wrinkle forehead
9. mastication
10. closure of the eyes
11. Which of the following causes depression of the larynx and hyoid
12. Stylohyoid
13. Sternohyoid
14. Masseter
15. Sternocleisomastoid
16. Which of the following muscles elevates the hyoid
17. Stylohyoid
18. Sternohyoid
19. Masseter
20. Sternocleisomastoid
21. What is the function of the orbicularis oculi
22. Compress and purse lips
23. Compress cheek
24. Close eye
25. Mastication
26. Which of the following muscles is responsible for raising the eyebrows and wrinkling of forehead skin
27. Temporalis
28. Zygomatic major
29. Zygomatic minor
30. Occipitofrontalis
31. Which of the following muscles is responsible for mastication
32. Stylohyoid
33. Sternohyoid
34. Masseter
35. Occipitofrontalis
36. Which of the following is the keystone bone of the face
    * 1. Nasal
      2. Frontal
      3. Maxilla
      4. Zygomatic
37. Which of the bones contain mastoid sinuses?
    * 1. Occipital
      2. Mandible
      3. Temporal
      4. Sphenoid
38. Which of the bones allows the spinal cord to pass to the brain?
    * 1. Occipital
      2. Mandible
      3. Temporal
      4. Nasal
39. **Removal of the organic component of bone matrix makes the bone...** 
    1. **Lose its shape**
    2. **Stretchable but not flexible**
    3. **Flexible but not stretchable**
    4. **Smaller**
    5. **More fragile and more readily breakable**
40. **Sarcoplasmic reticulum is the name given to which of the following?** 
    1. **Rough endoplasmic reticulum in smooth muscle cells**
    2. **Smooth endoplasmic reticulum in cells of the epimysium**
    3. **Smooth endoplasmic reticulum in all muscle cells**
    4. **Rough endoplasmic reticulum in cardiac muscle cells**
41. **The atloaxial joint is an example of a:** 
    1. **Condyloid joint**
    2. **Hinge joint**
    3. **Pivot joint**
    4. **Synarthrotic joint**
    5. **Petrous joint**
42. Cartilage tissue is mostly …………………….
    1. Blood
    2. Blood vessels
    3. Water
    4. tissues
43. ...…………………… is a layer of dense irregular connective tissue dat surrounds the skeletal cartilage that has no nerves or blood vessels.
    1. **Peristernum**
    2. **Perichondrium**
    3. **Periosteum**
    4. **hyaline**
44. Perichondrium contains ……………………….
    1. **Nerves**
    2. **Blood vessels**
    3. **Water**
    4. **tissues**
45. ………………., ……………… and fibrocartilages are the 3 types of skeletal cartilages.
    1. **Hyaline, cartilage**
    2. **Hyaline, elastic**
    3. **Articular cartilage, costal cartilage**
    4. **Elastic, articular cartilage**
46. The ……………………………………… are the most abundant skeletal cartilages that provides flexibility.
    1. **Articular cartilage**
    2. **Hyaline cartilage**
    3. **Nasal cartilage**
    4. **Elastic cartilage**
47. Name the cartilage that cover the ends of most bones at movable joints -
    1. **Articular cartilage**
    2. **Hyaline cartilage**
    3. **Nasal cartilage**
    4. **Elastic cartilage**
48. Skeletal hyaline cartilages includes
    1. **Articular, costal, respiratory and nasal cartilages**
    2. **Hyaline, elastic and fibrocartilages**
    3. **Articular,elastic,nasal cartilages**
    4. **Costal, respiratory, fibro and nasal cartilages**
49. What cartilage can stretch and bend?
50. Where is this cartilage located?
    1. **Ear and epiglottis**
    2. **Knee**
    3. **Vertebrae disc**
    4. **maxillae**
51. Where are the fibrocartilages located?
52. Cartilage has ……………………… which can accommodate mitosis.
53. ………………… and …………….. growth are the two ways that cartilage grows
54. “Growth from outside” is also known as
55. “Growth from inside” is also known as
56. …………………….. is the process by which salts in the matrix harden.
57. Typically, cartilage growth stops during what stage in life?
58. 206 bones in the human body are divided into 2 groups:
59. ………………………………………………. is the skeleton that consists of the bones of the upper and lower limbs and the girdles that connects to the axial skeleton.
60. The ………….. is the part of the bones that helps us in locomotion.
61. …………………………… are bones that have shaft and two ends, and has all limb bones expect patella, wrists nad ankle bones.
62. …………………………… are roughly cube shaped bones.
63. ………………………. is a special type of bone formed in tendon.
64. Name the type of bones that includes the skull, the sternum, the scarpula and the ribs.
65. ………………………… are complicated shaped bones that include vertebrae and hip bones.
66. State the five functions of bones: a.

b.

c.

d.

e.

1. …………………. and ………………………… are the 2 most important types of minerals that the bone reserves.
2. Where does the blood cell formation or hematopoiesis occur?
3. Is a bone an organ? Explain
4. Name the three levels of bone structure?

a. microscopic, physical and chemical

b. gross, chemical and physical

c. gross, microscopic and chemical

d. chemical, gross and smooth

1. The dense outer layer that looks smooth and solid is called ………………………….
2. ………………………………….. is a blood cell formation.
3. …………………………….. is a type of bone mostly found in the hip?
   1. Short bone
   2. Spongy bone
   3. Long bone
   4. Short bone
4. ………………………… are mature bone cells
   1. Osteoclast
   2. Osteoblast
   3. Osteocytes
   4. chondrocytes
5. Where is the red bone marrow located?
6. …………………………….. are cartilage cells.
   1. Osteoclast
   2. Osteoblast
   3. Osteocytes
   4. chondrocytes
7. ……………………………….. are bone-building cells
   1. Osteocytes
   2. Osteoclast
   3. Osteoblast
   4. Non of the above
8. ……………………………….. is a process of bone formation.
9. …………………………………………………………………………… is the process of replacing connective tissue membranes with bony tissues.
10. ………………………………………………………………………….. is the process of replacing hyaline cartilage with bony tissues.
11. ……………………………………………….. is the growth region(in length) of the long bone.
12. ………………………………………………. Growth of a bone in diameter.
13. Cartilage tissue is mostly  ……………….
14. The skeletal cartilage has no nerves or blood vessels, is surrounded by a layer of dense irregular connective tissue called  …………………………………
15. ............................. is a narrow passageway that contain cytoplasmic extensions of osteocytes.
    1. **Canaliculi**
    2. **osteon**
    3. **trabeculae**
    4. **volkman**
16. …………………… is the basic functional unit of compact bone.
17. ………………………. Are tiny plates of bone material found in spongy bone .
18. ……………………….. are concentric rings that surround the Haversian canal.
    1. **Lamellae**
    2. **Volkmann canals**
    3. **Osteon**
    4. **trabeculae**
19. ……………………….. are perforating canals that carry interconnected blood vessels to the Haversian canal.
20. ……………….. are Structures contained in the central canal of an osteon .
    1. Yellow bone marrow
    2. Red bone marrow
    3. Calcium and phosphorus
    4. calcitonin
21. ……………………………….. are the substance contained in the medullary cavity of bones in an adult.
22. ………………………………………………... are substance contained in the spaces of the spongy bone.
23. …………………………………………………. Are the inorganic minerals contained in the intercellular matrix of a bone.
24. …………………………………. Is the hormone that functions to decrease the level of calcium in the blood .
25. **………………………………………….. is** the hormone that raises the level of calcium ions in the blood .
    1. **Estrogen**
    2. **Parathyroid**
    3. **Thyroxin**
    4. **testosterone**
26. **……………………………. Is** the hormone that is used in hormone therapy to reduce osteoporosis.
27. **…………………………… is the** Elevated levels of a hormone that could cause premature closure of the epiphyseal plates.
28. **……………………….. is** a hormone that is necessary for proper bone formation.
29. **………………………………… is a** painful infection of the bone often caused by bacteria.
    1. **Rickets**
    2. **Osteomalcia**
    3. **Osteopenia**
    4. **osteomyelitis**
30. **………………………………. Is a** condition occurs with aging that causes a gradual reduction in bone mass.
31. Hypersecretion of parathyroid hormone would produce changes in the bone similar to those associated with  ………………………
32. **………………………… is a** condition causing bow legs in a child.
33. **…………………………… is a** painful condition that occurs when the bones become weak and thin and tend to fracture easily.
    1. **Compound fracture**
    2. **Compression fracture**
    3. **Osteoporosis**
    4. **Simple fracture**
34. **…………………………………………….. is a** fracture in which the bone breaks cleanly and does not penetrate the skin.
35. **…………………………………………….. is a** fracture that has broken ends of the bone protrude through the soft tissues and the skin.
36. **…………………………………………………… is a** fracture in which the bone is crushed.
37. **…………………………………………… is a** fracture in which broken bone ends are forced into each other.
    1. **Compression fracture**
    2. **Compound fracture**
    3. **Simple fracture**
    4. **Comminuted fracture**
38. **……………………………………….. is a** fracture in which bone fragments into many pieces.
    1. **Compression fracture**
    2. **Compound fracture**
    3. **Simple fracture**
    4. **Comminuted fracture**
39. **Example of a long bone**
40. **Example of a short bone**
41. **……………………………………. Is a large, rough, rounded projection.**
    1. **Crest**
    2. **Tuberosity**
    3. **Canaculi**
    4. **Bone matrix**
42. **……………………. Is a narrow ridge of a bone.**
    1. **Ramus**
    2. **Cavity marrow**
    3. **Canal**
    4. **crest**
43. **Describe a trochanter.**
44. **Describe a spine**
45. **…………………. Is a bony expansion carried on a narrow the neck.**
46. **Describe a facet.**
47. **Describe a condyle**
48. **……………………… is an arm-like bar of a bone.**
49. **What is Meatus?**
50. **What is a Sinus?**
51. **What is a fossa?**
52. **Describe a fissure.**
53. **Describe a foramen.**

**Name the intramembranous ossification or spongy bone stages in order:**

**Name the endochondroal ossification in a long bone process in order:**

1. **What is the most abundant skeletal cartilage?**
   1. **Hyaline cartilage**
   2. **Elastic cartilage**
   3. **Fibrocartilage**
   4. **Articular cartilage**
2. **………………………… is a cartilage forming cell.**
   1. **Osteocytes**
   2. **Chrondroblast**
   3. **Osteoclast**
   4. **osteoblast**
3. **………………………………... is the cartilage located in the external ear and epiglottis.**
4. **Encloses brain and other soft organs function as…………..**
5. **Site of attachment for skeletal muscles functions as …………………**
6. **…………………………. Is a bone-destroying cell.**
   1. **Chrondroblast**
   2. **Osteoclast**
   3. **Osteoprogentor cell**
   4. **osteocyte**
7. **………………………………………………… is a bone stem cell.**
8. **…………………………… is a primary ossification center.**
9. **……………………………. Is a secondary ossification centre.**
10. **……………………………………………….. is the site of length increase in long bones.**
11. **………………………………………………………… is the process of long bone development.**

**Name the four stages of bone repair:**

1. **………………………………………………….. is the process of removing excess bony material from the external and internal surfaces of the diaphysis.**
2. **………………… are the layers of bone.**
3. **…………………………… are cavities bones where cells live.**
4. **……………………………. Is a major organic fiber of bone.**
5. **………………………………………….. is a major inorganic component of a bone.**
6. **…………. bone has length greater than width.**
7. **……… bone has length and width equal.**
8. **……………………………… is a bone with complex shape.**
9. **……………. bones are thin bones.**
10. **…………………. bones are ovoid bones found in tendon.**
11. **……………………… is the shaft of a long bone.**
12. **……………………………………. Is the hollow space in the shaft.**
13. **……………………… is an expanded portion of the long bone at its ends.**
14. **………………………. Is a thin connective tissue membrane that lines the medullary cavity.**
15. **……………………………… is a fibrous connective tissue membrane that covers the outer surface a long bone.**
16. **During fetal development, intramembranous ossification takes place in ………………………………….**
17. **……………………………………. Is an elevated levels of calcium ion in the blood that stimulates the secretion of the hormone.**
18. **Endochondral and intramembranous are terms that are used to describe ……………………………….**
19. **Endochondral ossification begins with the formation of …………………………………..**
20. **What are the functions of the skeletal system?**
21. **Long bones differ from flat bones in that long bones have …………………….**
22. Mary is 50 years old. During a checkup, a bone scan reveals that portions of her skeleton show signs of osteoporosis. Her physician suggests hormone therapy after reviewing the test results. What hormone is prescribed for Mary?
23. **The bones of the skeleton store energy reserves as lipids in areas of the ………………………………**
24. **The lacuna of a bone contains?**
25. **The process of bone growth at the epiphyseal plate is similar to……………………………………..**
26. **The two types of osseous tissue are ……………………………………… and ……………………………….**
27. When cartilage is produced at the epiphyseal side of the metaphysis at the same rate as bone is deposited on the opposite side, bones  ………………………………………
28. A fraction in the shaft of a bone would occur in the ……………………….
29. Growth of a cartilage in which the chondrocytes within the matrix become active and proliferate is known as   ……………………………………
30. Osteocytes maintain contact with the blood vessels of the central canal through  ……………………………………
31. The bones in the long axis of the body make up the  ……………………………………
32. The menisci of the knee are made of  ……………………….
33. **………………………………………….** bones act to alter the direction of tendon pull.
34. Bone forming cells originate from  ………………………
35. A Haversian system is the functional unit of  ……………………………..
36. It is currently thought that sacrificial bonds between …………………………….. provide resilience to bone tissue.
37. Hydroxyapatite in bone matrix that gives bone its hardness is primarily composed of
38. …………………….. is the process by which salts in the matrix harden.
39. ............................. is a narrow passageway that contain cytoplasmic extensions of osteocytes.
    1. **Canaliculi**
    2. **osteon**
    3. **trabeculae**
    4. **volkman**
40. …………………… is the basic functional unit of compact bone.
41. ………………………. Are tiny plates of bone material found in spongy bone .
42. ……………………….. are concentric rings that surround the Haversian canal.
    1. **Lamellae**
    2. **Volkmann canals**
    3. **Osteon**
    4. **trabeculae**
43. ……………………….. are perforating canals that carry interconnected blood vessels to the Haversian canal.
44. ……………….. are Structures contained in the central canal of an osteon .
    1. Yellow bone marrow
    2. Red bone marrow
    3. Calcium and phosphorus
    4. calcitonin
45. ……………………………….. are the substance contained in the medullary cavity of bones in an adult.
46. ………………………………………………... are substance contained in the spaces of the spongy bone
47. Dorsally exaggerated thoracic curvature, or ‘hunchback’ is known as ………………………..
48. An accentuated lumbar curvature, or swayback is called …………………………
49. Common in those carrying a "large load up front", such as men with "potbellies" and pregnant women………………………
50. The lateral edge of the sphenoid bone is located \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to the temporal bone  .
51. The frontal bone is located \_\_\_\_ to the parietal bone
52. The structure of the mandible that makes up part of the hinge joint jaw is called the \_\_\_\_\_\_
53. Which ossicle if connected is connected to the tympanic?.....................
54. Which bone allows the spinal cord to pass to brain……………………..
55. Which bone is the Keystone bone of the face? ………………………….
56. Which bone contains mastoid sinuses?................................
57. Which ossicle if connected is connected to the tympanic?.....................

Define the following terms in simple terms

1. Anatomical position ………………………………………………………………………………………………..
2. Supine …………………………………………………………………………………………………………………….
3. Prone………………………………………………………………………………………………………………………
4. Another word for front is ……………………………………………………………………………………….
5. Superior…………………………………………………………………………………………………………………….
6. Palpate………………………………………………………………………………………………………………….
7. Proximal…………………………………………………………………………………………………………………..
8. Distal………………………………………………………………………………………………………………………….
9. Medial……………………………………………………………………………………………………………………….
10. Midline…………………………………………………………………………………………………………………………
11. Lateral……………………………………………………………………………………………………………………………..
12. Ipsilateral……………………………………………………………………………………………………………………………..
13. Malignant…………………………………………………………………………………………………………………………….
14. Conralateral…………………………………………………………………………………………………………………………….
15. Superficial………………………………………………………………………………………………………………………………….
16. Deep………………………………………………………………………………………………………………………………………
17. What is the femeral region? …………………………………………………………………………………………………
18. What is the groin called? .............................................................................................................
19. What is the joint that connects the leg to abdomen? ................................................................
20. How many bones are in the hand? ...............................................................................................
21. What is the scientific name of the index finger? ..........................................................................
22. The hollow behind the knee is called……………………………………………………………………………………….
23. What is the leg called? ………………………………………………………………………………….
24. What is the big toe called?.......................................................................................
25. What is the hand pullex?.........................................................................................
26. Name the pairs of bones that make up the face? ……………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………………
27. Name the facial bone that make up the nasal septum? ………………………………………….....................
28. ………………………………does not connect to other bones. It is suspended by ligaments.
29. What separates the superior thorax from the anterior abdomen? ……………………………………………….
30. What is the axillary?........................................................................
31. What is the pectorial girdle? ………………………………………………………………..

State the action or functions of the following muscles

1. Erector spinae
2. Splenius muscles together
3. Splenius muscles separate
4. Transversospinalis muscles
5. Trapezius
6. Levator scapulae
7. Serratus anterior
8. Pectoralis minor
9. Deltoid
10. Supraspinatus
11. Infraspinatus
12. Teres minor
13. Subscapularis
14. Latissimus dorsi
15. Teres major
16. Pectoralis major
17. Biceps brachii
18. Triceps brachii
19. Brachialis
20. Brachioradialis
21. Coracobrachialis
22. Flexor carpi radialis
23. Flexor carpi ulnaris
24. Pronator quadrates
25. Palmaris longus
26. Extensor carpi radialis longus
27. Gluteus medius
28. Rectus femoris
29. Adductor longus
30. Adductor magnus
31. Internal intercostals
32. External intercostals
33. Diaphragm
34. Rectus abdominis
35. Orbicularis oris
36. Orbicularis oculi