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Q1 Define the following terms :-

(A) Motor Unit

(B) Ipsilateral

(C) Supination

(D) Axial Skeleton

(E) Atherosclerosis

(F) Shunt

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A) Motor unit:-

A) AS you have learned, every skeletal muscle fiber must be innervated by the axon terminal of a motor neuron in order to contract. Each muscle fiber is innervated by only one motor neuron. The actual group of muscle fibers in a muscle innervated by a single motor neuron is called a motor unit. The size of a motor unit is variable depending on the nature of the muscle. A small motor unit is an arrangement where a single motor neuron supplies a small number of muscle fibers in a muscle. Small motor units permit very fine motor control of the muscle. The best example in humans is the small motor units.

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of the extraocular eye muscle that move the eyeballs. There are thousands of muscle fibers in each muscle, but every six or so fibers are supplied by a single motor neuron, as the axon branches to form synaptic connections at their individual NMJs.

This allows for exquisite control of eye movements so that both eyes can quickly focus on the same object. Small motor units are also involved in the many fine movements of the fingers and thumb of the hand for grasping, texting, etc.

A large motor unit is an arrangement where a single motor neuron supplies a large number of muscle fibers in a muscle.

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(B) Ipsilateral :-

Lateral: means to words the side with respect to the imaginary midline (the ears are lateral to the eyes).

Ipsilateral: the same side (the spleen & descending colon are ipsilateral).

Ipsilateral refers to structure on the same side of the body or brain, (left or right), whereas contralateral refers to structure on opposite side of the body. Also used to compare the location of structure are the opposite terms, superior & inferior. When an object lies superior to another, it lies above it.

(C) Supination :-

- ① Rotation of the forearm & hand so that the palm faces forward or upward.

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also: a corresponding movement of the foot & leg in which the foot rolls outward with an elevated arch

2: the position resulting from supination

(D) Axial Skeleton :-

The axial skeleton that consist of the bones of the head & trunk of a vertebrate. In the human skeleton. It consist of 74 bones & is composed of six parts; the skull (22 bones), the ossicles of the middle ear, the hyoid bone, the rib cage, sternum & the vertebral column. the axial skeleton together with the appendicular skeleton form the complete skeleton.

Another definition of axial skeleton is the bones including the vertebrae, sacrum, coccyx,

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Ribs and Sternum.

(E) Atherosclerosis :-

Atherosclerosis is a disease in which the inside of an artery narrows due to the buildup of plaque. Initially, there are generally no symptoms. When severe, it can result in coronary artery disease, or kidney problems depending on which arteries are affected. Symptoms, if they occur, generally do not begin until middle age.

(E) Shunt :-

A pulmonary shunt refers to the passage of deoxygenated blood from the right side of the heart to the left without participation in gas exchange in the pulmonary capillaries. A pulmonary shunt often

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occlude when the alveoli fill with fluid, causing parts of the lung to be unventilated although they are still perfused.

Q2 Differentiate between type 1 & type 2 muscle fibers?

A⇒ The two types of skeletal muscle fibers are slow-twitch (type 1) and fast-twitch (type 2). Slow-twitch muscle fibers support long distance endurance activities like marathon running, while fast-twitch muscle fibers support quick, powerful movements such as sprinting or weightlifting.

Q3 What is the difference between artery, vein & capillary?

A⇒ Arteries carry blood away from the heart;

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The main artery is the aorta. **Capillaries** carry blood away from the body and exchange nutrients, waste, and oxygen with tissue at the cellular level. **Veins** are blood vessels that bring blood back to the heart and drain blood from organs and limbs.

Q 4 What do you know about the mechanism of skeletal muscle contraction?

A ⇒ * Action potential generated, which stimulates muscle.

* Ca^{2+} released

* Ca^{2+} binds to troponin, shifting the actin filaments, which exposes binding sites

* Myosin cross bridges attach & detach, pulling actin filaments toward center.

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- * MUSCLE contracts.
- * Ca^{2+} removed, which shifts actin filaments to original position blocking binding sites.
- * MUSCLE contraction stops

Q5 What is the anatomical position of scapula & clavicle in human body?

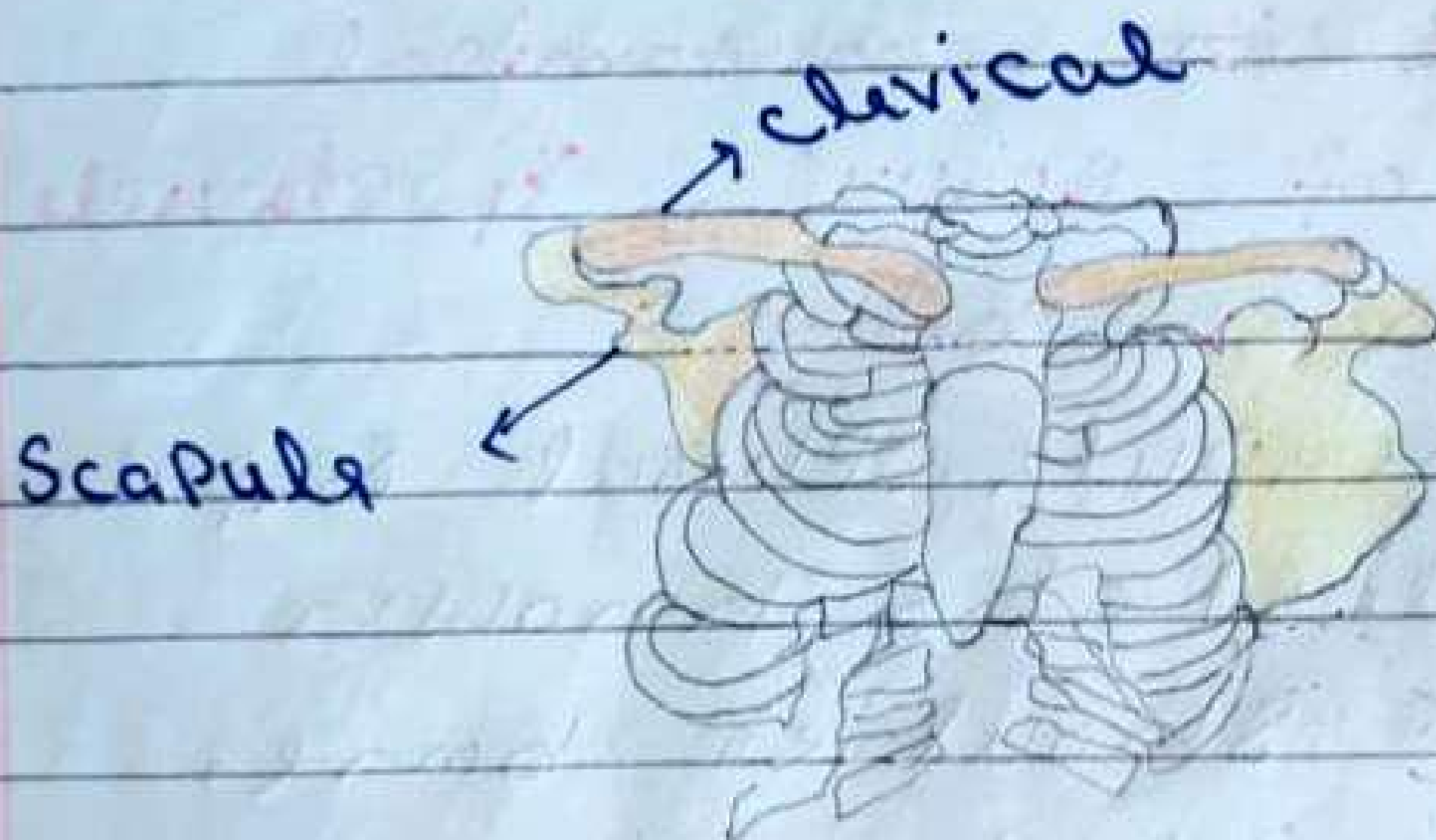
A⇒ The Scapula (Plural Scapulae or scapulae) also known as the shoulder bone, shoulder blade, wing bone or blade bone is the bone that connect the humerus (upper arm bone) with the clavicle (collar bone). Like their connected bone, the scapulae are paired with each scapula on either side of the body being roughly a mirror image of the other. The name derives from the classical

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Latin word for trowel
or Small Shovel, which
it was thought to
resemble.

Scapula :-

(front view)



(b) clavicle :-

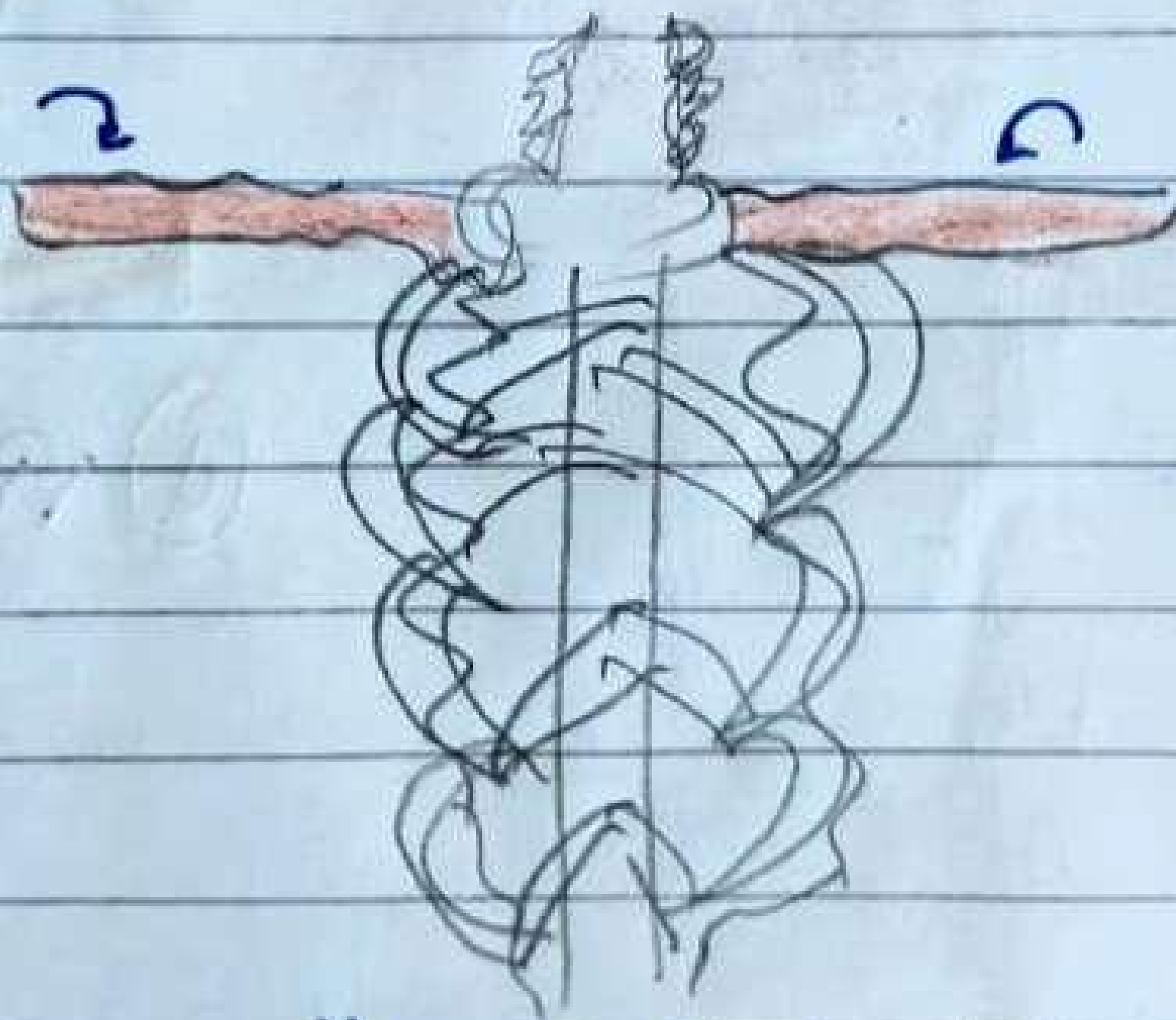
Anatomical terms
of bone :-

The clavicle, or collarbone,
is a long bone that
serves as a strut b/w

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The Shoulder blade and the Sternum. There are two clavicles, one on the left & one on the right. The clavicle is the only long bone in the body that lies horizontally.

Clavicle :-



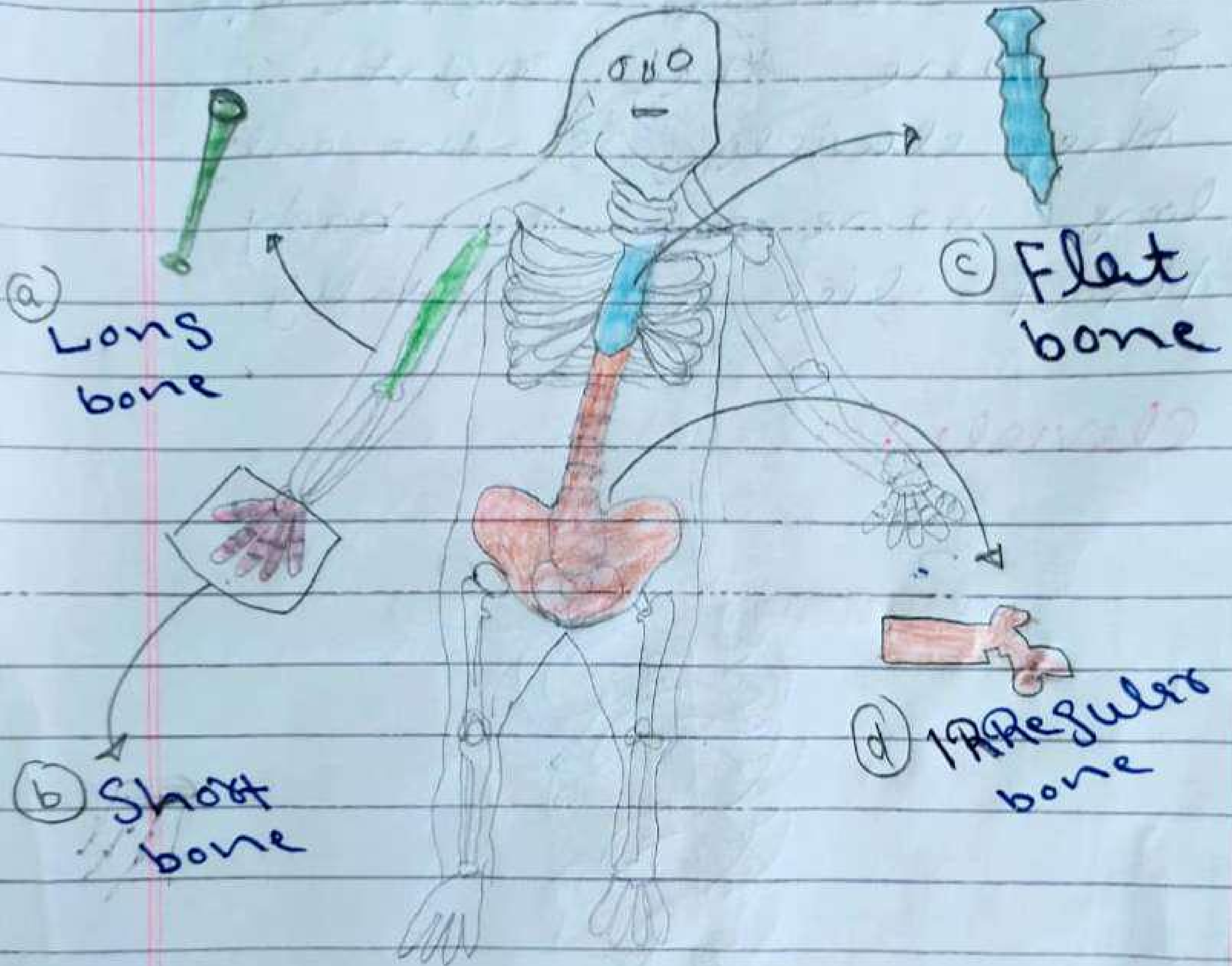
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Q6 Classify the bones according to their shape?

A:-

$P \sim \uparrow \sim 0$

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* THE END *