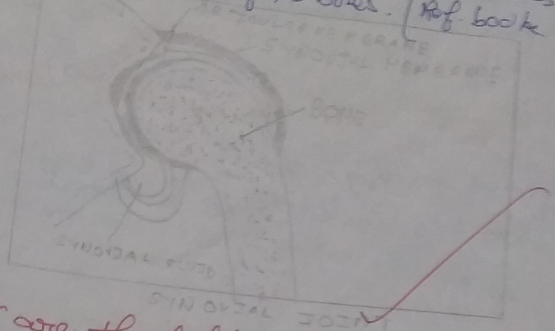
synovial movement and the cavities filled with a viscous fluid called synovial fluid which acts as a lubricating fluid and it minimises friction during the movement of the bones. (Ref book Pg 114 4th)



18) ~~Ans~~ what are the diff. types of the synovial joint?

Ans:- The diff. types of synovial joints are :-

1) Hinge joint
2) Ball and socket joint
3) Condyloid joint
4) Pivot joint.

1- Hinge joint -

It is that synovial joint where movement takes place about a single axis and resembles the working of the hinges of a door.

Eg: knee joint and elbow joint.

Ball and socket joint -

It is that synovial joint where the ball like head of one bone is articulated with the socket of another bone. It allows movement in all directions.

Eg: shoulder joint, hip joint.

Condyloid joint -

It is that synovial joint where the concave end one bone is articulated with the convex end of another

Eg: Joint between metacarpals and phalanges.

Pivot joint -

It is the
on the ball
that rotation
Eg: Jo

1) what is a ligament?

Ans- The ligaments are the connective tissue fibres which attaches one bone with another bone at the region of the joint and bears the stress during movement of the bones.

2) Name the largest and the smallest bone in human body.

Ans- Largest - femur or thigh bone
smallest - stapes inside the internal ear.

3) what is a joint?

Ans:- The region where two or more bones are held together or articulated is called a joint.
Eg: Elbow joint, knee joint.

4) What are the diff. types of joint in the human body?

Ans- The diff. types of joints are :- 1) Immovable or skull type joint
2) Slightly movable joint or vertebral type
3) Movable or synovial type joint.

Immovable joint-
The diff. pieces of skull bones are joined very rigidly. Thus, the skull bones do not show any movement.

Slightly movable joint-
The vertebrae of the vertebral column are so joined that the vertebral column forms a stiff rod and yet permits a slight movement making the vertebral column flexible

Synovial joint-
It is a movable joint. The joint is surrounded by an articular capsule. It consist of a cavity called the synovial cavity. The inner surface of the cavity is lying by the

and multinucleated. The cytoplasm of the muscle cell is called sarcoplasm and the cell membrane is called sarcolemma. The skeletal muscle is a striated muscle because it contains alternate light and dark bands or striations formed of ~~the~~ alternate arrangements of muscle proteins actin and myosin. The skeletal muscles are voluntary in nature.

Function - The ~~sk~~ contraction and relaxation of the skeletal muscle help in the movement of bones.

9) ~~(a) Name~~ (b) Name two muscles of the forelimb (hand).

Ans:- biceps and triceps.

10) Name two muscles of the hind limb (leg).

Ans:- adductor ~~magnus~~ and gleutous medius

11) Name the forlimb bones.

Ans:- (There are 206 bones in the human skeletal) Humerus, radius, ulna, carpals, metacarpals and phalenges.

12) Name the hind limb bones.

Ans:- Femur or ~~light~~ thigh bone, patella, tibia, fibula, tarsals, metatarsals, phalenges

13) What are tendons?

An:- The tendon is a connective tissue that attaches the skeletal muscle to a bone. Tendon moves a bone ~~in~~ contraction and relaxation

14) what

Ans:- The lig attache bones.

15) Name t

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placed on the ground again.

x) As one leg is withdrawn from the ground, the whole body weight rest on the other.

xi) In the next step, the flexed leg is extended so that the heel now touches a new position on the ground. The contraction of the calf muscles help the toes of the foot to grip the ground.

xii) Similar movement then occur in the other legs.

xiii) The alternate movement of both the legs thereby help in walking.

xiv) During walking alternate swinging of the arms helps to maintain the body balance.

8) What are flexor and extensor muscles?

Ans:- Flexor muscle - The flexor muscle contracts to bend the limb. Eg: biceps

Extensor muscle - The extensor muscle contracts to unfold or extend the limb. Eg: triceps.

9) What are adductor and abductor muscles?

Ans:- Adductor - The adductor muscle contracts to draw the limb towards the midline of the body.

Eg: Adductor magnus.

Abductor - The abductor muscle contracts to draw the limb away from the midline of the body

Eg: gluteus medius.

10) State the location and structure and function of skeletal muscle.

Ans:- Location - The skeletal muscles are attached to the bones of the body.

Structure - Each skeletal muscle cell is elongated, cylindrical

Role of swim bladder in fish (location and function of swim bladder in fish.)

Location - Swim bladder is a gas filled sac which is located in the body cavity of fish below the spinal column.

Function - The swim bladder helps the fish to move up and down in water and thus it helps the fish to move freely at diff. depth of water by varying the volume of air in the sac. It makes the fish buoyant and acts as a hydrostatic organ.

What is bipedal locomotion? Describe the mechanism of bipedal locomotion in man.

The locomotion that takes place with the help of two legs or feet is called bipedal locomotion (Bi-two and ped-foot). Eg: Man.

Mechanism

i) Walking is the most common form of human locomotion.

ii) The process of walking depends on the co-ordinated actions of bones, muscles, tendons, ligaments and nerves.

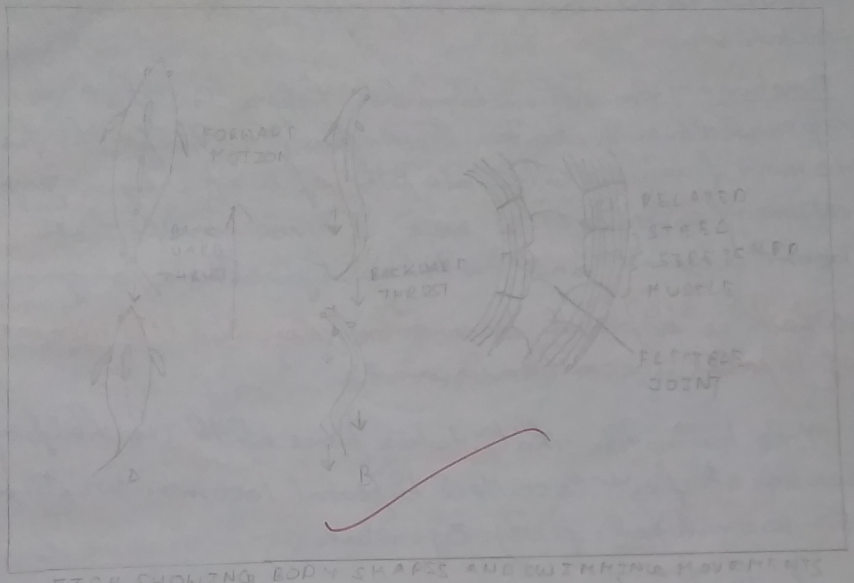
iii) The alternate contraction and relaxation of muscles help to move the two legs during walking.

iv) As walking takes place with the help of two legs it is called bipedal locomotion.

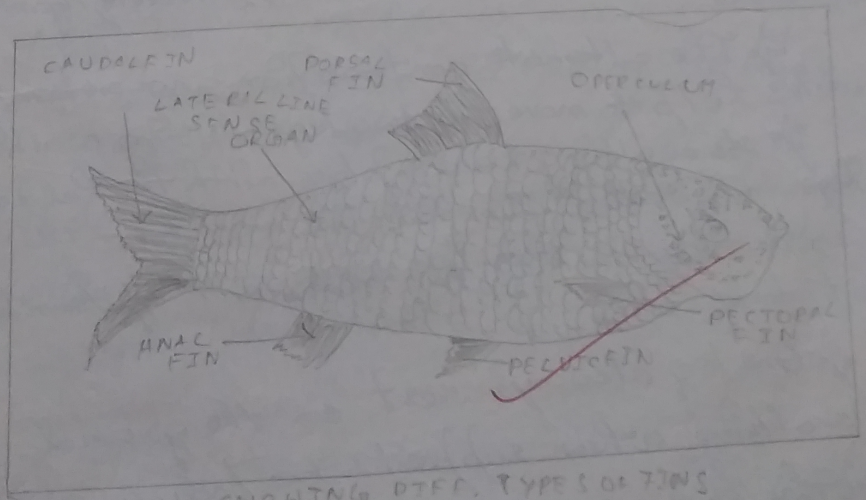
v) During walking, the movement of trunk does not take place.

vi) One leg always rest on the ground during walking which support the body weight and the other leg moves.

iv) The tail fin or caudal fin acts as the steering apparatus and helps the fish to change its direction in water.



FISH SHOWING BODY SHAPES AND SWIMMING MOVEMENTS
(A) TUNNY (TAIL SWEEPS FROM SIDE TO SIDE)
(B) EEL (S-SHAPED BENDS PASS HEAD TO TAIL) AND
(C) - SWIMMING MYOTOME MUSCLES IN ACTION.



A FISH SHOWING DIFF. TYPES OF FINS

The spindle shaped body of the fish helps the fish to swim fast in water with the minimum resistance of the water during forward movement.

Role of fins in the locomotion of fish —

The fins are the membraneous extensions of the skin of fish and are supported by bony fin-rays. Thus the fins are the appendages of fish that help in locomotion. There are altogether seven fins in the fish body. Two are paired fins — pectoral fins and pelvic fins and three are unpaired fins — dorsal fin, anal fin and caudal or tail fin.

Location of fins — i) Pectoral fin — a pair of pectoral fins remain attached with the operculum one on either side of the body.

ii) Pelvic fin — a pair of pelvic fins remain attached with the ventral side of the body.

iii) Dorsal fin — a large single fin called the dorsal fin is present on the mid dorsal line of the body.

iv) Anal fin — a single anal fin is located in the mid ventral part of the body behind the anus.

v) Tail fin or caudal fin — a single large fin is located at the end of the tail.

Function — i) Fins help to maintain the stability and direction of movements of the fish.

ii) Pectoral and pelvic fins help the animal in keeping the body in horizontal position.

iii) The dorsal fin facilitates the

(last line of myotome)

Q. Describe the mechanism of locomotion in fish

Ans:- Fishes are primarily adapted to aquatic life and swim in water with the help of their locomotor organs which are myotome muscles, fins and swim bladder.

Role of myotome muscles in locomotion of fish -

V shaped myotome muscles are arranged segmentally on each side of the flexible myotome vertebral column. Contraction and relaxation of the myotome muscles on each side of the body cause lateral undulation and propulsion of the body. When the myotome muscles of the right side contract, then the myotome muscles of the left side relax and the body bends towards the right side and lashing of tail takes place.

In the next phase, the myotome muscles of the left side of the body contract and that of the right side relax and the body bends towards the left takes place and again the lashing of tail takes place.