**Final-Term Assignment/Paper (spring -020)**

**Human Anatomy-II**

**BS Radiology Sec-A 2ndSemester)**

**Instructor: Dr. M.Jaffar**

**Time: 6-hours(9am-3pm) Max Marks: 50 name HIRA SABIT ULLAH ID 16525**

Q1. Write anterior compartment of thigh and posterior compartment of leg muscles with origin, insertion and action.(10)

ANTERIORCOMPARTMENT OF THIGH:

Flexes thigh at hip

Extends leg at knee

* Quadriceps femoris

# RECTUS FEMORIS:

* Origin – anterior inferior iliac spine , margin of acetabulum.
* Insertion- patella and tibial tuberosity via the patellar ligament.
* Action- extends knee , flexes thigh

# Vastus lateralis

# Vastus medialis

# Vastus intermedius

Origin – femur

Insertion – patella and tibial tuberosity via the patellar

Action- extends knee

# Sartorius :

Origin – anterior superior iliac spine

Insertion – medial tibia

Action – flex , abduct , lat rotate thigh ; weak knee flexor.

# Lliopsoas:

Origin – llia, sacrum , lumbar vertebrae.

Insertion – lesser trochanter

Action- flexor of thigh

Innervations – femoral nerve

# ADDUCTORS:

## Adductor longus

## adductor brevis

## adductor magnus

origin – inferior pelvis

insertion – femur

action – adducts and medial rotates

innervations – obturator nerve

## Pectineus:

Origin – pubis

Insertion – lesser trochanter

Action – adducts , medial rotates

Innervations – femoral , sometimes obturator.

## Gracilis :

Origin – pubis

Insertion – medial tibia

Action – adducts thigh , flex , medial , rotates leg

Innervations- obturator nerve.

POSTERIOR COMPARTMENT OF LEG MUSCLES:

Plantarflex foot , flex toes

Innervation : Tibial nerve

# SUPERFICIAL POSTERIOR COMPARTMENT:

Triceps surae

## GASTROCNEMIUS ( 2 HEADS)

Origin – medial and lateral condyles of femur

Insertion – posterior calcaneus via Achilles tendon

## SOLEUS:

Origin- tibia and fibula

Insertion – same as above

Action of both – plantarflex foot

## PLANTARIS ( variable ):

Origin – posterior femur

Insertion – same as above !

Action – plantarflex foot , week knee flexion

All innervated by the tibial nerve

# DEEP POSTERIOR COMPARTMENT:

## Popliteus:

Origin : lateral condyle femur and lateral meniscus

Insertion – proximal tibia

Action- flex and medially rotate leg.

## Flexor digitorum longus:

Origin : tibia

Insertion : distal phalanges of toe 2-5

Action – plantarflex and invert foot, flex toe

## Flexor hallucis longus:

Origin- fibula

Insertion- distal phalanx of hallux

Action- plantarflex and invert foot , flex toe

## Tibialis posterior:

Origin – tibia , fibula , and interosseous membrane

Insertion- tarsals and metatarsals

Action – plantarflex and invert foot .

All innervated by the tibial nerve.

Q2. Define the following (10).

1. Endocrine gland

# DEFINITION:

Glands that secrete their product ( hormone ) directly into the blood rather than through a duct.

Example –

Pituitary gland

Thyroid gland

Adrenal gland

1. Exocrine gland

# DEFINITION :

Exocrine glands are glands that secrete their products into ducts.

Example-

Sweat glands

Salivary glands

Liver

1. Thalamus

# DEFINITION ;

Thalamus is a large egg shaped mass of grey matter present in diencephalon , a part of the forebrain. Thalamus is involved in sensory as well as motor function of the brain. It is the part of the brain where the sensory information from all over the body converge and are then sent to various areas of the cortex.

1. femoral triangle

# DEFINITION:

The femoral triangle ( of scarpa )is an anatomical region of the upper inner human thigh. It is a subfascial space which in living people appears as a triangular depression inferior to the inguinal ligament when the thigh is flexed, abducted and laterally rotated.

Q3. Write the Extraocular muscles. Enlist both voluntary and involuntary. (10)

# ANSWER:

EXTRAOCULAR MUSCLES:

The extraocular muscles are located within the orbit, but are extrinsic and separate from the eyeball itself. They act to control the movements of the eyeball and the superior eyelid.

The extraocular muscles are the six muscles that control movement of the eye and one muscle that controls eyelid elevation ( levator palpebrae ). The actions of the six muscles responsible for eye movement depend on the position of the eye at the time of muscle contraction.

# VOLUNTARY MUSCLES:

* superior rectus
* inferior rectus
* medial rectus
* lateral rectus
* superior oblique
* inferior oblique
* levator palpebrae superioris.

# INVOLUNTARY MUSCLES:

* superior tarsal or muller’s muscle,
* inferior tarsal muscle.

Q4. Describe the arches of foot and functions of arches. (10)

# ANSWER:

ARCHES OF FOOT:

The arches of the foot , formed by the tarsal and metatarsal bones,strengthened by ligaments and tendons, allow the foot to support the weight of the body in the erect posture with the least weight. They are categorized as longitudinal and transverse arches.

# The bones of foot:

Tarsals

Metatarsals

Phalanges

## SEVEN TARSAL BONES:

* talus
* calcaneus
* nanicular
* cuboid
* cuneiform
* medial / intermediate/ lateral.

## METATARSALS:

* connects the tarsals to the phalanges
* toe 1 has the shortest metatarsal bone.

## PHALANGES:

* 3 phalanges on each toe
* Proximal / intermediate / distal
* Except toe 1 which has only 2

Bones of the foot are arranged to form three strong arches

* Arches are fully developed by the age 12 or 13.
* - two longitudinal ( lateral and medial )
* - one transverse.

# FUNCTION OF ARCHES:

Arches help the foot support and distribute the weight of the body and provide leverage during walking.

Q5. Write a note on cerebrum, its lobes and functions. (10)

# ANSWER:

CEREBRUM:

The principal and most anterior part of the brain in vertebrates, located in the front area of the skull and consisting of two hemispheres, left and right, separated by a fissure. It is responsible for the integration of complex sensory and neural function and the initiation and coordination of voluntary activity in the body.

# STRUCTURE:

* It is divided into 2 halves called cerebral hemisphere.
* They communicate via corpus collosum.
* Cerebral cortex is the outer region cerebrum.

## FUNCTION OF CEREBRUM:

* It helps in movement.
* It controls speech.
* It is responsible for sensory processing.
* It determines the intelligence of the being.

## LOBES OF CEREBRUM:

1. Frontal lobe
2. Parietal lobe
3. Occipital lobe
4. Temporal lobe

## FRONTAL LOBE:

Most anterior portion of the cerebrum ( under forehead ) “ central sulcus” separate frontal and perital lobe.

Controls motor functions, personality , and speech.

Like center of reasoning , planning some parts of speech, movement , emotions ,problem solving.

Also called “ motor cortex”.

## PARIETAL LOBE;

The most superior portion of the cerebrum ( top of head),

Receives and interprets nerve impulses from sensory receptors and interprets language.

Receives sensory input from the skin . ( touch , pressure , temperature and pain)

Also called as sensory cortex.

## OCCIPITAL LOBE:

The most posterior portion of the cerebrum ( back of the head ),

Receives input from the eyes and control vision.

Also called as visual cortex.

## TEMPORAL LOBE:

The left and right lateral portion of the cerebrum ( on the sides of your head above your ears),

Controls hearing and smell

Also called auditory cortex.

THE END