**Iqra national University Peshawar**

**Final term viva assignment**

**Submit to : sir waqas**

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**Discipline BS radiology**

**Question no 1: write a note on the structure of Human Ear?**

**Answer:**  The human ear consist of three parts

* **The outer ear**
* **The middle ear**
* **Inner ear**

The ear canal of the outer ear is separated from the air filled tympanic cavity of the middle ear by the eardrum. The middle ear contain the three small bone the ossicles involved in the transmission of sound, and is connected to the throat at the

Nasopharynx , via the pharyngeal opening of the Eustachian tube . The inner ear contains the otolith organs the utricle and saccule and the Semicircular canals belonging to the vestibular system as well as the cochlea of the auditory system.

**Outer ear**

The outer ear is the external portion of the ear and includes the fleashy visible pinna ( also called the auricle),

The ear canal, and the outer layer of the eardrum (also called the tympanic membrane)

The pinna consist of the curving outer rim called the helix, the inner curved rim called the antihelix, and open into the ear canal. The Tragus protrudes and partially obscures the ear canal, as does the facing antitragus.

The hollow region in front of the ear canal is called the concha.

The first part of the canal is surrounded by cartilage, while the second par near the eardrum is surrounded by bone.

This bony part is known as the auditorybulla and is formed by the tympanic part of the temporal bone.

The skin surrounding the ear canal contains ceruminous and sebaceous glands that produce protective ear wax. Two sets of muscles are associated with outer ear the intrinsic and extrinsic muscles.

The pinna consists of a single piece of elastic cartilage with a complicated relief on its inner surface and a fairly smooth configuration on its posterior surface. A tubercle , known as Darwin’s tubercle

The earlobe consist of areola and adipose tissue . the symmetrical arrangement of the two ears allows for the localization of sound .

The brain accomplish this by comparing arrival – times and intensities from each ear, in circuits located in the superior olivary complex and the trapezoid bodies which are connected via pathway the both ears.

**Middle Ear**

The middle ear lies between the outer ear and the inner ear. It consists of an air-filled cavity called the tympanic cavity and includes the three ossicles and their attaching ligaments; the auditory tube , and the round and oval windows.

The ossicles are the malleus (hammer)

Incus (anvil) and the stapes ( stirrup)

The middle ear also connects to the upper throat at the nasopharynx via the pharyngeal opening of the Eustachian tube .

**Inner Ear**

The inner ear sits within the temporal bone in a complex cavity called the bony labyrinth. A central area known as the vestibule contains two small fluid-filled recesses , the utricle and saccule. These connect to the semicircular canals and the cochlea. The cochlea is a spiral shell- shaped organ responsible for the sense of hearing .

These structure together create the membranous labyrinth.

The cochlea consists of three fluid – filled spaces the vestibular duct , the cochlear duct, and the tympanic duct

**Question no 2: what do you know about sub mandibular and sub lingual glands?**

**Answer:**  The sub mandibular gland is the second largest of the three main salivary glands , which also include the parotid and sublingual glands. The sub mandibular gland are paired major salivary glands . that lies in the sub mandibular triangle. The gland have a superficial and deep lobe separated by the mylohyoid muscle. The sub mandibular glands are found on both sides, just under and deep to the jaw , towards the back of the mouth . this gland produces roughly 70% of the saliva in our mouth. The sub mandibular duct, called warhtins duct, enter the floor of the mouth under the front of the tongue.

**Sublingual gland** meanwhile , reside beneath the tongue, and supply saliva to the floor of the mouth as well . there are many (between 600 to 1,000) tiny glands called minor salivary glands. These glands are 1-2 mm in diameter and coat all the surface or lining of our mouth and throat.

**Question no 3 :why stone formation is more common in the submadibular gland than other salivary gland ?**

**Answer:**  Stone formation occurs most commonly in the submandibular gland for several reasons. The concentration of calcium in saliva produced by

Submandibular gland is twice that of the saliva produced by the parotid gland. The sub mandibular gland saliva is also relatively alkaline and mucous.

**Question no 4: what do u know about the veretebra’s of the human skeleton. Explain in detail**

**Answer:**  Vertebrae are the 33 individual bones that interlock with each other to form the spinal column. The vertebrae are numbered and divided into regions : cervical , thoracic, lumbar, sacrum and coccyx are fused. The vertebrae in each region have unique features that help them perform their main function.

**Cervical ( neck) –** The main function of the cervical spine is to support the weight of the head (about 10 pounds). The seven cervical vertebrae are numbered C1 to C7. The neck has the greatest range of motion because of two specialized vertebrae that connect to the skull

The first vertebrae (C1) is the ring- shaped atlas that connects directly to the the skull. This joint allows for the nodding or yes motion of the head.

**Thoracic (mid back)** The main function of the lumber spin Is to bear the lumber spine is to bear the weight of the body. The five lumber vertebrae are numbered L1 to L5 . These vertebrae are much larger in size to absorb the stress of lifting and carrying heavy objects.

**Sacrum-** The main function of the sacrum is to connect the spine to the hip bones (iliac) . there are five sacral vertebrae, which are fused together . together with the iliac bones, they form a ring called the pelvic girdle.

**Coccyx region-** The four fused bones of the coccyx or tailbone provide attachment for ligaments and muscles of the pelvic floor.

While vertebrae have unique regional features, every vertebra has three functional parts

* A drum-shaped body designed to bear weight and withstand compression( purple)
* An arch- shaped bone that protect the spinal cord (green)
* Star -shaped processes designed as outriggers for muscle attachment.

**Question no 5: write about the importance of Radiology in medical field?**

**Answer:** Radiology plays a huge role in disease management by giving physicians more options, tools, and techniques for detection and treatment. Diagnostic imaging allows for detailed information about structural of disease- related changes . with the ability to diagnose during the early stages , patients may be saved.

**Radiology**  is now the key diagnostic tool for many diseases and has an important role in monitoring treatment and predicting outcome. It has a number of imaging modalities in its armamentarium which have differing physical principles of varying complexity.

 **The End**