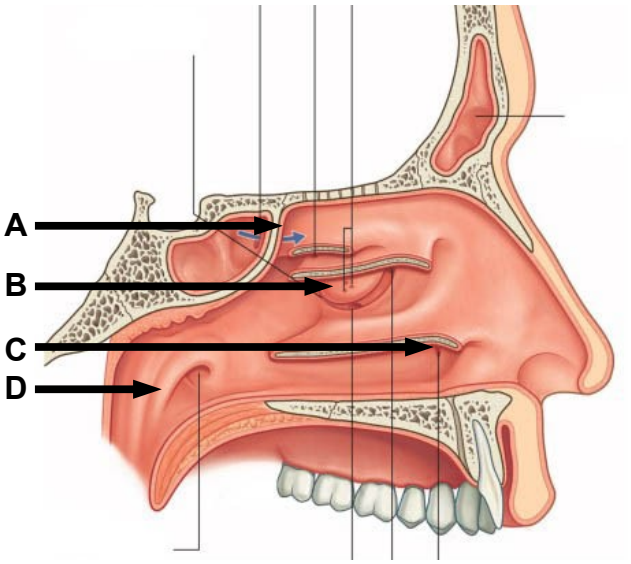
EXAM NUMBER_____

GRADUATE HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 7

December 10, 2021

PART I. Answer in the space provided. (14 pts)

1. **Identify the structures. (2 pts)**



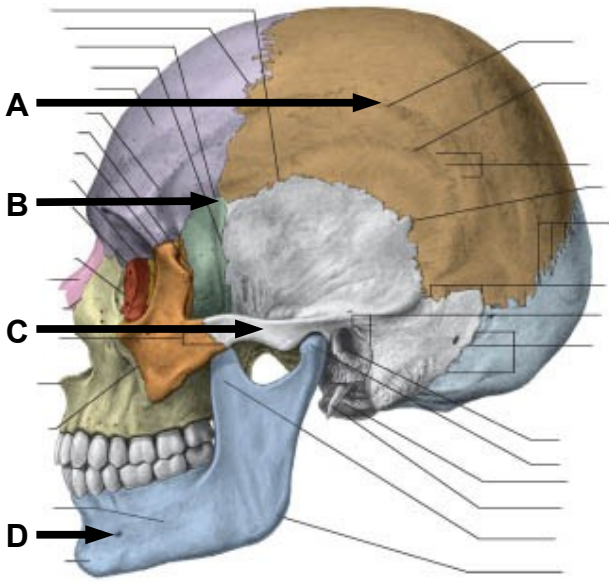
A) _____

B) _____

C) _____

D) _____

2. **Identify the structures. (2 pts)**



A) _____

B) _____

C) _____

D) _____

EXAM NUMBER_____

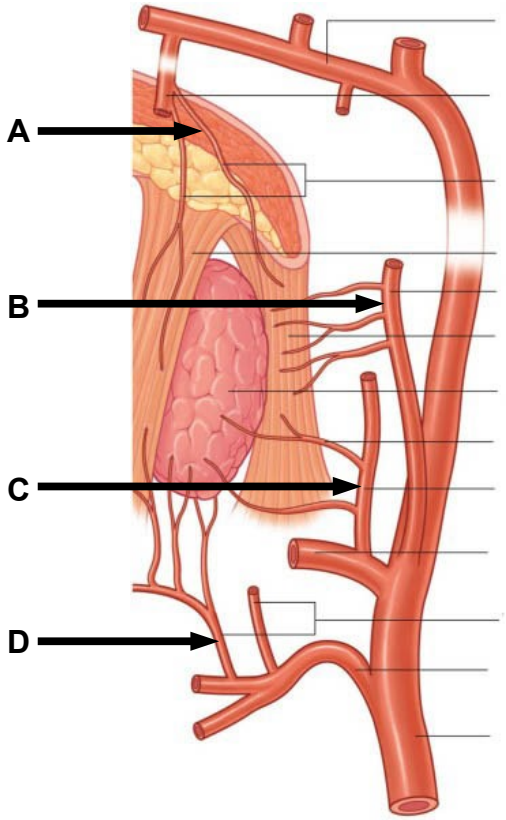
3. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



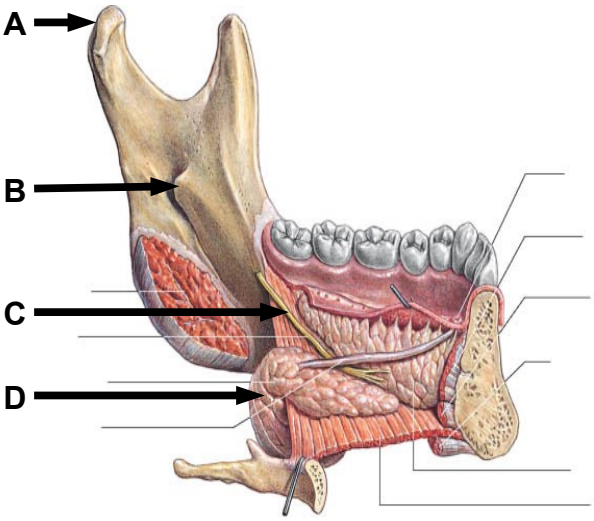
4. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



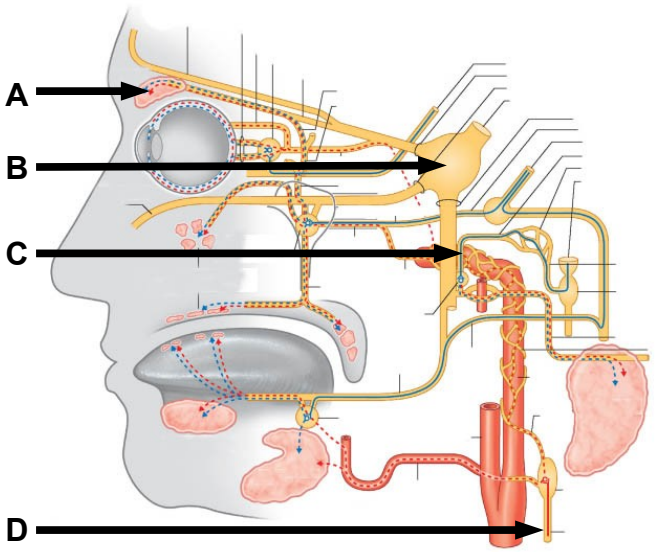
5. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



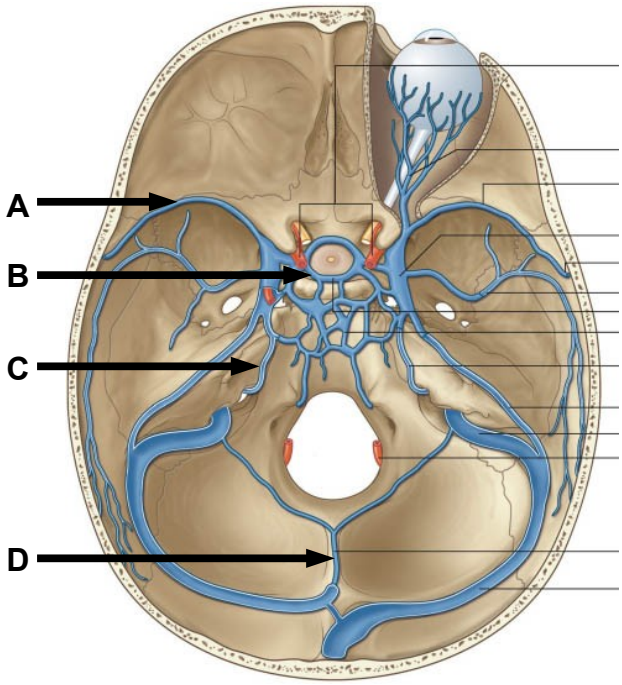
6. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



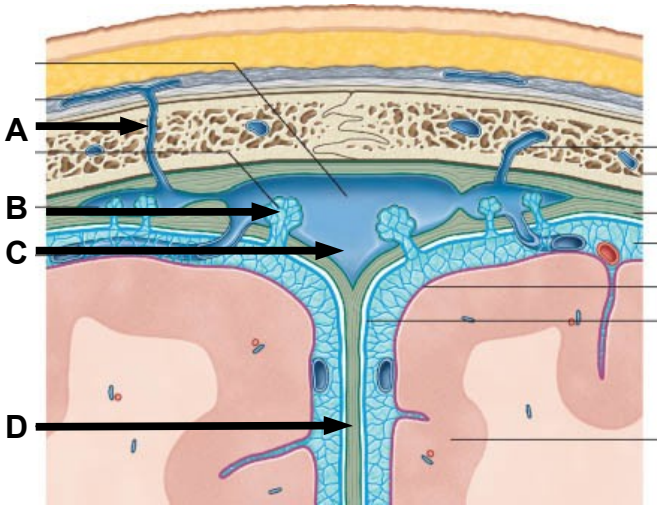
7. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



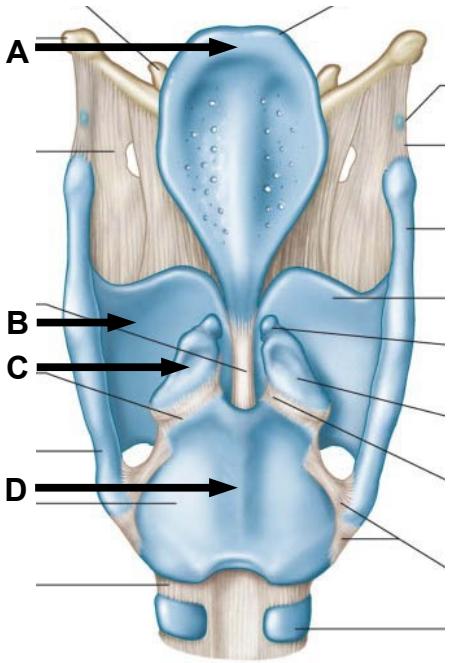
8. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



Part II. Circle the correct answer. All, none, or some may apply. (18 pts)

1. **With regard to the cranial nerves:**

   a) The lesser superficial petrosal nerve passes through the petrotympanic fissure to enter the infratemporal fossa.

   b) Damage to the glossopharyngeal nerve at the base of the tongue weakens elevation of the oropharynx.

   c) Efferent fibers (Special Visceral Efferent) of the vagus nerve contribute to phonation, swallowing, and equalization of air pressure within the middle ear.

   d) A deviated protrusion of the tongue to the right side indicates a lesion of the right hypoglossal nerve.

   e) A lesion of the facial nerve proximal to the genu of the facial canal disrupts reflex lacrimation and salivation.

   f) Damage to the superior division of the oculomotor nerve, proximal to the motor root of the ciliary ganglion, eliminates the pupillary light reflex.

2. **With regard to the triangles of the neck:**

   a) The great auricular nerve ascends along the posterior margin of the sternocleidomastoid muscle and provides motor innervation to the region of the anterior triangle.

   b) Fibers from the cervical plexus travel with the hypoglossal nerve and then leave the hypoglossal nerve to form the nerve to geniohyoid.

   c) Prevertebral fascia, at the anterior scalene muscle, passes posterior to the phrenic nerve and posterior to the transverse cervical artery.

   d) The anterior and posterior bellies of the omohyoid muscle are innervated by the nerve to mylohyoid.

   e) The external laryngeal nerve passes through the cricothyroid membrane with the inferior laryngeal artery.

   f) The right recurrent laryngeal nerve ascends across the anterior surface of the brachiocephic artery.

3. **With regard to the skull, face, and scalp:**

   a) Tears from lacrimation enter the upper lateral conjunctival fornix and ultimately drain by way of the nasolacrimal duct into the superior nasal meatus.

   b) Parietal emissary veins communicate between the scalp and the cranial vault.

   c) The temporal branch of the facial nerve provides SVE fibers to the inferior half of orbicularis oculi.

   d) The infraorbital foramen is deep to levator labii superioris.

   e) The facial vein communicates with the cavernous sinus by way of orbital veins and the pterygoid venous plexus.

f) A “blowout” fracture of the orbital floor may entrap the superior rectus muscle and sever the ophthalmic nerve.

4. With regard to the parotid region, temporomandibular joint, temporal fossa, and infratemporal fossa:

a) The mylohyoid groove is houses the nerve to mylohyoid.

b) The deep temporal nerve splits to encircle the middle meningeal artery at the foramen spinosum.

c) The chorda tympani nerve passes from the middle middle ear to the middle cranial fossa by way of the tegmen tympani.

d) The medial pterygoid muscle arises from the medial pterygoid plate.

e) Damage to the buccal nerve causes paralysis of the buccinator muscle.

f) Damage to the lingual nerve, at the foramen ovale, disrupts taste to the posterior one-third of the tongue.

5. With regard to the cranial fossae, dural sinuses, and orbit:

a) The mastoid air cells communicate with the middle ear.

b) The foramen cecum of the skull, when patent, provides a venous communication between the superior sagittal sinus and the frontal air sinus.

c) The inferior sagittal sinus and the great cerebral vein of Galen meet at the tentorial notch to form the siphon sinus.

d) The inferior petrosal sinus directly communicates with the basilar venous plexus and the internal jugular vein.

e) The deep petrosal nerve is located within the posterior cranial fossa near the apex of the petrous portion of the temporal bone.

f) The jugular foramen conveys the glossopharyngeal, vagus, spinal accessory, and sphenoparietal sinus from the middle cranial fossa to the base of skull.

6. With regard to the larynx, pharynx, and oral cavity:

a) The buccinator muscle and the superior constrictor muscle have a common site of attachment at the pterygomandibular raphe.

b) The palatoglossus, palotopharyngeus, salpingopharyngeus, levator palatini, and tensor veli palatini muscles are innervated by the vagus nerve.

c) The afferent limb of the gag reflex is mediated by the lingual nerve.

d) The palatine tonsils are posterior to the palatoglossal arch and anterior to the palatopharyngeal arch.

e) The median and lateral glossoepiglottic folds border the vallecula.

f) The lateral cricoarytenoid muscle adducts the false vocal cord.

Part III. Indicate your understanding of the following. (30 pts)

1. A rapid deceleration of the forehead may cause anosmia. **Discuss the anatomical relationships of the cribriform plate of the ethmoid bone. (6 pts)**

2. The larynx provides a patent airway for respiration and a restricted airway for the Valsalva maneuver. Additionally, movements of the true vocal cords provide the basis for vocalization. **Review the anatomy of the true vocal cords. (6 pts)**

3. The tongue executes the complex movements and sensations of phonation, gustation, mastication, and swallowing. Further, because of embryology, the tongue is divided into an anterior two-thirds and a posterior one-third. **Review the sensory and motor innervation to the tongue. Include functional components and modalities. (6 pts)**

4. Scalp lacerations may lead to intracranial infections. **Review the anatomy of the scalp. Include layers, boundaries, vessels, nerves, and muscles. Account for spread of infection from the scalp to the dural sinuses. (6 pts)**

5. Erosion or laceration of the posterior wall of the oropharynx may introduce infection into the retropharyngeal space. **Review the retropharyngeal space. Include boundaries and relationships. (6 pts)**

Part IV. Essay. (36 pts)

1. Bruxism is excessive clenching of the jaw and grinding of the teeth. If untreated, bruxism may lead to dysfunction of the temporomandibular joint and aching of the muscles of mastication. **Discuss the anatomy of the parotid region, temporomandibular joint, and infratemporal fossa. Include boundaries, joint cavities, movements and limitations of movement, nerves, functional components, arteries, veins, relationships, and communications. (12 pts)**

2. Trigeminal neuralgia is the rapid onset of excruciating pain triggered by touch to the face. Most often involved is the maxillary division of the trigeminal nerve. Treatment may be to permanently block all nervous pathways within the pterygopalatine fossa. **Discuss the nervous distributions of the pterygopalatine fossa. Include native and non-native pathways. Account for the expected functional deficits following perturbation of each functional component passing within the pterygopalatine fossa. (12 pts)**

3. A seventy two year-old male comes to your office with complaints of hoarseness and postnasal drip. You note the distinct smell of tobacco. He has ptosis of the left eye and the left pupil is smaller than the right. There is fullness over the left supraclavicular region. A Pancoast tumor is highly suspected. **Discuss the anatomy of the left vertebral triangle. Include boundaries, contents, relationships, fascial specializations, vasculature, innervation, lymphatic drainage, and the clinical significance of damage to structures in the area. (12 pts)**