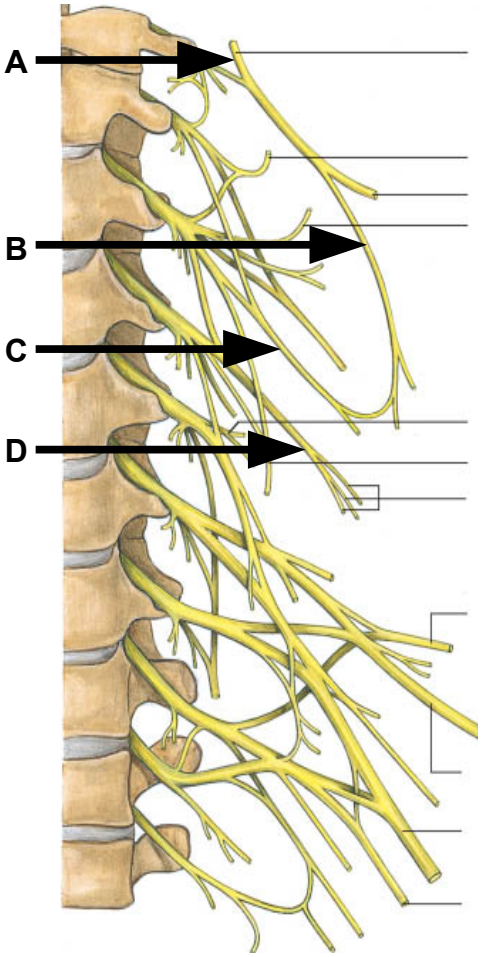
EXAM NUMBER_____

GRADUATE HUMAN GROSS ANATOMY – ANAT 503
EXAMINATION 7

December 8, 2017

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

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



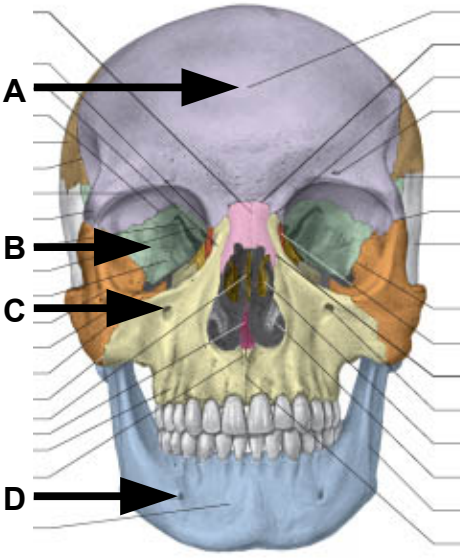
A) _____

B) _____

C) _____

D) _____

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



A) _____

B) _____

C) _____

D) _____

EXAM NUMBER_____

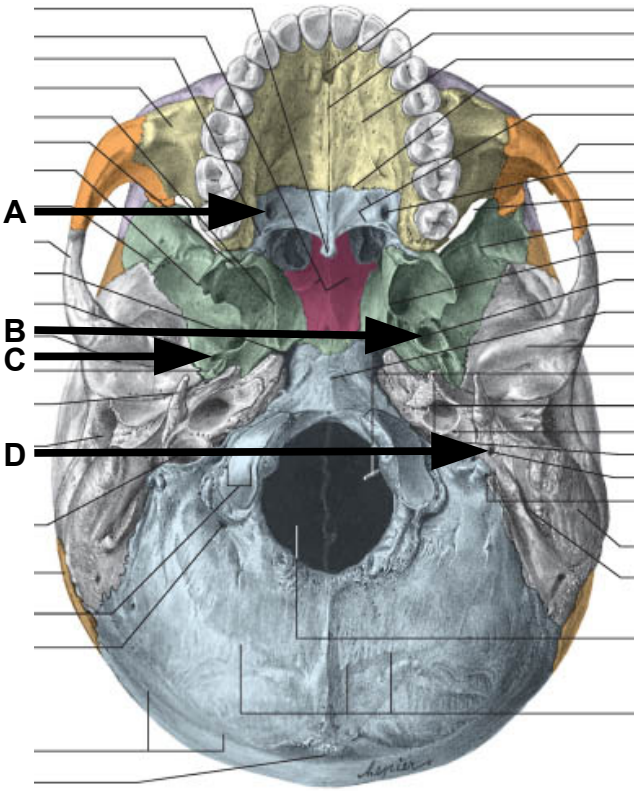
3. Identify the structures. (2 pts)

A) _____

B) _____

C) _____

D) _____



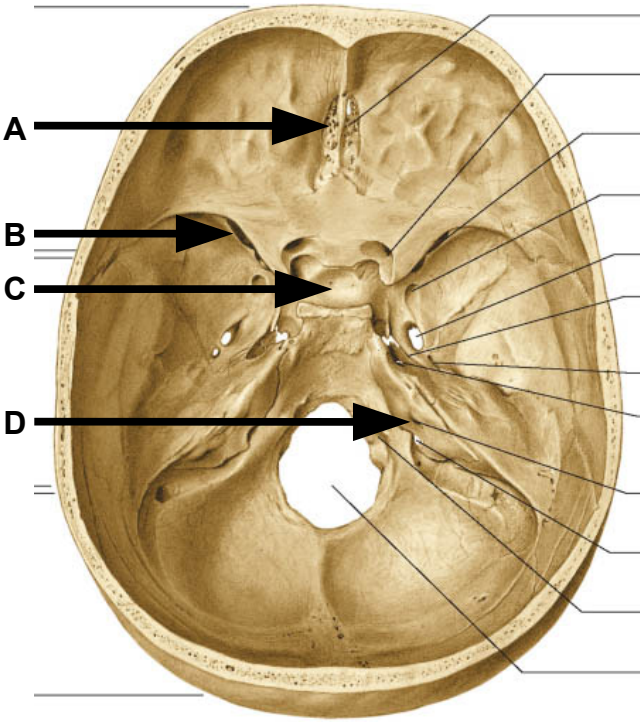
4. Identify the structures. (2 pts)

A) _____

B) _____

C) _____

D) _____



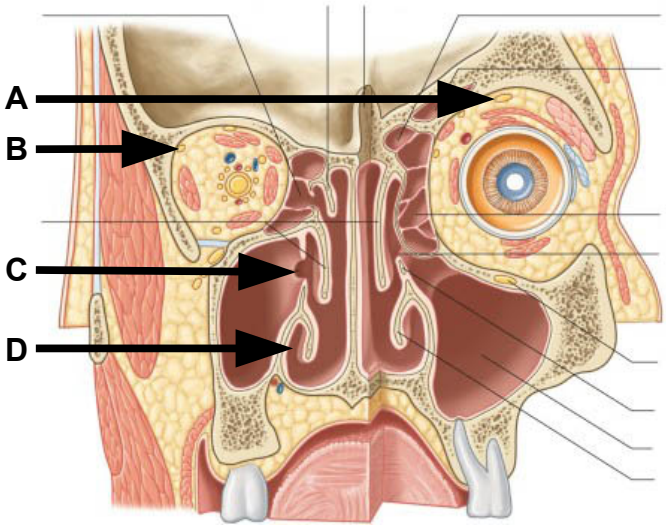
5. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



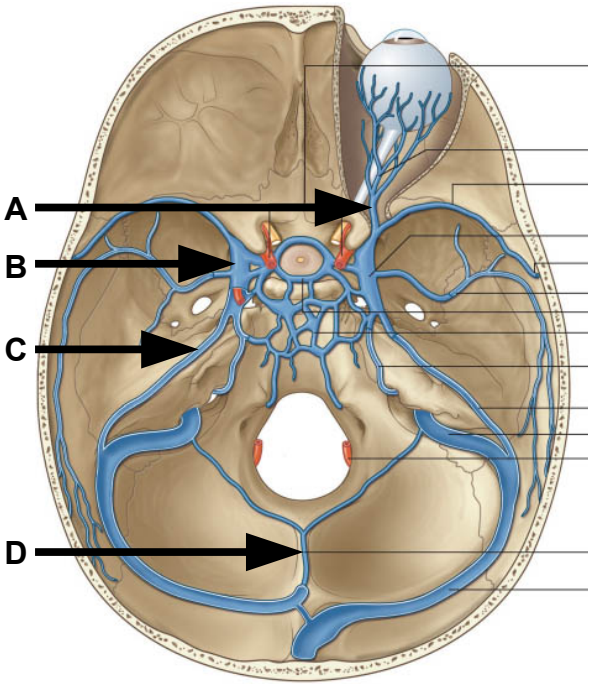
6. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



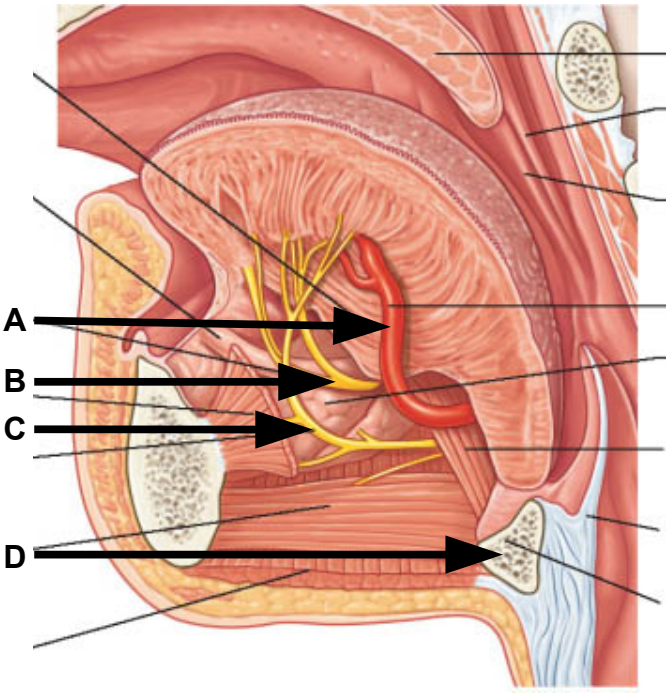
7. **Identify the structures. (2 pts)**

A) _____

B) _____

C) _____

D) _____



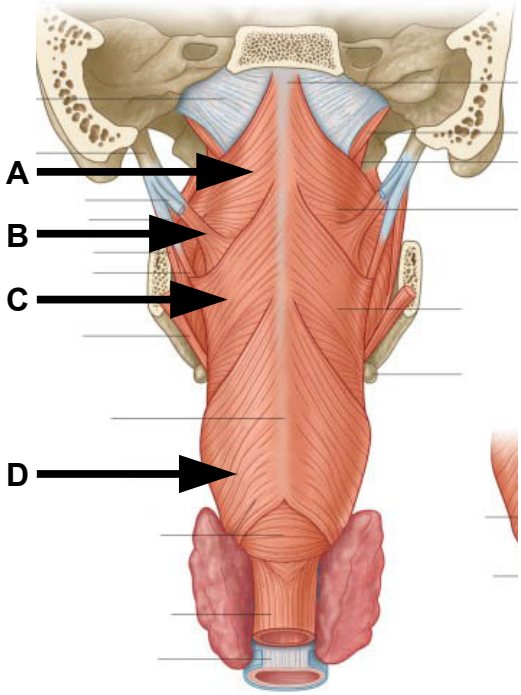
8. **Identify the structures. (2 pts)**

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 olfactory fascicles pass through the cribriform plate to enter the nasal cavity.

   b) Damage to the glossopharyngeal nerve at the jugular foramen weakens raising of the pharynx and disrupts taste to the anterior two thirds of the tongue.

   c) Efferent fibers (Special Visceral Efferent) of the vagus nerve contribute to elevation of the soft palate and to equalization of air pressure within the middle ear.

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

   e) A lesion of the facial nerve distal to the branching of the greater superficial petrosal nerve and proximal to the branching of the stapedius nerve causes hyperacusis but not not disrupt reflex lacrimation.

   f) Damage to the inferior division of the oculomotor nerve proximal to the motor root of the ciliary ganglion eliminates the pupillary light reflex on the side of the lesion.

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

   a) The great auricular nerve ascends along the posterior edge of the sternocleidomastoid muscle and provides motor innervation to the pinna.

   b) Fibers from the cervical plexus travel with the hypoglossal nerve and then leave the hypoglossal nerve to form the superior root of the ansa cervicalis.

   c) Prevertebral fascia separates the phrenic nerve and the transverse cervical artery.

   d) The anterior and posterior bellies of the digastric muscle are innervated by the cervical plexus.

   e) The internal laryngeal nerve passes through the thyrohyoid membrane with the inferior laryngeal artery.

   f) The ansa subclavia ascends across the anterior surface of the subclavian artery.

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

   a) Tears of lacrimation enter the upper lateral conjunctival fornix and ultimately drain into the inferior nasal meatus.

   b) Parietal emissary veins may spread infections from the “loose areolar space” of the scalp to the superior sagittal sinus.

   c) The temporal branch of the facial nerve provides SVE fibers to the platysma muscle.

   d) The greater wing of the sphenoid bone contributes borders to the superior and inferior orbital fissures.

   e) The facial vein, if thrombosed, may drain into the orbit and cavernous sinus.

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

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

   a) The mylohyoid grove is a site of origin for the mylohyoid muscle.

   b) Injury to the auriculotemporal nerve within the infratemporal fossa disrupts salivation from the submandibular gland.

   c) The lesser superficial petrosal nerve passes from the middle cranial fossa to the infratemporal fossa by way of either the foramen spinosum or the foramen ovale.

   d) Spasm of the pterygoid muscle, secondary to bruxism, may cause referred pain to the ear.

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

   f) Damage to the lingual nerve near the foramen ovale disrupts taste to the anterior two-thirds of the tongue.

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

   a) The inferior petrosal sinus communicates directly with the basilar venous plexus.

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

   c) The straight sinus, inferior sagittal sinus, and the great vein of Galen meet at the tentorial notch.

   d) The marginal sinus communicates with the basilar venous plexus, occipital sinus, and internal vertebral venous plexus.

   e) The internal carotid artery enters the middle cranial fossa at the apex of the petrous portion of the temporal bone.

   f) The jugular foramen conveys the glossopharyngeal, vagus, spinal accessory, and hypoglossal nerves from the posterior cranial fossa to the infratemporal fossa.

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 sphenomandibular ligament.

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

   c) The gag reflex is mediated by the GVA component of the glossopharyngeal nerve.

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

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

   f) The posterior cricoarytenoid muscle is the only muscle that adducts the true vocal cord.

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

1. Viral cold infections are common. Bacterial sinus infections are less common. **Define the drainages of the paranasal air sinuses. Why is the maxillary sinus prone to bacterial infection? (6 pts)**

2. The larynx provides an airway for respiration and vocalization. The nerves of the larynx are at risk during thyroid surgery. **Review the anatomy, innervation, and function of the cricothyroid muscle. (6 pts)**

3. A treatment for trigeminal neuralgia is to inject nerve blocking agents into the pterygopalatine fossa. This procedures blocks neural transmission for all nerves within the pterygopalatine fossa. Thereafter, the patient may suffer from a dry eye. **Discuss the anatomy of lacrimation. (6 pts)**

4. Testing for sensory and motor deficits of the tongue provides information about the functioning of multiple cranial nerves. **Cite the nervous distributions that convey GSA, GVA, GVE, GSE, and SVA functional components to the tongue. (6pts)**

5. Patients having oral, pharyngeal, or laryngeal cancers may present to the physician's office with the chief complaint of ear pain. **Discuss the sensory innervation to the ear that may mediate referred pain from the oral cavity, pharynx, and larynx. (6 pts)**

Part IV. Essay. (36 pts)

1. A 38 year-old male presents to the Emergency Department with a swollen left eye. He denies trauma to the eye. He initially reports having a headache “on the top of my head.” He now has a generalized headache, fever, pain behind his eye, and double vision. On exam, there is ptosis, proptosis, conjunctival injection, and inability to track with his left eye. He has hyperesthesia of his left face, from the lateral forehead to the upper lip. His fundoscopic exam displays papilledema. **Discuss the anatomy of the cavernous sinus. Include boundaries, contents, and relationships. Account for symptoms caused by damage to structures within the cavernous sinus? (12 pts)**

2. An apical abscess of the lower molars may erupt into the floor of the mouth and then enter the submandibular space by way of the posterior free edge of the mylohyoid muscle. This infection may then erode into deeper cervical regions. **Discuss the spaces defined by the cervical fasciae. Include boundaries, contents, relationships, lymphatic drainage, and clinical significance. (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)**