EXAM NUMBER_____

STRUCTURAL BASIS OF MEDICAL PRACTICE
EXAMINATION 7

October 22, 2010

PART I. Answer in the space provided. (12 pts)

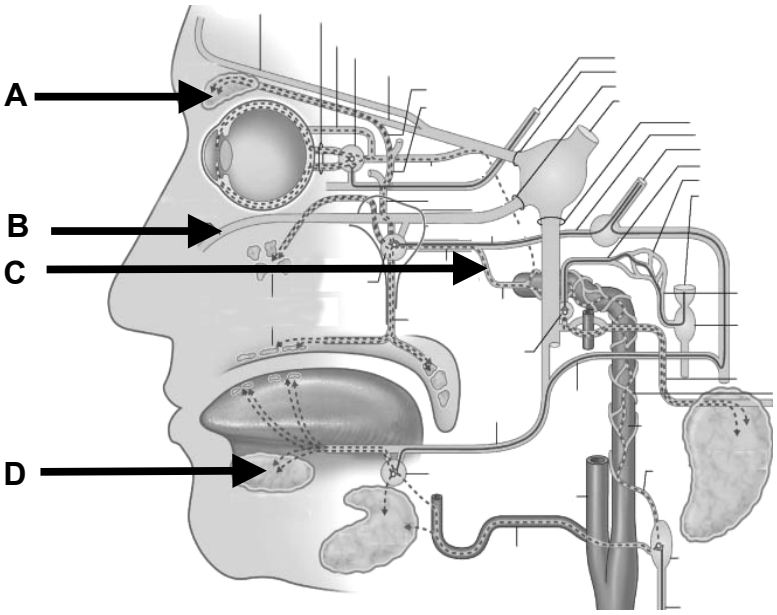
1. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



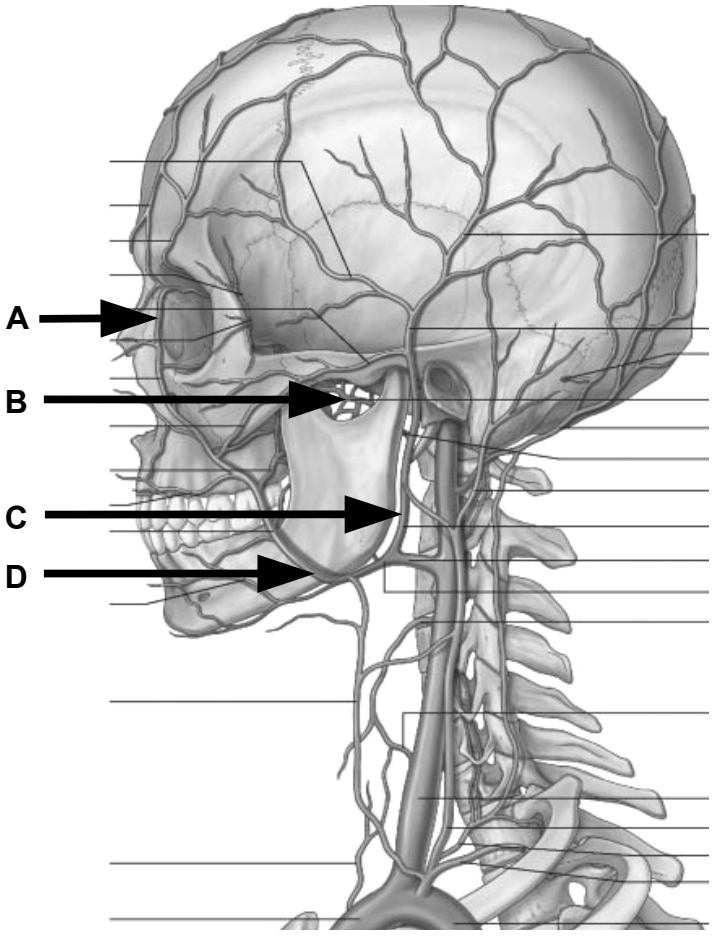
2. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



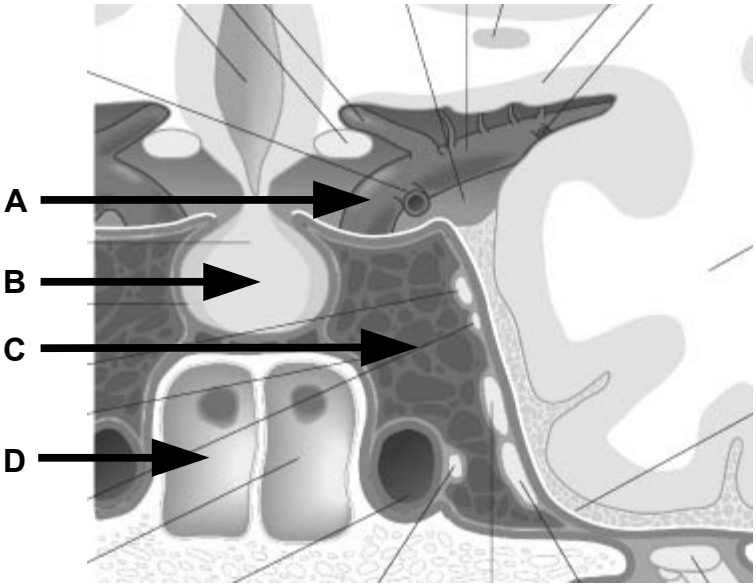
3. Identify the structures. (2 pts)

A._____

B. _____

C. _____

D. _____



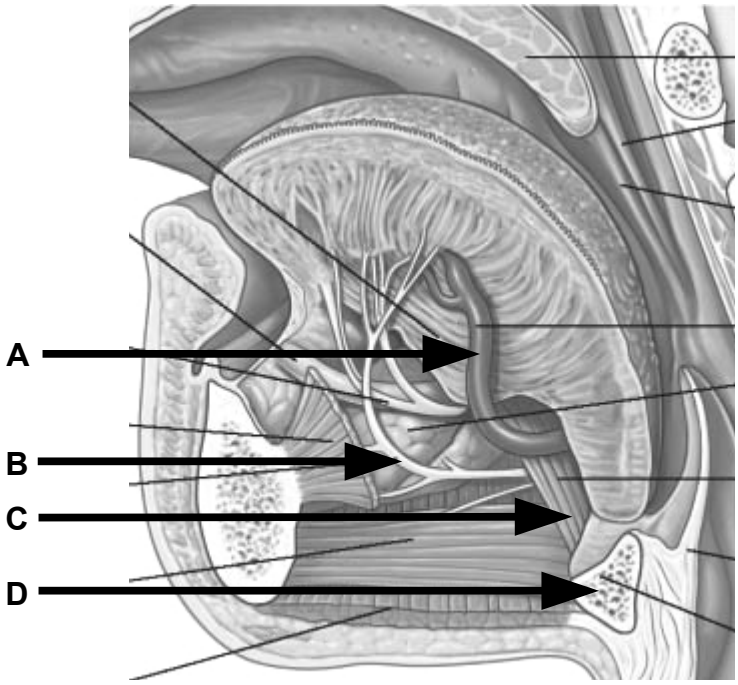
4. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



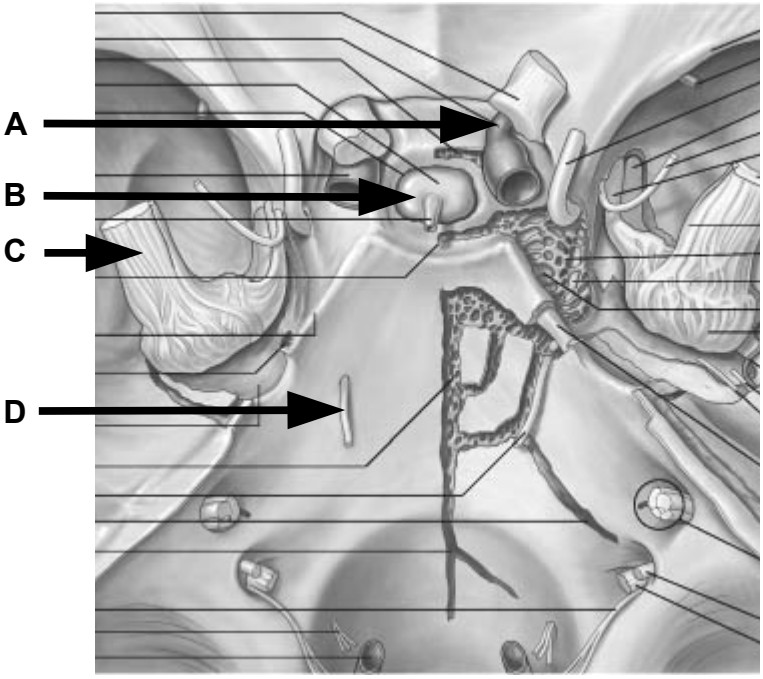
5. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



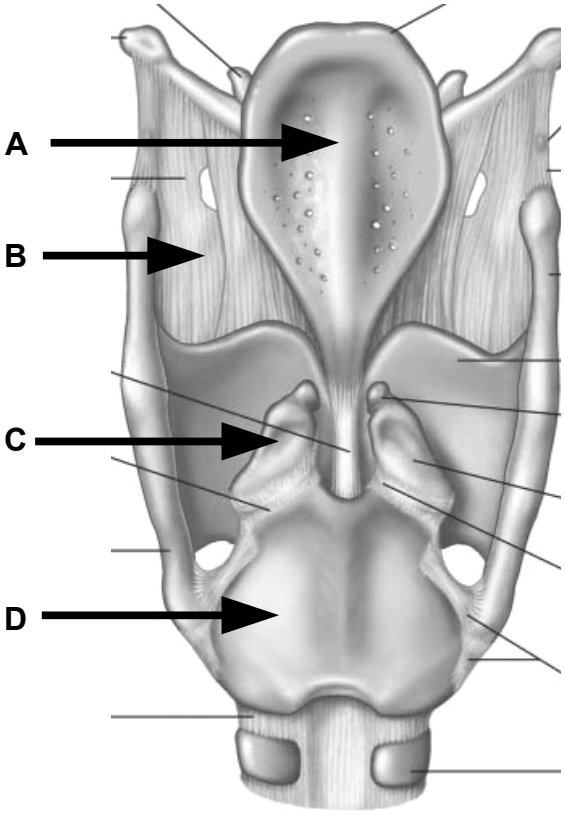
6. Identify the structures. (2 pts)

A. _____

B. _____

C. _____

D. _____



Part II. Circle the correct answer. All, none, or some may apply. (28 pts)

1. With regard to the cranial nerves:

    a. A fracture of the cribriform plate may injure the posterior ethmoidal nerve.

    b. A pituitary tumor may compress the optic tracts and disrupt peripheral vision

    c. The afferent limb of the pupillary light reflex is mediated by the SSA component of the optic nerve.

    d. The deep petrosal nerve combines with the lesser superficial petrosal nerve to form the nerve of the pterygoid canal.

    e. The pharyngeal canal provides a bony communication between the pterygopalatine fossa and the oropharynx.

    f. The sphenopalatine foramen conveys the lateral posterior nasal nerves and the nasopalatine nerves from the infratemporal fossa to the maxillary sinus.

    g. The maxillary nerve carries GSA and SVE functional components from the middle cranial fossa to the infratemporal fossa by way of the foramen ovale.

    h. A lesion of the lingual nerve at the floor of the mouth disrupts temperature, touch, and pain sensation (GSA) to the ipsilateral anterior two thirds of the tongue but does not disrupt taste sensation (SVA).

    i. A lesion of the mandibular nerve in the middle cranial fossa causes hyperacusis (sensitivity to loud sounds).

    j. A lesion of the lesser superficial petrosal nerve disrupts taste sensitivity to the posterior one-third of the tongue.

    k. A lesion of the deep petrosal nerve causes nasal congestion and a runny nose.

    l. A lesion of the buccal nerve causes difficulty in positioning food in the occlusal plane because the buccinator muscle is paralyzed.

    m. The SVE functional component of the trigeminal nerve provides motor supply to the muscles of mastication

    n. The vestibulocochlear nerve carries SVA fibers from the cochlea.

    o. The tympanic branch of the glossopharyngeal nerve enters the tympanic cavity by passing through the tympanic canaliculus.

    p. A lesion of the lesser superficial petrosal nerve disrupts watery salivary secretions from the sublingual gland.

    q. The Inferior alveolar nerve carries an SVE functional component within the infratemporal fossa but not after this nerve enters into the body of the mandible.

    r. A lesion of the internal laryngeal nerve disrupts high pitched vocalization.

s. A lesion of the glossopharyngeal nerve at the jugular foramen disrupts elevation of the larynx during swallowing, the gag reflex, and taste sensation from the posterior one-third of the tongue.

t. Bilateral lesions of the recurrent laryngeal nerves may cause abducted true vocal cords and airway obstruction.

2. With regard to the anterior and posterior triangles of the neck:

a. The ansa cervicalis supplies motor fibers derived from the cervical plexus to the strap muscles of the anterior triangle.

b. The internal laryngeal nerve passes through the thyrohyoid membrane to supply SVE fibers to the muscles of the larynx.

c. The dorsal scapular and long thoracic nerves pierce the anterior scalene muscle.

d. The great auricular nerve crosses the sternocleidomastoid muscle in close proximity to the external jugular vein.

e. The spinal accessory nerve enters the posterior triangle by passing the posterior free edge of the sternocleidomastoid muscle at a location that is superior to where the cutaneous branches of the cervical plexus enter the posterior triangle.

f. The inferior thyroid artery passes the posterior surface of the carotid sheath as this artery approaches the tracheoesophageal groove near the cricoid cartilage.

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

a. The facial artery crosses the mandible at the anterior free edge of the masseter muscle.

b. The parotid duct pierces the buccinator muscle adjacent to the upper second molar.

c. The landmark of the skull known as bregma marks the intersection of the lambdoid and sagittal sutures.

d. The mandibular branch of the facial nerve provides sensory innervation to the buccinator muscle.

e. The retromandibular vein receives drainage from the pterygoid venous plexus.

f. The external nasal nerve is derived from ophthalmic division of the trigeminal nerve and provides the terminal distribution of the anterior ethmoidal nerve.

4. With regard to the temporomandibular Joint, temporal fossa, and infratemporal fossa:

a. The zygomatic and temporal branches of the facial nerve provide the primary source of motor innervation to the orbicularis oris muscle .

b. The posterior superior alveolar artery branches from the maxillary artery within the infratemporal fossa but, unlike the posterior superior alveolar nerve, this artery does not pass through the pterygomaxillary fissure.

c. The posterior superior alveolar nerve contributes to the superior dental plexus and then continues onto the face as the mental nerve.

d. The lingula of the mandible is a site of attachment for the stylohyoid ligament.

e. The parasympathetic root of the otic ganglion is derived from the external carotid plexus.

f. Injury to the auriculotemporal nerve at a location medial to the neck of the mandible disrupts salivation from the submandibular and sublingual glands.

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

a. The inferior sagittal sinus is within the inferior margin of the falx cerebri.

b. The lateral walls of the cavernous sinus are adjacent to the medial walls of the sphenoid sinus.

c. The superior petrosal sinus passes inferior to the trigeminal nerve.

d. The foramen cecum provides a venous communication between the superior sagittal sinus and the nasal cavity.

e. Ligation of the internal jugular veins at the jugular foramina entirely blocks intracranial venous drainage.

f. The cavernous sinus has immediate venous drainage into the superior petrosal sinus, inferior petrosal sinus, basilar venous plexus, sphenoparietal sinus, ophthalmic vein, pterygoid venous plexus, and the intercavernous sinus.

6. With regard to the pharynx and oral cavity:

a. The primary arterial supply to the tongue is by the lingual artery.

b. The mylohyoid muscle has a posterior free edge that allows infections of the upper molar teeth to spread to the spaces defined by cervical fascia.

c. Parotid gland surgery requires care to avoid damaging the buccal branch of the facial nerve.

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

e. The cricoid cartilage forms a fibrocartilagenous ring having cartilage for the anterior and lateral walls and a fibrous posterior wall.

f. The lateral cricoarytenoid muscle abducts the false vocal fold.

7. With regard to the temporal bone and ear:

a. The footplate of the stapes is oval shaped and attaches to the oval window.

b. The mucosal layer of the tympanic membrane faces the middle ear and is supplied by GVA fibers from the recurrent tympanic branch of the facial nerve.

c. The tensor tympani and the stapedial muscles dampen movement of the ossicles in the presence of loud noises.

d. The horizontal part of the facial nerve gives rise to the greater superficial petrosal nerve and the vertical part of the facial nerve gives rise to the chorda tympani nerve.

e. The lobule of the ear does not contain cartilage.

f. The chorda tympani nerve passes through the inner ear on the lateral side of the incus and the medial side of the malleus.

Part III. Indicate your understanding (characteristics, importance, function, relationships, boundaries and/or contents) of the following. Answer in the space provided. (24 pts)

1. Sella turcica . (4 pts)

2. Superior cervical sympathetic trunk ganglion. (4 pts)

3. Transverse process of C6. (4 pts)

4. Pterion. (4 pts)

5. Articular disc of the temporomandibular joint. (4 pts)

6. Posterior cricoarytenoid muscle. (4 pts)

Part V. Answer in the space provided (including the back of the page or the additional pages for each question). (36 pts)

1. On the first day of your fourth year neurology rotation as a medical student, you are asked to see two patients complaining of right facial droop. The first patient is found to have a tumor on the cranial floor at the entrance to the internal acoustic meatus. The second patient has a tumor at the stylomastoid foramen. **Discuss the anatomy, functional components, and distribution of the facial nerve. Compare the deficits resulting from a lesion of the facial nerve at the internal auditory meatus to the deficits resulting from a lesion of the facial nerve at the stylomastoid foramen. (12 pts)**

2. A 12 year old girl is playing Little League baseball when she is struck in the right eye by a batted ball. In the emergency department the soft tissues around her right eye are swollen to the extent that she cannot open her eye. Her globe is not ruptured but is displaced inferior, and a CT scan reveals a fractured floor and medial wall of her right orbit. The inferior orbital fissure and its structures are compromised. **Review the anatomy of the orbit. Include bones, contents, relationships, fascial specializations, muscles, vasculature, innervation, and lymphatic drainage. Discuss the deficits resulting from injury to the structures passing through the inferior orbital fissure. (12 pts)**

3. A 51 year old male presents to the Free Clinic with complaints of neck pain and feeling short of breath. He states he had a toothache two weeks ago and had some swelling on his lower left jaw. He took some Tylenol with minimal relief. Over the last 24 hours, he has had fever and chills, some difficulty swallowing and swelling in his neck. On exam, his temperature is 103 F, he is tachycardic, with a blood pressure of 100/60. He appears acutely ill and when asked to lay back he refuses since doing so makes him feel like he can't breath. Exam of his mouth shows his tongue to be elevated and posteriorly displaced. He has multiple deep cavities in his teeth. His neck has firm edema, is warm and tender to the touch. On auscultation you hear a high pitched noise (stridor) in his neck but not in his lungs. An x-ray of his teeth shows an apical abscess on the lower left second molar. **Discuss the spaces defined by the cervical fasciae. Include boundaries, contents, relationships, lymphatic drainage, and significance. (12 pts)**