

STRUCTURAL BASIS OF MEDICAL PRACTICE**EXAM 9****OCTOBER 31, 2003**

PART 1. Select the BEST response. (Place answer in the space provided.)
(2 points each)

1. _____ A patient with a tumor in the posterior cranial fossa is deaf in the right ear and shows weakness of the right obicularis muscle. In addition to the lesion in the right cochlear nerve, which cranial nerve is involved?
- A. maxillary division of the trigeminal nerve
 - B. abducent nerve
 - C. vagus nerve
 - D. facial nerve
 - E. ophthalmic division of the trigeminal nerve
2. _____ Branches of the facial nerve include all of the following EXCEPT the:
- A. chorda tympani
 - B. greater petrosal nerve
 - C. nerve to the stapedius
 - D. lesser petrosal nerve
 - E. posterior auricular nerve
3. _____ The superior sagittal sinus is a cranial venous sinus situated directly between the _____.
- A. pia mater and arachnoid mater
 - B. arachnoid mater and the meningeal layer of dura mater
 - C. pia mater and the endosteal layer of dura mater
 - D. meningeal layer of the dura mater and the endosteal layer of dura mater
 - E. arachnoid mater and the endosteal layer of the dura mater
4. _____ The occipital artery, as it arises from the external carotid artery, normally has which nerve associated laterally?
- A. auriculotemporal branch of the trigeminal
 - B. vagus nerve
 - C. carotid nerve
 - D. glossopharyngeal
 - E. hypoglossal nerve

5. _____ A patient complains of persistent numbness of the chin, lower lip and lower teeth. He further indicates that he has difficulty in chewing. Radiological studies of the head demonstrate a small discrete mass in the infratemporal fossa. This statement refers to questions 5, 6 and 7. From the patient's symptoms, which cranial foramen is most involved by the mass?
- A. ovale
 - B. rotundum
 - C. spinosum
 - D. petrotympanic
 - E. styloid mastoid
6. _____ Which nerve has been compromised by the mass?
- A. buccal
 - B. lingual
 - C. auriculotemporal
 - D. inferior alveolar
 - E. superior alveolar
7. _____ Which artery would be compromised by the mass based on the cranial foramen involved?
- A. sphenopalatine
 - B. inferior alveolar
 - C. superior alveolar
 - D. middle meningeal
 - E. accessory meningeal
8. _____ You are confident that you as a medical student can create an artificial airway without damaging the thyroid glands because you know that the isthmus of the thyroid is located at which of the following levels?
- A. cricothyroid membrane
 - B. laminae of the thyroid cartilage
 - C. second and third tracheal rings
 - D. cricoid cartilage
 - E. jugular notch
9. _____ The pulse found in front of the upper part of the ear is from the:
- A. transverse facial artery
 - B. superficial facial artery
 - C. facial artery
 - D. internal branch of the superior laryngeal nerve and superior laryngeal artery
 - E. hypoglossal nerve

10. _____ All of the following statements concerning the submandibular and sublingual glands and related structure are correct EXCEPT:
- A. The submandibular ganglion is a peripheral parasympathetic ganglion functionally associated with both the submandibular and sublingual glands.
 - B. The sublingual gland lies superficial to the mylohyoid muscle.
 - C. The facial nerve supplies the preganglionic, parasympathetic secretomotor fibers for the submandibular gland.
 - D. The submandibular duct lies deep on the mylohyoid muscle.
 - E. The submandibular duct opens on the summit of the sublingual papilla on the floor of the mouth at the side of the frenulum of the tongue.
11. _____ The cranial venous sinus which lies between the line of the junction of the falx cerebri and tentorium cerebelli is in the _____.
- A. transverse sinus
 - B. inferior sagittal sinus
 - C. straight sinus
 - D. occipital sinus
 - E. confluens of sinuses
12. _____ The infratemporal fossa is bounded by parts of all the following bones EXCEPT:
- A. mandible
 - B. temporal
 - C. sphenoid
 - D. zygomatic
 - E. maxilla
13. _____ Dislocation of the jaw, displacement of the articular disk beyond the articular tubercle of the temporomandibular joint, results from spasm or excessive contraction of which of the following muscles?
- A. buccinator
 - B. lateral pterygoid
 - C. medial pterygoid
 - D. masseter
 - E. temporalis
14. _____ The anterior ethmoidal artery is a branch of the _____ artery.
- A. nasopalatine
 - B. infraorbital
 - C. ophthalmic
 - D. greater palatine
 - E. lesser palatine

15. _____ A muscle which turns the eyeball so that the cornea looks up and out is the:

- A. superior oblique
- B. superior rectus
- C. inferior oblique
- D. inferior rectus
- E. lateral rectus

16. _____ The auditory (eustachian) tube communicates the:

- A. nasopharynx with the mastoid air cells
- B. oropharynx with the external meatus
- C. nasopharynx with the middle ear
- D. oropharynx with the middle ear
- E. nasopharynx with the inner ear

17. _____ The piriform recess is located:

- A. above the pharyngeal tonsils
- B. within the pharyngobasilar fascia
- C. on either side of the larynx within the laryngopharynx
- D. posterior to the salpingopharyngeal fold within the nasopharynx
- E. at the root of the tongue

18. _____ The middle pharyngeal constrictor arises from the:

- A. pterygomandibular raphae
- B. cricoid cartilage
- C. thyroid cartilage
- D. torus tubarius
- E. hyoid bone

19. _____ Which muscle receives its nerve supply from a direct branch of the ansa cervicalis?

- A. mylohyoid
- B. geniohyoid
- C. sternohyoid
- D. cricothyroid
- E. cricoarytenoid

20. _____ The following muscles of the pharynx receive their motor innervation from the pharyngeal plexus via the cranial part of the accessory nerve EXCEPT:
- A. palatopharyngeus
 - B. salpingopharyngeus
 - C. stylopharyngeus
 - D. superior constrictor
 - E. muscularis uvulae
21. _____ Which of the following muscles is primarily responsible for protrusion of the tongue?
- A. palatopharyngeus
 - B. styloglossus
 - C. hypoglossus
 - D. genioglossus
 - E. palatoglossus
22. _____ During the mechanism of swallowing, all the following muscles serve to elevate and/or move the pharynx forward EXCEPT:
- A. palatopharyngeus
 - B. salpingopharyngeus
 - C. stylopharyngeus
 - D. superior constrictor
 - E. palatoglossus
23. _____ A patient presented with a permanently dilated pupil. Which one of the following nerves could be assumed to be involved?
- A. optic
 - B. sympathetic trunk
 - C. ophthalmic
 - D. oculomotor
 - E. facial
24. _____ The carina is part of the:
- A. hyoid bone
 - B. epiglottis
 - C. trachea
 - D. larynx
 - E. pharynx

25. _____ The ostium of the maxillary sinus opens into the:
- A. sphenothmoidal sinus
 - B. superior meatus
 - C. middle meatus
 - D. inferior meatus
 - E. bulla etmoidalis
26. _____ During excessive lacrimation, as in crying, tears enter the nose at the:
- A. inferior meatus
 - B. middle meatus
 - C. superior meatus
 - D. sphenothmoidal recess
 - E. choanae
27. _____ Muscle relaxants are used routinely during anesthesia with resultant closure of the vocal folds. Laryngeal intubation by the anesthesiologist is necessary because which muscle is unable to maintain the glottis open?
- A. cricothyroid muscle
 - B. lateral cricoarytenoid muscle
 - C. posterior cricoarytenoid muscle
 - D. thyroarytenoid muscle
 - E. transverse arytenoid muscle
28. _____ A tonsillar abscess may extend posteriorly through the posterior pharyngeal wall into the:
- A. pleural cavity
 - B. anterior triangle of the neck
 - C. suprasternal space
 - D. pharyngeal tonsil
 - E. retropharyngeal space
29. _____ A ligature occluding the external carotid artery just distal to the lingual artery would probably stop the flow of blood to each of the following **EXCEPT**:
- A. inferior alveolar artery
 - B. superficial temporal artery
 - C. infraorbital artery
 - D. middle meningeal artery
 - E. superior laryngeal artery

30. _____ A lesion of the otic ganglion would be expressed clinically by a loss of _____?

- A. function of the sublingual gland
- B. taste on the posterior one-third of the tongue
- C. sensory innervation of the parotid gland
- D. secretion of the parotid gland
- E. function of the stylopharyngeus muscle

31. _____ A 50 year-old man was riding his bicycle when he swerved to avoid a pothole in Harrisburg and lost his balance. He crashed, hitting against a rock. When he gained consciousness in the emergency room of the Milton S. Hershey Medical Center, it was immediately noted that he had medial strabismus (squint) of his right eye. On questioning, the patient admitted that he had not been wearing a helmet. This case is related to questions 31, 32, and 33.

Which eye muscle was paralyzed in this injury?

- A. medial rectus
- B. inferior rectus
- C. superior rectus
- D. lateral rectus
- E. superior oblique

32. _____ Which nerve was damaged by the crash?

- A. facial
- B. oculomotor
- C. abducent
- D. trochlear
- E. superior oblique

33. _____ Which anatomical structure is most likely to have caused damage to the nerve?

- A. petrous portion of the temporal bone
- B. greater wing of the sphenoid bone
- C. lesser wing of the sphenoid bone
- D. tentorium cerebelli
- E. falx cerebelli

34. _____ The space between apposed true vocal folds and arytenoids cartilage is known as the:

- A. glottis
- B. rima glottis
- C. vestibule
- D. rima vestibule
- E. piriformis recess

35. _____ A patient is unable to taste a piece of sugar placed on the anterior part of the tongue. Which cranial nerve is likely to have a lesion?
- A. trigeminal
 - B. hypoglossal
 - C. facial
 - D. glossopharyngeal
 - E. vagus
36. _____ A severe infection that obstructs the middle meatus would affect drainage from each of the following sinuses EXCEPT:
- A. maxillary sinus
 - B. frontal sinus
 - C. nasolacrimal duct
 - D. anterior ethmoid cells
 - E. middle ethmoid cells
37. _____ The motor nerve to the cricothyroid muscle is the:
- A. internal branch of the interlaryngeal nerve
 - B. glossopharyngeal nerve
 - C. recurrent laryngeal laryngeal nerve
 - D. cervical branch of the facial nerve
 - E. external branch of the superior laryngeal nerve
38. _____ The pharynx terminates at the level of the:
- A. hyoid bone
 - B. thyroid cartilage
 - C. 2nd cervical vertebrae
 - D. lower border of cricoid cartilage
 - E. jugular notch

PARTII. Answer in the space provided. (24 points)

1. Discuss the structure, boundaries, and contents of the cavernous sinus. What symptoms would result from vascular damage within the cavernous sinus? What symptoms would result from damage to each functional component of each nerve within the cavernous sinus? (8 points)

2. Discuss the distribution of SVA (taste) and GSE (autonomic) functional components along trigeminal (GSA) pathways that pass through the pterygopalatine fossa and ganglion. Include mention of bony communications. (8 points)

3. Acoustic neuromas can damage the facial nerve at the internal auditory meatus. What symptoms would result from damage to each functional component of each branch of the facial nerve? (8 points)