GROSS ANATOMY EXAMINATION
April 23, 2001

For the following questions, indicate the letter that corresponds to the **SINGLE MOST APPROPRIATE ANSWER.**

1. A young man came into the emergency department with a deep laceration in front of the right ear. The laceration extended from the zygomatic arch inferiorly two inches towards the angle of the mandible. Through the gaping wound, muscle fibers of the masseter could be seen. The patient could show all of the following symptoms **EXCEPT**
   A. a crooked smile (an asymmetrical smile).
   B. drooping of the right corner of his mouth.
   C. loss of feeling to the tip of the nose.
   D. reduced amount of saliva.
   E. a tendency to have food accumulate in the right cheek when eating.

2. A patient was admitted into the hospital with thrombophlebitis of the cavernous sinus. The resident noticed that there was an open sore on the upper lip. The area around the sore was red and inflamed. The infection from the lip had spread directly into the cavernous sinus through which of the following veins.
   A. Superficial temporal
   B. Infratrochlear
   C. Superior labial
   D. Ophthalmic
   E. Maxillary

3. An elderly, bald man tripped and banged the top of his head against the edge of a chair. Later he noticed a large swelling and bruise where he had hurt himself. Most likely he had a subgaleal hematoma. In which layer of the scalp is the accumulation of blood?
   A. Dense connective tissue layer
   B. Skin
   C. Loose connective tissue layer
   D. Epicranial aponeurosis
   E. Pericranium
4. The pulsations of a blood vessel could be seen and felt just above the zygomatic arch immediately anterior to the ear, of a runner who had just finished running in the Flying Pig Marathon. This vessel is the

A. facial artery.
B. transverse facial vein.
C. superficial temporal artery.
D. internal jugular vein.
E. maxillary artery.

5. A 14-year-old boy with acne arrives at his primary care physician complaining of pain behind the eye. The physician, noticing that the skin in the area around the boy’s eyes and nose are infected, suspects that the pain behind the eye is due to a growing infection within the cavernous sinuses. He warns the boy and his parents that he eventually may experience loss of all of the following EXCEPT

A. sensation in the area of the upper lip.
B. contraction motion of the masseter muscle.
C. the ability to accommodate for near vision.
D. the ability to completely open his eyelids.
E. corneal reflex.

6. A fracture of the petrous part of the temporal bone is likely to damage all of the following structures EXCEPT the

A. hypoglossal nerve.
B. greater petrosal nerve.
C. vestibulocochlear nerve.
D. facial nerve.
E. superior petrosal sinus.

7. During removal of a small tumor of the eye, the physician found it necessary to remove the ciliary ganglion. She knew that she was removing cell bodies that were involved in

A. movement of the lateral rectus muscle.
B. accommodation for near vision.
C. dilation of the pupils.
D. elevation of the eyelid.
E. secretions from the lacrimal gland.
8. To clinically test the nerve that supplies the superior oblique muscle of the left eye, the physician asks his patient to move his left eye by looking

A. up and medially.
B. down and laterally.
C. up and laterally.
D. down and medially.
E. medially.

9. Pain from a tumor in the tentorium cerebelli would be transmitted along the

A. ophthalmic division of the trigeminal nerve (V1).
B. maxillary division of the trigeminal nerve (V2).
C. mandibular division of the trigeminal nerve (V3).
D. greater occipital nerve.
E. lesser occipital nerve.

10. All of the following are correct matches EXCEPT

A. Foramen rotundum: mandibular division of the trigeminal nerve (V3).
B. Foramen spinosum: middle meningeal artery.
C. Superior orbital fissure: abducens nerve (VI).
D. Internal acoustic meatus: facial nerve (VII).
E. Jugular foramen: spinal accessory nerve (XI).

11. The lacrimal gland receives its parasympathetic innervation from nerve fibers which travel in the

A. supraorbital nerve.
B. nasociliary nerve.
C. lesser petrosal nerve.
D. deep petrosal nerve.
E. greater petrosal nerve.

12. A 40-year-old man comes into your office complaining of a droopy upper eyelid. Upon examination, you observe that when you elevate the lid forcefully, the pupil is directed down and laterally with no superior or medial movement possible. The pupil is dilated and unresponsive to light. You suspect a lesion involving the

A. trochlear and abducens nerves.
B. abducens nerve.
C. oculomotor nerve.
D. trochlear nerve.
E. trochlear and oculomotor nerve.
13. A 20-year-old man had a small tumor removed from the area marked “TUMOR” below. During this procedure, his surgeon was aware of structures in this region which including all of the following EXCEPT

A. the frontalis muscle.
B. branches of the supraorbital nerve.
C. venous channels that connect (directly or indirectly) with the cavernous sinus.
D. dense subcutaneous tissue.
E. the levator palpebrae muscle.

14. A 16-year-old man was hit in the cheek with a knife blade by a four-year-old having a tantrum. The wound caused a sizeable surface laceration in the area marked below. The man was brought to the Emergency Department, where the wound was sutured. One week later, after the sutures were removed, the young man noticed that a patch of skin around the wound “felt funny and tingled.” His doctor explained that the cutaneous nerves supplying the skin near the wound were probably injured (cut). These nerves were probably branches of

A. the zygomatic branch of the facial nerve.
B. the buccal branch of the facial nerve.
C. the auriculotemporal branch of the trigeminal nerve.
D. the buccal branch of the trigeminal nerve.
E. the mental branch of the trigeminal nerve.

15. A 17-year-old male fell while skateboarding and hit his face on a window ledge. It resulted in a laceration in the area marked below. He put a large bandage on the wound in an attempt to keep it closed. Two days later, the wound area was very swollen and he had a high temperature. He saw a family physician, who examined him for evidence of spread of infection from the wound. This included palpation (tactile examination) for swollen lymph nodes that drain the area of the laceration. Of the following, the lymph nodes that would MOST LIKELY be swollen are labeled

A. A
B. B
C. C
D. D
E. E

16. During removal of a tumor of the parotid gland, it was necessary to section a nerve traveling through it, deep to the skin area marked “Nerve Section” below. The surgeon reminded her residents that, after the surgery, the patient would probably have muscle paralysis that would cause difficulty in

A. raising his right eyebrow.
B. lowering the corner of his mouth on the right side.
C. closing his right eye (lowering his right upper eyelid).
D. opening his right eye (elevating his right upper eyelid).
E. showing his teeth on the right side.
17. A 47-year-old woman visits your office and complains that she has double vision (diplopia). During an examination of her eyes, you ask her to look in various directions to test the function of the eye muscles. Select from the options below the location of the pupil (the direction you would ask her to look) if you were interested in testing for a functional right superior rectus muscle.

A. A  
B. B  
C. C  
D. D  
E. E

18. A tumor in the jugular foramen is likely to compress the

A. facial (VII) nerve.  
B. inferior sagittal sinus.  
C. middle meningeal artery.  
D. straight sinus  
E. vagus (X) nerve.

19. A 13-year-old boy was hit in the side of the head with a rock, resulting in a fractured skull. The radiologist was concerned that the middle meningeal artery may have been lacerated. He knew that the most useful guide to the position of the anterior branch of the middle meningeal artery is the

A. inion.  
B. asterion.  
C. pterion.  
D. temporomandibular joint.  
E. pulsation of the superficial temporal artery.
20. An anteroposterior blow to the head occurring in an automobile accident can cause a fracture of the cribriform plate and a tearing of the meninges, resulting in

A. a rupture of the nasolacrimal duct.
B. leakage of cerebrospinal fluid into the nasal cavity.
C. injury to the maxillary division of the trigeminal (V) nerve.
D. swelling of the optic disc.
E. blood oozing from the external auditory meatus.

21. You have a patient with thrombophlebitis (venous inflammation with clot formation) of the right cavernous sinus. You are concerned because you know that the venous dural sinuses connect with one another and that a thrombus could pass directly to all of the following EXCEPT the

A. right superior petrosal sinus.
B. right transverse sinus.
C. left superior ophthalmic vein.
D. anterior intercavernous sinus.
E. left inferior petrosal sinus.

22. A 43-year-old woman fell ten feet from a balcony onto the pavement of a motel parking lot. She sustained a fracture of the walls of the posterior cranial fossa of her skull. Her neurologist knew that openings in this fossa which include the

A. optic canal.
B. foramen spinosum.
C. cribriform plate.
D. internal auditory (acoustic) meatus.
E. foramen lacerum.

23. A 56-year-old female was diagnosed with a tumor in her falx cerebri. Her neurologist was aware that this tumor could directly compress venous sinuses which border it, resulting in impedance of venous return from the brain. He knew that all of the following venous sinuses border the falx cerebri EXCEPT the

A. inferior sagittal sinus.
B. confluence of sinuses.
C. occipital sinus.
D. superior sagittal sinus.
E. straight sinus.

Answers: 1c2d3c4b5a6a7b8d9a10a11e12c13e14d15b16e17a18e19c20b21b22d23c