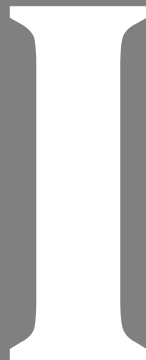


Part I
Anatomy and Physiology

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1 Gross Anatomy, Cranial and Spine

Questions

▶▶ Question 1

According to Brodmann's map of the cytoarchitectonic fields of the human brain, which of the following is Broca's area (motor speech area)?

- A. 41
- B. 42
- C. 43
- D. 44
- E. 45

▶▶ Question 2

According to Brodmann's map of the cytoarchitectonic fields of the human brain, which of the following is Wernicke's area?

- A. 40
- B. 41
- C. 42
- D. 43
- E. 44

▶▶ Question 3

Which of the following Brodmann's area is the precentral gyrus, the primary motor cortex consisting of a large concentration of giant pyramidal cells of Betz?

- A. 4
- B. 6
- C. 8
- D. 10
- E. 12

▶▶ Question 4

The junction of lambdoid, occipitomastoid, and parietomastoid sutures is:

- A. Nasion
- B. Glabella
- C. Stephanion
- D. Asterion
- E. Lambda

▶▶ Question 5

The junction of coronal suture and superior temporal line is also labeled as:

- A. Nasion
- B. Glabella
- C. Stephanion
- D. Asterion
- E. Lambda

▶▶ Question 6

Taylor-Haughton (T-H) lines can be constructed on an angiogram, CT/MRI scout film, or skull X-ray. They can be constructed on the patient in the OR based on visible external landmarks. A line from inferior margin of orbit through the upper margin of the external auditory meatus (EAM) is:

- A. Frankfurt plane
- B. Reid's baseline
- C. Condylar line
- D. Sylvian fissure line
- E. Central sulcal line

▶▶ Question 7

Numerous methods utilize external landmarks to locate the motor strip (pre-central gyrus) or the central sulcus (Rolandic fissure) which separates motor strip anteriorly from primary sensory cortex posteriorly. About how far the motor strip usually lies behind the coronal suture?

- A. 3 cm
- B. 5 cm
- C. 8 cm
- D. 10 cm
- E. Lies anterior to coronal suture

▶▶ Question 8

To access the potential recipient vessels in the angular gyrus for EC/IC bypass surgery, a 4 cm craniotomy should be performed, and it should be centered around:

- A. Reid's line
- B. Condylar line
- C. Chater's point
- D. Mastoid notch
- E. Zygomatic arch

▶▶ Question 9

For non-hydrocephalic ventricles, what is the average length of third ventricles?

- A. 0.6 cm
- B. 1.2 cm
- C. 2.8 cm
- D. 4 cm
- E. 5 cm

►► Question 10

Regarding estimates of spinal levels for spine surgery, at what level is the inferior scapular pole posteriorly?

- A. C6
- B. T2
- C. T4
- D. T6
- E. T10

►► Question 11

Regarding estimates of spinal levels for spine surgery, at what level is the carotid tubercle anteriorly?

- A. C6
- B. T2
- C. T4
- D. T6
- E. T10

►► Question 12

Regarding cranial foramina and their contents, middle meningeal artery and vein pass through which of the following?

- A. Cribriform plate
- B. Optic canal
- C. Foramen rotundum
- D. Foramen ovale
- E. Foramen spinosum

►► Question 13

Which of the following is not a content of porus acusticus?

- A. Facial nerve
- B. Nervus intermedius
- C. Acoustic portion of vestibulocochlear nerve
- D. Superior branch of vestibular nerve
- E. Glossopharyngeal nerve

►► Question 14

What is the average length of frontal horn anterior to foramen of Monro?

- A. 1 cm
- B. 1.5 cm
- C. 2.5 cm
- D. 4 cm
- E. 5 cm

►► Question 15

What is the average length of the fourth ventricle at the level of fastigium?

- A. 0.8 cm
- B. 1.4 cm

- C. 2.2 cm
- D. 2.5 cm
- E. 3 cm

►► Question 16

Regarding the vascular supply of internal capsule, all of the retrolenticular part including optic radiation and ventral part of posterior limb of internal capsule are supplied by which of the following?

- A. Anterior choroidal artery
- B. Lateral striate branches
- C. Direct distal branches of internal carotid artery
- D. Terminal branches of middle meningeal artery
- E. Paramedian artery

►► Question 17

What are the most important structures in maintaining atlantooccipital stability, without which the remaining cruciate ligament and apical dentate ligament are insufficient?

- A. Tectorial membrane and alar ligament
- B. Descending bands of cruciate ligament
- C. Ascending bands of cruciate ligaments
- D. Anterior and posterior atlantal ligaments
- E. Anterior and posterior atlantooccipital membranes

►► Question 18

Flexor muscle tone is a function of which descending motor tracts of spinal cord?

- A. Anterior corticospinal tracts
- B. Lateral corticospinal tracts
- C. Rubrospinal tract
- D. Vestibulospinal tracts
- E. Medullary reticulospinal tracts

►► Question 19

Sensory pain and temperature are the function of which ascending tract?

- A. Fasciculus gracilis
- B. Posterior spinocerebellar tract
- C. Anterior spinocerebellar tract
- D. Anterior spinothalamic tract
- E. Lateral spinothalamic tract

►► Question 20

The receptors for pain and temperature are probably free nerve endings. The 1st order neurons enter the cord at dorso-lateral tract (zone of Lissauer) and synapse in substantia gelatinosa that is equivalent to which Rexed lamina?

- A. I
- B. II

- C. III
- D. IV
- E. V

►► **Question 21**

Brodmann's area 44 in dominant hemisphere (motor speech area) is known as what?

- A. Wernicke's area
- B. Angular gyrus area
- C. Supramarginal area
- D. Broca's area
- E. Frontal eye field area

►► **Question 22**

What is the significance of Wernicke's area in dominant hemisphere which comprises Brodmann's area 40 and 39?

- A. Motor speech
- B. Voluntary eye movements
- C. Speech and language
- D. Auditory function
- E. Visual function

►► **Question 23**

The most prominent paired grooves on CT or MRI of brain which is posterior to the widest biparietal diameter in midline is known as what?

- A. Pars opercularis
- B. Pars triangularis
- C. Pars orbitalis
- D. Pars marginalis
- E. Pars terminalis

►► **Question 24**

The line connecting anterior commissure and posterior commissure (AC–PC line) has following characteristics except?

- A. It is used as baseline for axial MRI of brain
- B. It is used in functional neurosurgery
- C. Orbitomeatal line is 9 degrees steeper than the AC–PC line
- D. AC and PC are white matter tracts that help identify this line
- E. It is also called as Frankfurt's plane

►► **Question 25**

Homunculus is somatotopic organization of sensory and motor cortex on the brain representing which of the following?

- A. Arm and face are represented on upper medial surface
- B. Foot and leg are represented on convexity of brain
- C. Arm and face are represented by the convexity of brain
- D. Foot and leg are represented on upper medial surface
- E. Both C and D

►► **Question 26**

Where is the central sulcus located at interhemispheric fissure?

- A. Anterior to pars marginalis
- B. Lateral to pars marginalis
- C. Posterior to pars marginalis
- D. Medial to pars marginalis
- E. Above pars marginalis

►► **Question 27**

Pterion, which is located two finger breaths above zygomatic arch, is meeting point of what?

- A. Lambdoid, occipitomastoid, and parietomastoid sutures
- B. Coronal suture and superior temporal line
- C. Frontal, temporal, parietal, and sphenoid bones
- D. Frontal, temporal, zygomatic, and sphenoid bones
- E. Coronal suture and sagittal suture

►► **Question 28**

The point over skull which is used for external and internal carotid bypass craniotomy is called as what?

- A. Keen's point
- B. Taylor Huhgton point
- C. Stephanion
- D. Chater's point
- E. None of the above

►► **Question 29**

All of the following landmarks do not match the level of spine except?

- A. Scapular spine—T2, T3
- B. Inferior scapular pole—T6
- C. Intercristal line—L4–L5 disk space
- D. Thyroid cartilage—C4, C5
- E. Hyoid bone—C6, C7

►► **Question 30**

Vertical crest (Bill's bar) separates the internal auditory meatus into which of the following?

- A. Cochlear area anteriorly and vestibular area posteriorly
- B. Facial canal anteriorly and vestibular area posteriorly
- C. Facial canal posteriorly and vestibular area anteriorly
- D. Superior vestibular area, facial canal superiorly and inferior vestibular area, cochlear area inferiorly
- E. Both B and D

►► Question 31

Which is the strongest ligament in the spine which attaches to medial tubercles of C1 and traps dens against C1?

- A. Transverse atlantal ligament (TAL)
- B. Ascending band of cruciate ligament
- C. Alar ligament
- D. Tectorial membrane
- E. Descending band of cruciate ligament

►► Question 32

Fine touch, deep pressure, and proprioception sensations are carried from the body to the brain through which spinal cord tract?

- A. Lateral spinothalamic tract
- B. Posterior spinothalamic tract
- C. Fasciculus gracilis
- D. Fasciculus cuneatus
- E. B, C, and D

Answers

►► Answer 1

Correct answer is D. 44¹

►► Answer 2

Correct answer is A. 40¹

►► Answer 3

Correct answer is A. 4¹

►► Answer 4

Correct answer is D. Asterion²

►► Answer 5

Correct answer is C. Stephanion²

►► Answer 6

Correct answer is A. Frankfurt plane²

►► Answer 7

Correct answer is B. 5 cm²

►► Answer 8

Correct answer is C. Chater's point²

►► Answer 9

Correct answer is C. 2.8 cm³

►► Answer 10

Correct answer is D. T6⁴

►► Answer 11

Correct answer is A. C6⁴

►► Answer 12

Correct answer is E. Foramen spinosum⁴

►► Answer 13

Correct answer is E. Glossopharyngeal nerve⁴

►► Answer 14

Correct answer is C. 2.5 cm⁵

►► Answer 15

Correct answer is B. 1.4 cm⁵

►► Answer 16

Correct answer is A. Anterior choroidal artery⁶

►► Answer 17

Correct answer is A. Tectorial membrane and alar ligament⁷

►► Answer 18

Correct answer is C. Rubrospinal tract⁸

►► Answer 19

Correct answer is E. Lateral spinothalamic tract⁹

►► Answer 20

Correct answer is B. II⁹

►► Answer 21

Correct answer is D. Broca's area¹

►► Answer 22

Correct answer is C. Speech and language¹

►► Answer 23

Correct answer is D. Pars marginalis¹⁰

►► Answer 24

Correct answer is E. It is also called as Frankfurt's plane¹¹

▶▶ Answer 25

Correct answer is E. Both C and D¹¹

▶▶ Answer 26

Correct answer is A. Anterior to pars marginalis¹¹

▶▶ Answer 27

Correct answer is C. Frontal, temporal, parietal, and sphenoid bones¹²

▶▶ Answer 28

Correct answer is D. Chater's point²

▶▶ Answer 29

Correct answer is E. Hyoid bone—C6, C7⁴

▶▶ Answer 30

Correct answer is B. Facial canal anteriorly and vestibular area posteriorly⁶

▶▶ Answer 31

Correct answer is A. Transverse atlantal ligament (TAL)⁷

▶▶ Answer 32

Correct answer is E. B, C, and D⁹

References

- [1] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:56
- [2] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:61
- [3] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:62
- [4] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:65
- [5] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:64
- [6] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:66
- [7] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:69
- [8] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:70
- [9] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:71
- [10] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:57
- [11] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:58
- [12] Greenberg M, ed. Greenberg's Handbook of Neurosurgery. 10th ed. New York: Thieme; 2023:60