Lecture #08 Cerebral Cortex Sensory Systems

Question 1: Which area is known for having visual feature detectors?

a) Inferotemporal cortex

b) Calcarine cortex

c) Prefrontal cortex

d) Meyer's loop

e) Middle temporal area (MT)

Lecture #08 Cerebral Cortex Sensory Systems

Question 2: The ascending axons from the medial and lateral superior olive directly project mainly to which structure?

a) Inferior brachium

b) Superior brachium

c) Inferior colliculus

d) Cochlear nuclei

e) Superior colliculus

Lecture #08 Cerebral Cortex Sensory Systems

Question 3: Second order axons from the ventral cochlear nuclei project mainly to which structure to process lateralization (left-right azimuthal direction) of low frequency sounds?

a) Lateral superior olive

b) Dorsal cochlear nuclei

c) Superior colliculus

d) Inferior colliculus

e) Medial superior olive

Lecture #08 Cerebral Cortex Sensory Systems

Question 4: Which best distinguishes the gustatory paths from other sensory paths?

a) They are contralateral

b) They remain ipsilateral

c) They project to paleocortex

d) They do not involve cranial nerves

e) They have a thalamic relay

Lecture #08 Cerebral Cortex Sensory Systems

Question 5: Where is the fovea represented in calcarine (occipital) cortex?

a) Upper bank

b) Anterior

c) Lower bank

d) Posterior

e) Along the fundus

Lecture #08 Cerebral Cortex Sensory Systems

Question 6: Damage to which structure(s) results in loss of pitch sequence discrimination (cannot name that tune)?

a) Inferior colliculus

b) Medial geniculate nucleus

c) Cochlear nuclei

d) Superior colliculus

e) Heschl's gyrus (or gyri)

Lecture #08 Cerebral Cortex Sensory Systems

Question 7: Where are the secondary neurons of the gustatory pathway located?

a) Inferior olive

b) Medial superior olive

c) Rostral solitary nucleus

d) Lateral superior olive

e) Caudal solitary nucleus

Lecture #08 Cerebral Cortex Sensory Systems

Question 8: What does the medial superior olive help discriminate?

a) pitch of sounds

b) sequence of musical notes

c) meaning of speech sounds

d) direction of sounds

e) potentially toxic odors

Lecture #08 Cerebral Cortex Sensory Systems

Question 9: Damage to the cuneus of the occipital lobe causes which deficit?

a) Permanent scotoma in contralateral lower visual field quadrant

b) Temporary scotoma in contralateral upper visual field quadrant

c) A specific blindness from which there is only partial recovery

d) Temporary scotoma in contralateral lower visual field quadrant

e) Permanent scotoma in contralateral upper visual field quadrant

Lecture #08 Cerebral Cortex Sensory Systems

Question 10: Which is a feature of topographic organization of neocortex?

a) The trunk and belly tend to have disproportionately large representations in somatic maps

b) Body parts with more detailed sensation or more sensory receptors are allotted a disproportionately large portion of somatic sensory cortex, distorting the maps

c) Frontal, temporal, and parietal lobes have topographically organized areas, but occipital lobes do not

d) Sizes are precisely represented as equivalent sizes on topographic maps

e) Cortical topographic maps usually represent the ipsilateral body half only

Lecture #08 Cerebral Cortex Sensory Systems

Question 11: Which is the next step on the ventral visual stream beyond the first or second visual area?

a) Middle temporal area (MT)

b) Amygdala

c) Hippocampus (CA1-CA3)

d) Cingulate cortex (areas 17 and 18)

e) Color area (V4)

Lecture #08 Cerebral Cortex Sensory Systems

Question 12: What is Meyer's loop?

a) The axons responsible for hole-in-the-pole or hole in the donut blindness for objects straight ahead with intact peripheral vision

b) The limbic pathway that originates in cerebral cortex and passes through a series of limbic structures to return to cerebral cortex

c) The re-decussation of the dorsal spinocerebellar tract so that it ends ipsilaterally in the cerebellum despite having a mainly contralateral course

d) The re-decussation of the ventral spinocerebellar tract so that it ends ipsilaterally in the cerebellum despite having a mainly contralateral course

e) The temporal course of upper visual hemifield optic radiations destined for the lower bank of the calcarine sulcus

Lecture #08 Cerebral Cortex Sensory Systems

Question 13: What body part occupies the largest part of rodent somatic sensory cortex?

a) Feet (hindpaws)

b) Hands (forepaws)

c) Mouth

d) Sex organs

e) Whiskers (vibrissae)

Lecture #08 Cerebral Cortex Sensory Systems

Question 14: Which best distinguishes the olfactory paths from other sensory paths?

a) They are contralateral

b) They remain ipsilateral

c) They do not involve cranial nerves

d) They have a thalamic relay

e) They project to paleocortex

Lecture #08 Cerebral Cortex Sensory Systems

Question 15: Which area(s) is (are) specialized for proprioception?

a) Left parietal cortex

b) Mesencephalic nucleus, Brodmann's area 3a

c) Lateral horn, intermediolateral cell column

d) Heschl's gyrus

e) Dorsolateral and central amygdala

Lecture #08 Cerebral Cortex Sensory Systems

Question 16: Which visual deficit is most likely to follow left temporal lobe damage?

a) Blindness for lower right visual field

b) Right hemispatial neglect

c) Left hemispatial neglect

d) Left upper field quadrantanopsia (pie-in-the-sky loss)

e) Right upper field quadrantanopsia (pie-in-the-sky loss)

Lecture #08 Cerebral Cortex Sensory Systems

Question 17: How are the magnocellular and parvocellular visual paths organized in the LGN?

a) Magnocellular axons project to LGN layers 1 and 2, parvocellular axons to layers 3-6

b) A projection line contains axons from only one or the other path, not both

c) Magnocellular axons project along projection lines, parvocellular axons are off-line

d) Magnocellular axons project rostrally in the LGN, parvocellular axons caudally

e) Magnocellular axons project to the left LGN, parvocellular axons to the right LGN

Lecture #08 Cerebral Cortex Sensory Systems

Question 18: What body part is represented most laterally in human somatic sensory cortex?

a) Mouth

b) Trunk

c) Sex organs

d) Hands

e) Feet

Lecture #08 Cerebral Cortex Sensory Systems

Question 19: What is the function of the lateral superior olive?

a) Projection of mossy fibers to the cerebellum

b) Projection of climbing fibers to the cerebellum

c) Relaying large fiber somatic sensory information

d) Processing direction of high frequency sounds

e) Processing sweet and bitter taste sensations

Lecture #08 Cerebral Cortex Sensory Systems

Question 20: Damage to which structure(s) results in ipsilateral hearing loss?

a) Superior colliculus

b) Inferior colliculus

c) Heschl's gyrus (or gyri)

d) Medial geniculate nucleus

e) Cochlear nuclei

Lecture #08 Cerebral Cortex Sensory Systems

Question 21: Which is the gustatory nucleus?

a) Rostral solitary nucleus

b) Dorsolateral (lateral dorsal) nucleus

c) Rostral salivatory nucleus

d) Dorsomedial (medial dorsal) nucleus

e) Ventral postero-lateral nucleus (VPL)

Lecture #08 Cerebral Cortex Sensory Systems

Question 22: Which is the next step on the dorsal visual stream beyond the first or second visual area?

a) Cingulate cortex (areas 17 and 18)

b) Hippocampus (CA1-CA3)

c) Color area (V4)

d) Amygdala

e) Middle temporal area (MT)