

Fundamentals of Neuroscience

Neuroscience · Answer Key · 25 Questions

1. In what year did Santiago Ramón y Cajal receive the Nobel Prize in Physiology or Medicine for his work on the structure of the nervous system?

- A) 1906**
- B) 1912
- C) 1898
- D) 1920

2. Approximately how many neurons are estimated to be in the human adult brain?

- A) 8.6 billion
- B) 86 billion**
- C) 860 billion
- D) 86 million

3. Camillo Golgi shared the 1906 Nobel Prize with Santiago Ramón y Cajal; what specific cellular structure is named after him?

- A) Golgi apparatus**
- B) Golgi fiber
- C) Golgi node
- D) Golgi valve

4. How many pairs of cranial nerves originate directly from the brain?

- A) 6
- B) 10
- C) 12**
- D) 24

5. The human brain is approximately what percentage of total body weight?

- A) 2%**
- B) 10%
- C) 20%
- D) 5%

6. In 1952, which scientists published the mathematical model explaining how action potentials in neurons are initiated and propagated?

- A) Hodgkin and Huxley**
- B) Watson and Crick
- C) Hubel and Wiesel
- D) Ramón and Golgi

7. How many primary lobes are identified in each hemisphere of the human cerebral cortex?

- A) 2
- B) 4**
- C) 6
- D) 8

8. Which decade saw the invention of the first commercial EEG machine by Hans Berger?

- A) 1920s**
- B) 1940s
- C) 1910s
- D) 1950s

9. What is the approximate speed in meters per second that signals travel along a myelinated nerve fiber?

- A) 100 m/s**
- B) 1 m/s
- C) 10 m/s
- D) 500 m/s

10. Paul Broca identified the area of the brain responsible for speech production in what year?

- A) 1861**
- B) 1845
- C) 1880
- D) 1832

11. The human brain consumes roughly what percentage of the body's total oxygen supply?

- A) 20%**
- B) 5%
- C) 50%
- D) 10%

12. How many ventricles are found within the human brain?

- A) 2
- B) 4**
- C) 6
- D) 8

13. Which scientist discovered the chemical transmission of nerve impulses in 1921?

- A) Otto Loewi**
- B) Sigmund Freud
- C) Wilder Penfield
- D) Rita Levi-Montalcini

14. What is the average weight of an adult human brain in grams?

- A) 1,300-1,400g**
- B) 500-600g
- C) 2,000-2,200g
- D) 800-900g

15. The 'Decade of the Brain' was a designation by the US Congress for which 10-year period?

- A) 1990-1999**
- B) 1980-1989
- C) 2000-2009
- D) 1970-1979

16. Phineas Gage survived a traumatic brain injury in 1848 when an iron rod passed through which lobe of his brain?

- A) Frontal lobe**
- B) Occipital lobe
- C) Temporal lobe
- D) Parietal lobe

17. How many layers are typically found in the human neocortex?

- A) 6**
- B) 3
- C) 10
- D) 2

18. What is the common name for the 1848 patient whose case provided early evidence for the function of the frontal lobe?

- A) Phineas Gage**
- B) Henry Molaison
- C) Louis Tan
- D) Patient SM

19. Rita Levi-Montalcini was awarded the Nobel Prize in 1986 for the discovery of what?

- A) Nerve Growth Factor**
- B) Dopamine
- C) Synaptic vesicles
- D) The blood-brain barrier

20. The resting membrane potential of a typical neuron is approximately how many millivolts (mV)?

- A) -70 mV**
- B) 0 mV
- C) +70 mV
- D) -10 mV

21. Which year did Eric Kandel win the Nobel Prize for his research on the physiological basis of memory storage?

- A) 2000**
- B) 1995
- C) 2010
- D) 1985

22. How many main types of glial cells are commonly recognized in the central nervous system?

- A) 4**
- B) 2
- C) 8
- D) 12

23. The cerebellum contains roughly what fraction of the brain's total number of neurons?

- A) 1/2**
- B) 1/4
- C) 1/10
- D) 3/4

24. In 1924, who recorded the first human electroencephalogram (EEG)?

- A) Hans Berger**
- B) Alois Alzheimer
- C) Santiago Ramón y Cajal
- D) Wilder Penfield

25. What is the total number of spinal nerve pairs in the human body?

A) 31

B) 12

C) 24

D) 45