

Quiz: Sleep & Memory

1. Which of the following best defines sleep?

- A) A state of complete brain inactivity
- B) A state of unconsciousness from which the person can be aroused
- C) A permanent state of unconsciousness
- D) A period of reduced sensory perception but increased movement

Answer: B) A state of unconsciousness from which the person can be aroused

2. Which of the following is NOT a function of an EEG?

- A) Detecting epilepsy
- B) Diagnosing brain tumors
- C) Measuring muscle activity
- D) Assessing sleep conditions

Answer: C) Measuring muscle activity

3. Which of the following EEG waves are characteristic of REM sleep?

- A) Slow and high voltage
- B) Rapid and low voltage
- C) Delta waves
- D) Alpha waves

Answer: B) Rapid and low voltage

4. What percentage of total sleep time does REM sleep constitute?

- A) 10%
- B) 25%
- C) 50%
- D) 75%

Answer: B) 25%

5. Which neurotransmitter is mainly responsible for initiating NREM sleep?

- A) Dopamine
- B) Acetylcholine
- C) Serotonin
- D) Glutamate

Answer: C) Serotonin

6. Which brain structure is mainly responsible for the initiation of REM sleep?

- A) Raphe nuclei
- B) Thalamus
- C) Amygdala
- D) Reticular activating system

Answer: D) Reticular activating system

7. How long does a typical sleep cycle last?

- A) 30 minutes
- B) 60 minutes
- C) 90 minutes
- D) 120 minutes

Answer: C) 90 minutes

8. What is the main physiological significance of stage 4 NREM sleep?

- A) Dreaming and memory consolidation
- B) Recovery of brain function and energy restoration
- C) Increased metabolic rate
- D) Increased muscle tone

Answer: B) Recovery of brain function and energy restoration

9. REM sleep is particularly important for which function?

- A) Physical recovery
- B) Brain development and memory enhancement
- C) Digestive system regulation
- D) Muscle growth

Answer: B) Brain development and memory enhancement

10. Which type of memory involves skills and habits?

- A) Explicit memory
- B) Implicit memory
- C) Short-term memory
- D) Sensory memory

Answer: B) Implicit memory

11. Which type of memory is characterized by conscious recall of facts and events?

- A) Implicit memory
- B) Non-declarative memory
- C) Procedural memory
- D) Explicit memory

Answer: D) Explicit memory

12. What is the key role of the hippocampus in memory?

- A) Controlling muscle movement
- B) Enhancing emotional responses
- C) Consolidating short-term memory into long-term memory
- D) Regulating sleep cycles

Answer: C) Consolidating short-term memory into long-term memory

13. How long does short-term memory typically last?

- A) Seconds to minutes
- B) Hours to days
- C) Weeks to months
- D) Years

Answer: A) Seconds to minutes

14. What is the main neurotransmitter involved in long-term memory formation?

- A) Serotonin
- B) Acetylcholine
- C) Dopamine
- D) GABA

Answer: B) Acetylcholine

15. What structural changes occur in long-term memory formation?

- A) Increased synaptic vesicles
- B) Increased number of presynaptic terminals
- C) Changes in dendritic spines
- D) All of the above

Answer: D) All of the above

16. Which process converts short-term memory into long-term memory?

- A) Sensitization
- B) Consolidation
- C) Reverberation
- D) Potentiation

Answer: B) Consolidation

17. Which of the following is NOT a cause of amnesia?

- A) Brain trauma
- B) Sleep deprivation
- C) Damage to the hippocampus
- D) Stroke

Answer: B) Sleep deprivation

18. What type of amnesia prevents the formation of new long-term memories?

- A) Retrograde amnesia
- B) Anterograde amnesia
- C) Declarative amnesia
- D) Implicit amnesia

Answer: B) Anterograde amnesia

19. Senile dementia and Alzheimer's disease are primarily caused by damage to which neurotransmitter system?

- A) Dopaminergic system
- B) Serotonergic system
- C) Cholinergic system
- D) Glutamatergic system

Answer: C) Cholinergic system

20. In which brain area are visual memories primarily stored?

- A) Hippocampus
- B) Amygdala
- C) Visual association area
- D) Prefrontal cortex

Answer: C) Visual association area

Quiz on the Cerebral Cortex

1. Which of the following is NOT a functional area of the cerebral cortex?

- a) Motor areas
- b) Sensory areas
- c) Limbic areas
- d) Endocrine areas

Answer: d) Endocrine areas

2. What is the primary function of cortical association areas?

- a) Motor control
- b) Sensory reception
- c) Analyzing and integrating signals from various regions
- d) Controlling reflex actions

Answer: c) Analyzing and integrating signals from various regions