MCQ Physio CNS 16

1. Which neurotransmitter is most commonly associated with learning and memory? *A) Norepinephrine* *B) Serotonin* *C) Acetylcholine* *D) GABA*	**C**
2. The process by which memories are transformed from a fragile state to a more stable state is known as: *A) amnesia* *B) Consolidation* *C) Retrieval* *D) Reconsolidation*	**B**
3. Which part of the brain is primarily associated with the formation of new memories? *A) Cerebellum* *B) Hippocampus* *C) frontal cortex* *D) Thalamus*	**B**
4. What type of memory is responsible for recalling facts and events? *A) Procedural Memory* *B) Semantic explicit Memory* *C) Implicit Memory* *D) Working Memory*	**B**
5. Serotonergic neurons originate mainly in which part of the brain? *A) Cerebral Cortex* *B) Locus Coeruleus*	**C**

C) Raphe Nuclei *D) Hypothalamus*	
6. How do serotonergic neurons influence sleep? *A) They promote wakefulness.* *B) They are inactive during REM sleep.* *C) They inhibit slow-wave sleep.* *D) They enhance the duration of REM sleep.*	***B***
7. Cholinergic neurons play a key role in which sleep stage? *A) Slow-wave sleep* *B) REM sleep* *C) NREM sleep* *D) Wakefulness*	***B***
8. Non REM sleep: *a) shows beta wave in EEG.* *b) is shorter in duration than REM sleep.* *c) shows marked hypotonia than REM sleep.* *d) is associated with dreams.* *e) none of the above.*	***E***
9. REM sleep is characterized by: *a) beta waves in the EEG.* *b) alpha waves in the EEG.* *c) delta waves in the EEG.* *d) regular blood pressure and respiration.* *e) both b & c are correct.*	***A***
10. REM sleep is: *a) about 20% of sleep duration.* *b) associated with increase in muscle tone.* *c) about 80% of sleep duration.*	***A***

d) not associated with dreams. *e) associated with low regular heart rate.*	
11. Concerning sleep: *a) sleep consists only of non-REM sleep.* *b) sleep consists only of REM sleep.* *c) non-REM sleep is characterized by dreams.* *d) REM sleep is characterized by teeth grinding.* *e) non-REM sleep is characterized by rapid eye movement.*	***D***
12. Which stage of sleep is most associated with dreaming? *A) Stage 1* *B) Stage 2* *C) REM Sleep* *D) Deep Sleep*	***C***
13. Explicit memory is primarily involved in: *A) Unconscious recall of skills* *B) Conscious recall of facts and events* *C) Automatic processing of information* *D) Emotional responses*	***B***
14. Which of the following is an example of implicit memory? *A) Remembering your first day of school* *B) Riding a bicycle* *C) Recalling the capital of France* *D) Taking a test*	***B***
15. Anterograde amnesia primarily affects: *A) The ability to recall past events* *B) The ability to form new memories* *C) Both past and new memories* *D) Emotional memories only*	***B***

16. Retrograde amnesia is characterized by: *A) Inability to remember events that occur after the onset of amnesia* *B) Inability to recall events that happened before the onset of amnesia* *C) Loss of procedural memory* *D) A specific inability to remember names*	***B***
17. The activation of NMDA receptors is crucial for: *A) Immediate neurotransmission* *B) Long-term potentiation (LTP) and synaptic plasticity* *C) Inhibition of synaptic transmission* *D) Short-term memory recall*	***B***
18. Synapse sensitization is primarily associated with which type of memory? *A) Long-term memory* *B) Short-term memory* *C) Implicit memory* *D) Procedural memory*	***B***
19. What is the main mechanism underlying synaptic sensitization? *A) Long-term potentiation (LTP)* *B) Long-term depression (LTD)* *C) Increased release of neurotransmitters* *D) Decreased receptor sensitivity*	***C***
20. Which of the following ions is primarily associated with NMDA receptor activation? *A) Sodium (Na+)* *B) Potassium (K+)* *C) Calcium (Ca2+)* *D) Chloride (Cl-)*	***C***

21. The cholinergic hypothesis of Alzheimer's disease suggests that: *A) Increased dopamine levels improve memory* *B) Decreased acetylcholine levels contribute to cognitive decline* *C) Serotonin levels are the main factor in memory loss* *D) Glutamate toxicity is the primary cause of symptoms*	***B***
22. Which type of amnesia is often associated with damage to the hippocampus? *A) Anterograde amnesia* *B) Retrograde amnesia* *C) Dissociative amnesia d) All of the above*	***A***
23. Which process is primarily responsible for transferring information from short-term memory to long-term memory? *A) Rehearsal* *B) Attention* *C) Retrieval* *D) Sensory perception*	***A***
24. What structural change occurs in neurons during the process of memory consolidation? *A) Decrease in axon length* *B) Increase in the number of dendritic spines* *C) Reduction of synaptic connections* *D) Deterioration of myelin sheaths*	***B***
25. Which brain region is primarily associated with structural changes related to long-term memory? *A) Cerebellum* *B) Hippocampus* *C) Medulla oblongata* *D) Thalamus*	***B***

26. Alpha wave of EEG: *a) Is recorded from an awake relaxed adult person with eyes closed.* *b) Is recorded from an awake relaxed adult person with eyes opened.* *c) Is an irregular wave.* *d) None of the above is correct.*	***A***
27. Beta (β) waves in EEG: *a) Are seen in awake adult person with his eyes open.* *b) Are recorded mainly during deep sleep.* *c) Are regular with low frequency and high amplitude.* *d) Result from synchronized activity of cortical neurons.*	***A***
28. Which of the following signs will be observed when the patient is exhibiting REM sleep: *a) High amplitude electroencephalogram (EEG) waves.* *b) Hyperventilation.* *c) Low frequency EEG waves.* *d) Periods of loss of skeletal muscle tone.*	***D***
29. Slow wave (Non-REM) sleep is: *a) 20% of sleep duration.* *b) Associated with irregular respiration.* *c) Dreamless.* *d) associated with irregular heart rate.*	***C***