

1. The all-or-none electrical signal that travels down an axon is the _____ potential.

2. The major inhibitory neurotransmitter in the adult brain is
 - ☐ glutamate
 - ☐ acetylcholine
 - ☐ dopamine
 - ☐ GABA
3. Which method typically offers the finest timing of neural activity among these choices?
 - ☐ PET
 - ☐ EEG
 - ☐ structural MRI
 - ☐ fMRI
4. With signal and noise distributions held fixed, a more liberal criterion increases both hit and false-alarm rates.
 - ☐ True ☐ False
5. A stronger sustained input increases a neuron's firing rate. Which interpretation is best?
 - ☐ Rate can change while individual spikes remain all-or-none
 - ☐ Myelin must have disappeared
 - ☐ Each spike must become taller
 - ☐ All-or-none means firing rate cannot change
6. H.M. improved on a practised motor task while struggling to remember recent events. This most directly supports
 - ☐ the hippocampus as the store for every memory
 - ☐ a distinction between some forms of memory
 - ☐ one undifferentiated memory system
 - ☐ complete removal of all brain memory
7. Which statement about sleep is best supported?
 - ☐ Circadian timing and sleep pressure are identical

- ☐ N3 has prominent slow waves; vivid dreaming is common in REM
 - ☐ Dreaming occurs only in REM
 - ☐ Every sleep cycle has exactly the same duration
8. Under a Weber-law approximation, a 2 g addition is just noticeable on 100 g. What addition is predicted for 300 g in the same valid range?
- ☐ 6 g
 - ☐ 300 g
 - ☐ 2 g
 - ☐ 4 g
9. A block has 100 signal-present and 100 signal-absent trials, with 40 false alarms. What is the false-alarm rate?
- ☐ 20%, using all 200 trials
 - ☐ 80%, using 50 trials
 - ☐ 50%, using the 80 correct responses
 - ☐ 40%, using the 100 signal-absent trials

1. action

An action potential is the all-or-none spike. In many neurons it begins at the axon initial segment near the cell body, where inputs influence whether threshold is reached.

2. GABA

GABA is the standard answer for the adult brain; glutamate is the major excitatory transmitter. Effects still depend on receptors, ion conditions and circuits.

3. EEG

EEG tracks scalp electrical potentials at millisecond resolution. fMRI and PET follow slower physiological signals; structural MRI mainly describes anatomy. EEG source localisation is harder than its timing measurement.

4. True

True under the stated fixed-distribution model. Observing both rates rise in an actual study is compatible with a criterion shift, but does not establish that sensitivity is unchanged.

5. Rate can change while individual spikes remain all-or-none

All-or-none concerns whether individual spikes occur, not a fixed number or timing of spikes.

6. a distinction between some forms of memory

The dissociation supports different memory processes. His broader medial temporal damage prevents treating him as a pure isolated hippocampal lesion.

7. N3 has prominent slow waves; vivid dreaming is common in REM

N3 is slow-wave sleep. REM commonly has vivid dreams, but dreams also occur in non-REM. Timing and sleep pressure are distinct influences.

8. 6 g

The ratio is $2/100 = 0.02$. Multiplying 300 g by 0.02 gives 6 g, conditional on the approximation and comparable testing conditions.

9. 40%, using the 100 signal-absent trials

False alarms are counted only among signal-absent opportunities: $40/100 = 40\%$. The 200-trial denominator answers a different question.