

Foundations of Addiction Science

Addiction Science · Answer Key · 15 Questions

1. Which neurotransmitter is primarily associated with the brain's reward system and the reinforcement of addictive behaviors?

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

2. What is the primary brain region responsible for executive functions, impulse control, and decision-making, which is often impaired in chronic addiction?

- A) Cerebellum
- B) Prefrontal cortex**
- C) Brainstem
- D) Occipital lobe

3. Which diagnostic manual is used by clinicians in the United States to diagnose Substance Use Disorders?

- A) ICD-11
- B) DSM-5-TR**
- C) Merck Manual
- D) Physicians' Desk Reference

4. In addiction science, what term describes the process where a person needs a higher dose of a substance to achieve the same effect previously produced by a lower dose?

- A) Tolerance**
- B) Withdrawal
- C) Sensitization
- D) Dependence

5. Naltrexone is a medication commonly used to treat alcohol and opioid use disorders by acting as a(n):

- A) Agonist
- B) Partial agonist
- C) Antagonist**
- D) Reuptake inhibitor

6. Which chronic, relapsing brain disease is characterized by compulsive drug seeking and use despite harmful consequences?

A) Addiction

- B) Psychosis
- C) Neurosis
- D) Amnesia

7. The 'hedonic set point' refers to what concept in addiction theory?

A) The baseline level of reward functioning

- B) The maximum dose a brain can handle
- C) The speed of drug metabolism
- D) The time taken for withdrawal to peak

8. Which substance acts as a central nervous system depressant and works primarily by enhancing the effects of GABA?

A) Cocaine

B) Alcohol

- C) Caffeine
- D) Nicotine

9. What is the term for the negative physical and psychological symptoms that occur when a substance is removed from the body after prolonged use?

A) Withdrawal

- B) Tolerance
- C) Craving
- D) Relapse

10. The VTA (Ventral Tegmental Area) is a critical component of which brain pathway involved in addiction?

A) Mesolimbic pathway

- B) Visual pathway
- C) Somatosensory pathway
- D) Auditory pathway

11. Which of the following substances is classified as a stimulant?

A) Heroin

B) Methamphetamine

- C) Morphine
- D) Diazepam

12. How does nicotine primarily exert its physiological effects in the brain?

- A) Binding to dopamine receptors
- B) Binding to nicotinic acetylcholine receptors**
- C) Inhibiting serotonin reuptake
- D) Blocking opioid receptors

13. What is the primary role of the amygdala in the context of addiction?

- A) Processing emotions and stress-related cravings**
- B) Regulating motor coordination
- C) Controlling heart rate
- D) Storing long-term episodic memories

14. Which process involves the brain's ability to reorganize itself by forming new neural connections in response to chronic substance use?

- A) Neuroplasticity**
- B) Neurogenesis
- C) Neurotransmission
- D) Neurodegeneration

15. Which medication is frequently used in Medication-Assisted Treatment (MAT) to act as a long-acting opioid agonist to reduce cravings and withdrawal?

- A) Naloxone
- B) Methadone**
- C) Flumazenil
- D) Bupropion