

Advanced Psychological Science

Psychology · Answer Key · 20 Questions

1. In the context of Signal Detection Theory, what term refers to the criterion level where a participant's sensitivity is represented by the area under the Receiver Operating Characteristic (ROC) curve?

- A) d-prime (d')**
- B) Beta
- C) Hit rate
- D) False alarm rate

2. Which neurotransmitter is primarily responsible for the 'reward prediction error' signal recorded in the midbrain dopaminergic neurons?

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

3. According to Baddeley's model of working memory, which component is responsible for the temporary storage and integration of information from the phonological loop and visuospatial sketchpad?

- A) Central executive
- B) Episodic buffer**
- C) Phonological store
- D) Articulatory rehearsal mechanism

4. In operant conditioning, which schedule of reinforcement produces the highest and most consistent rate of response, famously resistant to extinction?

- A) Fixed-interval
- B) Variable-interval
- C) Fixed-ratio
- D) Variable-ratio**

5. What is the term for the phenomenon where hippocampal neurogenesis is significantly upregulated by physical exercise in adult mammals?

- A) Long-term potentiation
- B) Synaptic pruning
- C) Brain-derived neurotrophic factor (BDNF) upregulation**
- D) Cortical thinning

6. Which gestalt principle describes the tendency to perceive complex shapes as being composed of simpler, symmetrical forms?

A) Law of Pragnanz

B) Law of Common Fate

C) Law of Continuity

D) Law of Proximity

7. The 'P300' wave in an Event-Related Potential (ERP) study is most commonly associated with which cognitive process?

A) Sensory detection

B) Task-irrelevant stimulus inhibition

C) Attentional allocation and stimulus evaluation

D) Motor preparation

8. In Piaget's theory of cognitive development, the ability to understand that quantity does not change despite changes in physical appearance is known as:

A) Object permanence

B) Conservation

C) Egocentrism

D) Transductive reasoning

9. Which brain region is critically implicated in the formation of declarative long-term memories as evidenced by patient H.M.?

A) Amygdala

B) Hippocampus

C) Cerebellum

D) Basal ganglia

10. The Whorfian hypothesis, or linguistic relativity, posits that:

A) Language determines the structure of thought

B) Thought is independent of linguistic structure

C) Culture dictates memory capacity

D) Cognitive development occurs without language

11. In social psychology, which effect describes the tendency to attribute one's own failures to external factors while attributing the failures of others to internal dispositions?

A) Self-serving bias

B) Actor-observer asymmetry

C) Fundamental attribution error

D) Dunning-Kruger effect

12. What specific type of photoreceptor cells in the human retina contain melanopsin and are responsible for non-image-forming visual functions like circadian rhythm regulation?

- A) Rods
- B) Cones
- C) Intrinsically photosensitive retinal ganglion cells (ipRGCs)**
- D) Horizontal cells

13. The 'Strange Situation' procedure, developed by Mary Ainsworth, was designed to measure which psychological construct?

- A) Attachment styles**
- B) Temperament
- C) Moral development
- D) Intelligence quotient

14. According to the Yerkes-Dodson Law, the relationship between arousal and performance is typically:

- A) Linear
- B) Inverted-U shaped**
- C) Exponential
- D) Negatively skewed

15. Which theory of color vision, supported by the existence of afterimages, suggests that visual information is processed in opposing channels (red-green, blue-yellow, black-white)?

- A) Trichromatic theory
- B) Opponent-process theory**
- C) Retinex theory
- D) Frequency theory

16. Long-term potentiation (LTP) is primarily mediated by the activation of which type of glutamate receptor in the postsynaptic membrane?

- A) GABA-A receptor
- B) NMDA receptor**
- C) Dopamine D2 receptor
- D) Acetylcholine receptor

17. In the study of psychophysics, Weber's Law states that the Just Noticeable Difference (JND) is:

- A) A constant ratio of the original stimulus intensity**
- B) Independent of the stimulus magnitude
- C) Equal to the absolute threshold
- D) A logarithmic function of the stimulus intensity

18. Which area of the brain, when damaged, typically results in Broca's aphasia, characterized by non-fluent speech production?

- A) Left posterior superior temporal gyrus
- B) Left inferior frontal gyrus**
- C) Right parietal lobe
- D) Occipital lobe

19. What is the primary function of the amygdala in the context of emotional memory?

- A) Sensory relay
- B) Declarative memory encoding
- C) Modulation of memory consolidation via autonomic arousal**
- D) Language processing

20. According to the Triarchic Theory of Intelligence proposed by Robert Sternberg, which are the three components of intelligence?

- A) Analytical, creative, and practical**
- B) Verbal, spatial, and numerical
- C) Fluid, crystallized, and emotional
- D) General, specific, and social