

Question 1

The user's attention is not required for physiological sensing, which aids in emotion evaluation in people with attention deficit disorder.

- A. True
- B. False

Question 2

Arousal and heart rate are tightly related.

- A. True
- B. False

Question 3

Which of the following statements is true?

(A) High HRV is associated with aroused, stress from exercise, psychological events, or other internal or external stressors.

(B) Low HRV is associated with relaxation, the body has a strong ability to tolerate stress or is strongly recovering from prior accumulated stress.

- 1. A only
- 2. B only
- 3. Both A and B
- 4. Neither A nor B

Question 4

Which metric is more appropriate for evaluating the heart rate variability data?

- A. Average Inter-Beat Interval
- B. Root Mean Square of Successive Differences

Question 5

Which method is less intrusive and cumbersome for measuring heart rate compared to electrocardiography?

- A) Electroencephalography (EEG)
- B) Photoplethysmography (PPG)
- C) Electromyography (EMG)
- D) Galvanic skin response (GSR)

Question 6

Emotion is the only factor that affects heart rate and heart rate variability.

- A. True
- B. False

Question 7

GSR are excellent methods to monitor emotional arousal, but they cannot reveal emotional valence.

- A. True
- B. False

Question 8

Pick the most appropriate statement

- A. More brain activity means less alpha power and vice-versa
- B. More brain activity means less alpha power but converse is not true
- C. Less brain activity means less alpha power and vice-versa
- D. Less brain activity means less alpha power but converse is not true

Question 9

The majority of the time, artifacts are present in EEG data.

- A. True
- B. False

Question 10

When compared to GSR, will EEG modality better capture the onset of an emotional process?

- A. True
- B. False

Question 11

How does the acquisition of emotions through physiological signals differ from facial expressions?

- A. It requires mimicking the intended emotion
- B. It is less accurate due to technological limitations
- C. It relies on conscious control of facial muscles
- D. It does not require the user to pay significant attention or adhere to specific setups

Question 12

How are ECG signals typically captured?

- A) Through electrodes attached to the muscles
- B) By monitoring skin conductance
- C) By analyzing brain waves
- D) Using electrodes attached to the body to monitor cardiac activity

Question 13

Which component of emotions does heart rate typically correlate with?

- A) Valence
- B) Dominance
- C) Arousal
- D) Effort

Question 14

How does photoplethysmography (PPG) measure heart rate?

- A) By analyzing electrical changes on the surface of the skin
- B) Through measurement of pulse signals at various locations on the body
- C) By emitting and collecting light to estimate blood flow
- D) By monitoring changes in blood pressure

Question 15

What is the relationship between heart rate variability and emotional health?

- A) Higher heart rate variability is indicative of poorer emotional health
- B) Lower heart rate variability suggests better emotional health
- C) Higher heart rate variability is associated with better emotional health
- D) Heart rate variability is not related to emotional health

Question 16

In context of HRV, what is RMSSD?

- A. Root Mean Square Standard deviation
- B. Root Mean Square Standard differences
- C. Root Mean Square Successive deviation
- D. Root Mean Square Successive differences

Question 17

What limitation does heart rate have in determining emotions?

- A) It cannot detect changes in arousal levels
- B) It does not provide information about heart rate variability
- C) It cannot differentiate between positive and negative stimuli
- D) It is not reliable in measuring emotional responses

Question 18

What is the typical latency or delay with which the GSR signal responds to a stimulus?

- A) 2 to 4 microseconds
- B) 2 to 4 milliseconds
- C) 2 to 4 seconds
- D) 2 to 4 minutes

Question 19

What are the two main components of the GSR signal?

- A) Skin Conductance Response (SCR) and Skin Conductance Event (SCE)
- B) Skin Conductance Level (SCL) and Skin Conductance Event (SCE)
- C) Skin Conductance Response (SCR) and Skin Conductance Level (SCL)
- D) Skin Conductance Event (SCE) and Skin Conductance Variation (SCV)

Question 20

What is the purpose of maintaining proper inter-stimulus interval durations in SCR analysis?

- A) To increase the overlap between stimulus responses
- B) To minimize the duration of the GSR response
- C) To ensure a clear separation between stimulus effects
- D) To decrease the amplitude of the SCR

Question 21

What is a common limitation associated with labeling emotions using physiological signals like GSR?

- a) Lack of available tools for signal processing
- b) Difficulty in precisely determining the onset and offset of emotions
- c) Inability to separate SCR and SCL signals
- d) Challenge in analyzing the frequency domain of the GSR signal

Question 22

How fast is the response time of the EEG signal typically?

- a) 1 second
- b) 500 milliseconds
- c) 200 milliseconds
- d) 1 millisecond

Question 23

What purpose does an amplifier serve in EEG measurement?

- a) It converts electrical signals into chemical signals
- b) It amplifies the small voltages captured by EEG electrodes
- c) It measures the brain's magnetic field
- d) It analyzes neurotransmitter levels in the brain

Question 24

How are the even-numbered electrodes labeled in the 10-20 system typically placed in EEG?

- a) On the left side of the head
- b) On the right side of the head
- c) On the frontal cortex
- d) On the occipital region

Question 25

What advantage does increasing the number of electrodes in EEG systems offer?

- a) Decreased spatial resolution
- b) Reduced complexity and intrusiveness
- c) Higher spatial resolution and precision
- d) Lower cost and simpler data analysis

Question 26

In the EEG frequency spectrum, which band represents electrical activity related to relaxation and closed eyes?

- a) Delta
- b) Theta
- c) Alpha
- d) Beta

Question 27

What is not a common limitation associated with EEG signals?

- A. Poor spatial resolution
- B. Expertise requirements for Electrode placement
- C. Poor temporal resolution
- D. Intrusive nature of the procedure

1) Physiological signals originate from the activity of the autonomic nervous system, **1 point** which means they cannot be consciously or intentionally controlled.

- ☐ True
- ☐ False

2) What does Heart Rate Variability (HRV) measure?

1 point

- ☐ The average heart rate over a specified period
- ☐ The variation in time intervals between consecutive heartbeats
- ☐ The strength of the heart's contractions
- ☐ The number of heartbeats per minute

3) Increased heart rate variability has been demonstrated to correlate with a relaxed state. **1 point**

- ☐ True
- ☐ False

4) Which of the following methods is generally considered a more accurate measurement of heart rate? **1 point**

- ☐ Electrocardiogram (ECG)
- ☐ Photoplethysmography (PPG)
- ☐ Both ECG and PPG provide equally accurate measurements
- ☐ None of the above

5) What is the typical sampling frequency for Galvanic Skin Response (GSR) signals? **1 point**

- ☐ 100-1000 Hz
- ☐ 50-60 Hz
- ☐ 1-10 Hz
- ☐ 1-30 KHz

7) EEG can measure changes in brain activity over very short time intervals, often in milliseconds. **1 point**

- ☐ True
- ☐ False

8) Which frequency band of the EEG signal is associated with a state of relaxation and often observed when individuals have their eyes closed? **1 point**

- ☐ Delta (1-3 Hz)
- ☐ Theta (4-7 Hz)
- ☐ Alpha (8-12 Hz)
- ☐ Beta (13-30 Hz)

9) There is an inverse relationship between alpha band power and cortical activity. **1 point**

- ☐ True
- ☐ False

10) What is a common limitation associated with EEG signals? **1 point**

- ☐ Poor temporal resolution
- ☐ Limited frequency range
- ☐ Poor spatial resolution
- ☐ Limited signal-to-noise ratio