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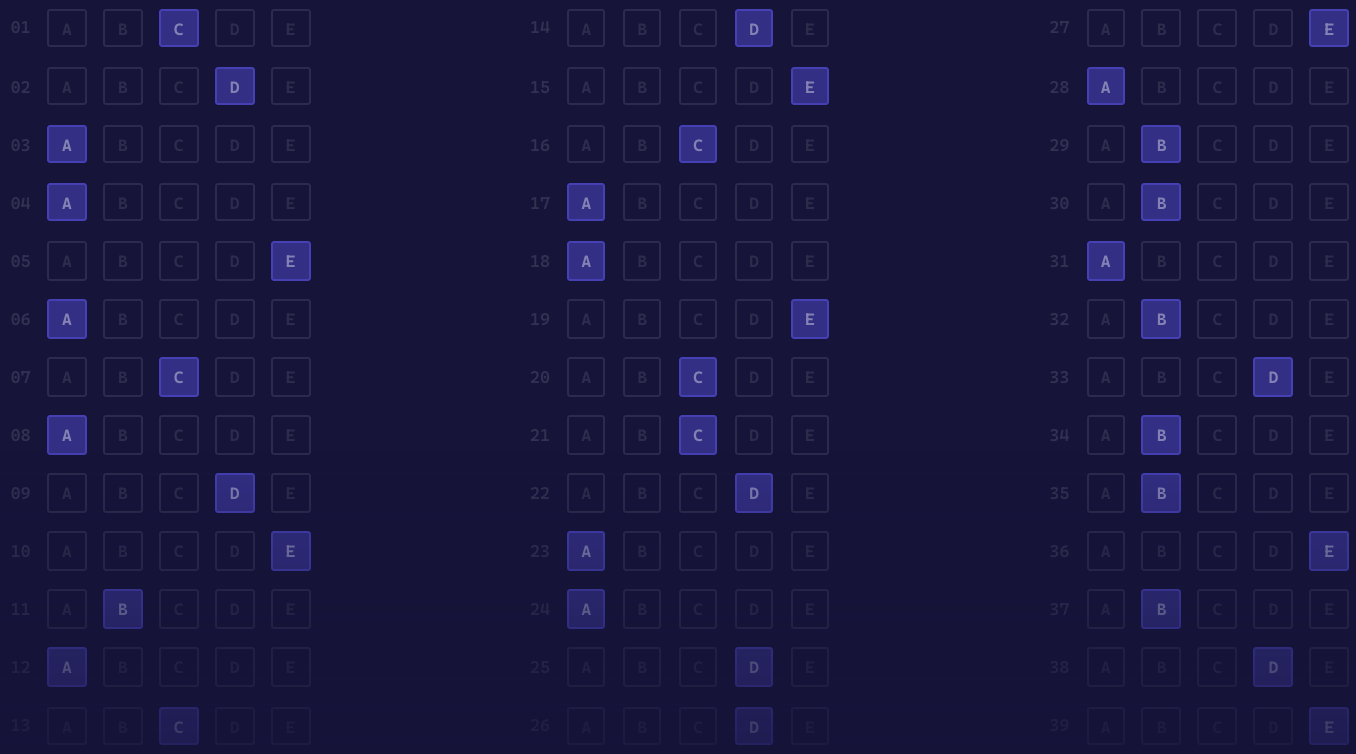

PRACTICE QUESTIONS

American Board of Clinical Neurophysiology (ABCN)

PEEG

ABCN Certification Exam Part II: Pediatric EEG

EDITION	QUESTIONS	FORMAT
Demo	9	Limited Edition PDF

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Before you begin

What this is

9 practice questions for American Board of Clinical Neurophysiology (ABCN) `PEEG`, each with its answer key and an explanation. Answer a question before you read its key — the explanation is worth more once you have committed.

If something looks wrong

Send us three things and we will check it:

- the exam code, `PEEG`
- the question number
- the email address on your order

Write to **support@mometrix.net**. We reply within one business day.

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QUESTION 1 SINGLE CHOICE

Which EEG pattern is considered a normal developmental finding in premature infants of 32 weeks conceptional age?

A **Delta brush**

B Posterior slow wave of youth

C Hypnagogic hypersynchrony

D Lambda waves

ANSWER A

WHY Delta brushes (brushes) are a hallmark normal developmental pattern seen in premature infants, typically most prominent between 28–34 weeks conceptional age. Posterior slow waves of youth, hypnagogic hypersynchrony, and lambda waves are features of older infants, children, and adults, not premature neonates.

QUESTION 2 SINGLE CHOICE

In a term neonate's EEG, tracé alternant is most characteristically seen during which state?

A Active (REM) sleep

B **Quiet (non-REM) sleep**

C Wakefulness

D Indeterminate (transitional) sleep

ANSWER B

WHY Tracé alternant is the normal discontinuous pattern of quiet (non-REM) sleep in healthy term neonates, consisting of bursts of mixed-frequency activity alternating with periods of relative quiescence lasting up to several seconds. Active sleep shows a more continuous, low-voltage mixed pattern, and tracé alternant should not be confused with the persistently abnormal suppression-burst patterns of severe encephalopathy.

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QUESTION 3 SINGLE CHOICE

Rolandic spikes (centrotemporal spikes) in children are most characteristically associated with which clinical syndrome?

A Childhood absence epilepsy

B Benign epilepsy with centrotemporal spikes (BECTS)

C Lennox-Gastaut syndrome

D Juvenile myoclonic epilepsy

ANSWER B

WHY Rolandic (centrotemporal) spikes are the classic interictal finding of benign epilepsy with centrotemporal spikes (BECTS), a self-limited focal epilepsy of school-age children. The other syndromes have distinct, well-recognized EEG signatures (3 Hz generalized spike-wave for absence, slow spike-wave and polyspike patterns for Lennox-Gastaut, and generalized 4–6 Hz polyspike-and-wave for JME).

QUESTION 4 SINGLE CHOICE

Which EEG pattern is most characteristic of Electrical Status Epilepticus in Sleep (ESES) / Continuous Spike-Wave of Sleep (CSWS)?

A Generalized 3 Hz spike-and-wave discharges activated by hyperventilation

B Near-continuous bilateral (often frontocentral) spike-and-wave discharges occupying >85% of non-REM sleep

C Hypsarrhythmia with electrodecrement during spasms

D Brief generalized polyspike-and-wave discharges provoked by photic stimulation

ANSWER B

WHY ESES/CSWS is defined by very high spike-wave index (>85%, sometimes lower thresholds are used in clinical practice) during non-REM sleep, typically with frontocentral or bilateral distribution, associated with cognitive and behavioral regression. The other patterns describe absence epilepsy, infantile spasms (West syndrome), and photosensitivity/photosensitive epilepsies, respectively.

QUESTION 5 SINGLE CHOICE

Which of the following is the most reliable electrographic criterion for diagnosing a neonatal seizure on EEG?

A A sudden change in behavior accompanied by any rhythmic activity on a single channel

B **A stereotyped, repetitive evolving waveform lasting at least 10 seconds with a clear onset, peak, and end**

C Any generalized burst-suppression pattern in a term infant

D Any sharp transient with an amplitude exceeding 50 μV

ANSWER **B**

WHY The accepted EEG definition of a neonatal seizure requires a sudden, stereotyped, evolving (changing in frequency, amplitude, and morphology) event lasting at least 10 seconds (or clearly evolving in shorter runs). Rhythmic non-evolving activity, isolated sharp transients, and burst-suppression alone are not diagnostic of seizures and commonly occur in non-seizure contexts.

QUESTION 6 SINGLE CHOICE

In a term neonate with moderate hypoxic-ischemic encephalopathy undergoing therapeutic hypothermia, which EEG background pattern is most consistent with a moderate (rather than severe) injury?

A Persistent low voltage (<5 μV) suppressed background throughout the recording

B **Continuous and reactive background with sleep–wake cycling**

C Burst-suppression with interburst intervals persistently >30 seconds

D Flat trace with absent sleep–wake cycling

ANSWER **B**

WHY A continuous background with preserved voltage, reactivity, and identifiable sleep–wake cycling is associated with moderate HIE and a more favorable outcome. Severely abnormal backgrounds—flat/suppressed, low voltage, or prolonged burst-suppression without cycling—indicate severe injury and worse prognosis.

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QUESTION 7 SINGLE CHOICE

Which of the following features most strongly supports a diagnosis of epileptic (rather than non-epileptic) seizures during video-EEG monitoring in an infant with suspected events?

A Events occur exclusively during wakefulness and stop with consolation

B Events consist of stereotyped, evolving rhythmic activity on EEG that precedes the clinical change

C Events are provoked by feeding and are associated with reflux on concurrent pH probe

D Events show no consistent EEG correlate despite thorough review with multiple montages

ANSWER B

WHY Time-locked, stereotyped, evolving ictal EEG patterns that precede or coincide with the clinical event are the hallmark of epileptic seizures. Events occurring only during wakefulness and stopping with consolation, events linked to feeding/reflux, and events without any EEG correlate across multiple montages suggest non-epileptic paroxysmal events (e.g., behavioral, gastroesophageal, or physiological nonepileptic events).

QUESTION 8 SINGLE CHOICE

Which activation procedure is most likely to provoke generalized 3 Hz spike-and-wave discharges in a 7-year-old child with suspected childhood absence epilepsy?

A Photic stimulation at 1–3 Hz

B Hyperventilation for 3 minutes

C Sleep deprivation alone

D Photic stimulation at 20 Hz

ANSWER B

WHY Hyperventilation is a powerful activator of generalized 3 Hz spike-and-wave in childhood absence epilepsy, often eliciting typical absence seizures within the first 1–2 minutes. Slow-frequency photic stimulation can occasionally provoke discharges, but standard mid-range photic frequencies (around 20 Hz) are not typically activating, and sleep deprivation is more useful for focal and generalized tonic–clonic seizures.

QUESTION 9 SINGLE CHOICE

Which EEG pattern is the dominant background activity of a healthy premature infant at 28 weeks conceptional age during quiet sleep?

A Continuous mixed-frequency activity

B Trace alternant

C **Trace discontinue (tracé discontinu)**

D Mature sleep spindles

ANSWER C

WHY At approximately 28 weeks conceptional age, the quiet sleep background is characterized by tracé discontinu, defined by long bursts of mixed-frequency activity separated by quiescent intervals. Trace alternant does not emerge until near term, and continuous activity and mature spindles appear even later in development.

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