Sleep Tech RPSGT

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Practice Questions

Try all 30 first, then check the answer key at the back.

1. Obstructive sleep apnea (OSA) is defined by repeated episodes of upper airway collapse during sleep. Which structure most commonly collapses to cause OSA?

A. Trachea
B. Hard palate
C. Soft palate and posterior tongue base
D. Epiglottis only

2. According to the 10-20 International System, where is electrode C3 located?

A. Left central region, 30% of the nasion-to-inion distance from the midline
B. Right central region, 20% of the nasion-to-inion distance from the midline
C. Left central region, 20% of the left-to-right distance from the midline
D. Right frontal region, 30% of the nasion-to-inion distance

3. According to the AASM scoring manual, which electrode placement system is used for EEG derivations in polysomnography?

A. International 10-20 system
B. International 10-10 system
C. Bipolar montage only
D. Common average reference

4. When performing a pre-study patient assessment, which vital sign should be recorded before beginning a polysomnogram?

A. Blood pressure
B. Pupillary response
C. Grip strength
D. Visual acuity

5. According to AASM scoring rules, an obstructive apnea is scored when airflow drops by at least what percentage from baseline?

A. 90%
B. 50%
C. 30%
D. 70%

6. What is the maximum allowable leakage current for a patient-connected medical device according to AAMI standards?

A. 10 microamps
B. 100 microamps
C. 500 microamps
D. 1 milliamp

7. According to AASM scoring rules, Stage N1 sleep is characterized by which EEG feature replacing alpha activity?

A. Low-amplitude mixed-frequency activity (LAMF)
B. Sleep spindles and K-complexes
C. High-amplitude delta waves (>75 µV)
D. Saw-tooth waves

8. CPAP delivers pressure that is:

A. Fixed at a single set pressure throughout the night
B. Automatically adjusted based on resistance changes
C. Bilevel, with higher pressure on inhalation
D. Pressure-relief only during peak flow

9. According to the AASM criteria, an apnea is scored when airflow drops by at least what percentage from baseline for ≥10 seconds?

A. 90%
B. 50%
C. 30%
D. 70%

10. In the 10-20 International Electrode Placement System, which letter designates the occipital lobe region?

A. O, but only on the right side
B. Oc
C. O
D. P

11. Which reference electrode site is recommended by the AASM for EEG recordings during PSG?

A. Fpz
B. Cz
C. M1 or M2
D. Oz

12. During the pre-study interview, a patient mentions taking a benzodiazepine nightly. What is the most important reason to document this medication?

A. To calculate electrode impedance adjustments
B. Because it may suppress REM sleep and alter sleep architecture
C. To determine if the patient needs a split-night study
D. To adjust the light intensity in the sleep room

13. What is the minimum duration required to score any apnea in adult polysomnography?

A. 5 seconds
B. 8 seconds
C. 10 seconds
D. 15 seconds

14. In a sleep lab, all electrical equipment connected to a patient should be plugged into the same:

A. Extension cord rated for medical use
B. Isolated power panel circuit
C. Standard household GFCI outlet
D. Three-phase power supply

15. A patient with no discernible alpha rhythm on EEG is scored as N1 when which criterion is met?

A. Eye movements stop entirely for >15 seconds
B. Chin EMG shows a sustained burst above resting baseline
C. EEG slowing of ≥1 Hz from wake frequency accompanies slow eye movements
D. A K-complex is seen without spindles

16. Which PAP mode delivers a higher pressure during inhalation (IPAP) and a lower pressure during exhalation (EPAP)?

A. CPAP
B. APAP
C. BiPAP
D. AVAPS

17. The Apnea-Hypopnea Index (AHI) is calculated as the total number of apneas and hypopneas divided by:

A. Total recording time
B. Total sleep time in hours
C. REM sleep time
D. NREM sleep time

18. Using the 10-20 system, the distance from Fpz to Oz is divided into equal segments. Which electrodes lie on the midline sagittal plane from front to back?

A. Fp1, F3, C3, P3, O1
B. Fpz, Fz, Cz, Pz, Oz
C. Fp2, F4, C4, P4, O2
D. F7, T3, T5, O1

19. For EOG recording in PSG per AASM guidelines, where is the E1 electrode placed?

A. 1 cm above and 1 cm lateral to the right outer canthus
B. 1 cm below and 1 cm lateral to the left outer canthus
C. Directly on the left outer canthus
D. 1 cm above the left inner canthus

20. A patient arrives for a diagnostic PSG and reports a BMI of 42. This information is most relevant when considering risk for which condition?

A. Periodic limb movement disorder
B. REM sleep behavior disorder
C. Obstructive sleep apnea
D. Advanced sleep phase disorder

21. Which feature distinguishes an obstructive apnea from a central apnea on PSG?

A. Absence of oxygen desaturation
B. Continued thoraco-abdominal effort during the event
C. Airflow cessation for fewer than 10 seconds
D. Absence of snoring before the event

22. A patient arrives with a temporary pacemaker lead in place. Which precaution is MOST critical during the PSG setup?

A. Use only disposable electrodes
B. Keep room humidity above 60%
C. Disable all EEG amplifiers
D. Ensure all equipment chassis are at the same ground potential

23. Vertex sharp waves are a transient feature sometimes seen at sleep onset. To which stage do they belong when they appear without other stage-defining features?

A. Stage W
B. Stage N1
C. Stage N2
D. Stage N3

24. APAP devices automatically adjust pressure based primarily on which detected event?

A. Central apneas
B. Flow limitation and snoring signals
C. SpO2 desaturation
D. Heart rate variability

25. An adult patient has an AHI of 22 events/hour with an oxygen desaturation nadir of 82%. How would this be classified by AASM severity criteria?

A. Mild OSA
B. Borderline normal
C. Mild OSA with hypoxemia
D. Moderate OSA

26. What is the maximum recommended electrode impedance for PSG recordings to ensure adequate signal quality?

A. 1 kΩ
B. 3 kΩ
C. 10 kΩ
D. 5 kΩ

27. For chin EMG recording in PSG, how many electrodes are required and where are they placed?

A. One electrode on the mentalis muscle
B. Two electrodes symmetrically on the masseter muscles
C. Two electrodes, one on mentalis and one on the right submentalis
D. Three electrodes: one on mentalis and two on submentalis muscles

28. During a pre-sleep questionnaire, a patient scores 18 on the Epworth Sleepiness Scale (ESS). How should the technologist interpret this finding?

A. Within normal limits; no action needed
B. Mildly elevated; suggestive of mild sleepiness
C. Moderate sleepiness requiring CPAP titration tonight
D. Severely elevated sleepiness requiring further evaluation

29. A mixed apnea is correctly described as an event that:

A. Has both nasal and oral airflow cessation simultaneously
B. Begins with continued effort and ends without effort
C. Has no associated oxygen desaturation
D. Begins without respiratory effort and ends with resumed effort but no airflow

30. During a PSG, the technologist notices that touching a metal equipment chassis causes a tingling sensation. The FIRST action should be:

A. Immediately disconnect that equipment from the patient and report to biomedical engineering
B. Continue the study and document the finding post-study
C. Place a non-conductive mat under the patient
D. Check the patient's skin impedance values

Answer Key & Explanations

1. C — Soft palate and posterior tongue base
In OSA, the pharyngeal soft tissues—particularly the soft palate, uvula, and posterior tongue base—collapse against the posterior pharyngeal wall, obstructing airflow. The trachea and hard palate are rigid and do not collapse.

2. A — Left central region, 30% of the nasion-to-inion distance from the midline
In the 10-20 system, odd numbers denote left hemisphere electrodes. C3 is in the central (C) area on the left side, placed at 30% intervals from anatomical landmarks. The percentages '10' and '20' refer to the electrode spacing as proportions of skull measurements.

3. A — International 10-20 system
The AASM scoring manual specifies the International 10-20 electrode placement system for EEG channel positioning in PSG. The 10-20 refers to 10% and 20% intervals measured between standard skull landmarks.

4. A — Blood pressure
Blood pressure is a standard vital sign documented during pre-study assessment. It establishes a baseline and may reveal contraindications or health risks relevant to the overnight study.

5. A — 90%
An apnea requires a ≥90% drop in the peak signal excursion of an oro-nasal thermal sensor lasting ≥10 seconds. A ≥50% drop defines a hypopnea, not an apnea.

6. A — 10 microamps
AAMI ES1 standards limit patient-lead leakage current to 10 µA (microamps) under normal conditions to prevent microshock hazards. Higher leakage currents pose serious risk to patients with direct cardiac access.

7. A — Low-amplitude mixed-frequency activity (LAMF)
N1 is defined by replacement of alpha rhythm with low-amplitude mixed-frequency (LAMF) EEG activity predominantly in the 4–7 Hz range. Sleep spindles and K-complexes define N2; high-amplitude delta defines N3; saw-tooth waves appear in REM.

8. A — Fixed at a single set pressure throughout the night
CPAP (Continuous Positive Airway Pressure) maintains one constant pressure throughout the entire breathing cycle, unlike APAP or bilevel modes.

9. A — 90%
An apnea requires a ≥90% drop in airflow from baseline lasting ≥10 seconds. A 30% drop defines a hypopnea, and 50% is not the threshold for either criterion.

10. C — O
The letter 'O' designates the occipital lobe in the 10-20 system. 'P' designates the parietal lobe. Odd numbers (O1) are left-sided and even numbers (O2) are right-sided.

11. C — M1 or M2
The AASM recommends M1 or M2 (mastoid process) as reference electrodes for EEG during PSG. These sites are electrically quiet and distant from cerebral activity, minimizing artifact contamination.

12. B — Because it may suppress REM sleep and alter sleep architecture
Benzodiazepines are CNS depressants that can suppress REM sleep and alter normal sleep architecture. Documenting this medication helps the scoring technologist and interpreting physician contextualize the study results.

13. C — 10 seconds
AASM rules require a drop in airflow meeting amplitude criteria for ≥10 seconds to qualify as an apnea. Events shorter than 10 seconds are not scored.

14. B — Isolated power panel circuit
Plugging all patient-connected equipment into the same isolated power panel circuit ensures equipotential bonding, eliminating potential differences between devices that could drive current through the patient.

15. C — EEG slowing of ≥1 Hz from wake frequency accompanies slow eye movements
In subjects who do not generate alpha, the AASM rules substitute 'EEG frequency slowing of ≥1 Hz from wakefulness' plus slow eye movements (SEMs) as the N1 criterion. Alpha drop-out alone is insufficient.

16. C — BiPAP
Bilevel PAP (BiPAP) uses two distinct pressure levels — IPAP during inhalation and EPAP during exhalation — to support ventilation while reducing exhalatory effort.

17. B — Total sleep time in hours
AHI = (total apneas + hypopneas) / total sleep time (hours). Using total recording time would underestimate severity because awake time is excluded.

18. B — Fpz, Fz, Cz, Pz, Oz
Midline electrodes carry the suffix 'z' (zero), representing the sagittal midline. From front to back: Fpz, Fz, Cz, Pz, Oz. Odd-numbered electrodes are left-hemisphere and even-numbered are right-hemisphere.

19. B — 1 cm below and 1 cm lateral to the left outer canthus
E1 is placed 1 cm below and 1 cm lateral to the left outer canthus per AASM guidelines. Offsetting E1 and E2 vertically allows detection of conjugate eye movements as out-of-phase deflections.

20. C — Obstructive sleep apnea
Obesity (high BMI) is one of the strongest risk factors for obstructive sleep apnea due to excess adipose tissue around the upper airway. BMI should be documented in the patient intake form.

21. B — Continued thoraco-abdominal effort during the event
During an obstructive apnea, respiratory effort (thoracic and/or abdominal movement) continues because the airway is occluded. In a central apnea, both airflow and effort cease simultaneously.

22. D — Ensure all equipment chassis are at the same ground potential
With a temporary pacemaker lead providing a direct cardiac pathway, equipotential grounding of all equipment is critical to prevent microshock. Even tiny current differences between chassis can be fatal via this direct cardiac route.

23. B — Stage N1
Vertex sharp waves are most prominent in N1 and may persist into N2. They are scored as part of N1 when no spindles or K-complexes are present and the background remains LAMF. They do not define N2 on their own.

24. B — Flow limitation and snoring signals
APAP algorithms respond to flow limitation, snoring, and obstructive respiratory events to titrate pressure up or down; they do not use SpO2 or cardiac signals.

25. D — Moderate OSA
AHI 15–29.9 events/hour defines moderate OSA. Mild OSA is 5–14.9, and severe OSA is ≥30 events/hour. The oxygen nadir does not alter the AHI-based severity classification.

26. D — 5 kΩ
The AASM and BRPT standards recommend electrode impedances of 5 kΩ or less (with each electrode balanced within 1 kΩ of each other) for acceptable PSG signal quality. Higher impedance increases noise and artifact susceptibility.

27. D — Three electrodes: one on mentalis and two on submentalis muscles
AASM guidelines require three chin EMG electrodes: one on the mentalis and two on the submentalis muscles (left and right). This redundancy ensures adequate recording if one electrode fails during the study.

28. D — Severely elevated sleepiness requiring further evaluation
The ESS ranges from 0–24; scores above 10 suggest excessive daytime sleepiness. A score of 18 indicates severe sleepiness and warrants clinical follow-up. The technologist documents but does not diagnose.

29. D — Begins without respiratory effort and ends with resumed effort but no airflow
A mixed apnea starts with a central component (no effort) and transitions to an obstructive component (resumed effort with continued airflow cessation). This mixed pattern is the defining characteristic.

30. A — Immediately disconnect that equipment from the patient and report to biomedical engineering
A tingling sensation from a chassis indicates a ground fault or excessive leakage current — a serious electrical hazard. The device must be immediately disconnected from the patient and removed from service pending inspection by biomedical engineering.

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