Respiratory Therapy Reference Sheet — Settings, Pressures & Formulas

The 2027 RTE at a glance · lung-protective settings · mechanics formulas · modes · oxygenation targets · airway & weaning numbers — bare reference values only

Free NBRC Respiratory Therapy sample exam: **passprofessor.com/nbrc-rte-exam-prep/**

THE 2027 EXAMINATION — AT A GLANCE

From **January 4, 2027**, the Respiratory Therapy Examination (RTE) is a single exam replacing the TMC + CSE sequence for new candidates: **185 questions (160 scored + 25 unscored pretest), 4 hours**, in two scored areas — Breadth of Knowledge (100 items) and Depth of Clinical Judgment (60 items). One total score carries **two cut scores**: the lower cut earns the CRT credential, the higher cut the RRT. NBRC has not published the numeric cut scores, so no pass number appears on this sheet. Fee: **$360** new applicant, $300 repeat. The TMC takes its last application December 15, 2026 and is last administered **December 31, 2026**; candidates who passed the TMC at the high cut on or before that date may still take the CSE through December 31, 2027.

VENTILATOR SETTINGS & MECHANICS

Setting / measure	Reference
Tidal volume	6 mL/kg of predicted body weight — the lung-protective setting; predicted body weight is a height-based weight, not the patient's actual weight
Plateau pressure goal	below 30 cm H_2O, measured on an end-inspiratory hold of about 0.5–2 seconds at zero flow
Driving pressure	plateau pressure − PEEP — the pressure that actually inflates the lung
Compliance	tidal volume ÷ (plateau pressure − total PEEP)
Airway resistance	(peak pressure − plateau pressure) ÷ flow
Minute ventilation	respiratory rate × tidal volume — 16 × 0.45 L = 7.2 L/min, a normal resting adult value
PEEP and FiO_2	set together as a pair to balance recruitment against oxygen toxicity
Permissive hypercapnia	a higher $PaCO_2$ is acceptable when pH stays acceptable and pressures stay safe

Pattern	Reading
Peak rising, plateau holding	a resistance problem — bronchospasm, secretions, kinked tube
Peak and plateau rising together	a compliance problem
Auto-PEEP	total PEEP − set PEEP, measured on an end-expiratory hold
Air trapping sign	expiratory flow does not return to zero before the next breath begins
Fixing auto-PEEP	decrease the rate and/or shorten inspiratory time so exhalation can finish
Flow starvation (volume control)	a scooped, concave inspiratory pressure curve — the set flow is too low

MODES — WHAT EACH ONE CONTROLS

Mode	Reference
Volume control	set volume, constant flow; pressure varies with the lung
Pressure control	set pressure, decelerating flow; volume varies with compliance
Volume-targeted pressure control	pressure adapts breath to breath to hit a volume target, only up to its pressure limit
Pressure support	augments the patient's own spontaneous breaths
CPAP	splints the airway open; does not augment alveolar ventilation the way bilevel does
Bilevel (IPAP/EPAP)	raising IPAP widens the IPAP−EPAP gradient, increasing tidal volume and CO_2 removal
Weaning method	a daily spontaneous breathing trial outperforms a gradual SIMV rate taper

© PassProfessor · passprofessor.com

OXYGENATION — FORMULAS & TARGETS

Measure	Reference
Alveolar gas equation	$PAO_2 = FiO_2 \times 713 - PaCO_2 \div 0.8$
A–a gradient	$PAO_2 - PaO_2$; expected about 10–15 mm Hg in a young or middle-aged adult on room air
P/F ratio	$PaO_2 \div FiO_2$
Moderate ARDS (Berlin)	P/F above 100 up to 200, on PEEP of at least 5

Measure	Reference
Prone positioning	sessions of at least 12–16 hours for P/F below about 150 despite optimization
Oxygenation index	(mean airway pressure × FiO_2 × 100) ÷ PaO_2
Dead-space fraction	$VD/VT = (PaCO_2 - PECO_2) \div PaCO_2$; normal about 0.20–0.40
SpO_2 titration target	88–95% — titrate FiO_2 down once the target holds; avoid prolonged hyperoxia

AIRWAY, WEANING & QUICK FACTS

Item	Reference
Cuff pressure	20–30 cm H_2O; above about 30 it exceeds tracheal mucosal perfusion pressure
ETT tip position	3–5 cm above the carina in an adult
SBT method	T-piece or low-level pressure support/CPAP for about 30–120 minutes, against predefined failure criteria
RSBI	respiratory rate ÷ tidal volume in liters; above about 105 predicts weaning failure
SBT failure signs	rapid shallow breathing, hypoxemia, tachycardia, agitation, diaphoresis — stop the trial, restore support
Extubation also needs	airway protection: awake, strong cough, manageable secretions, cuff leak present
Absent cuff leak	defer extubation, give corticosteroids, keep a reintubation plan ready
After extubation	prophylactic heated high-flow nasal therapy (or NIV where indicated) for high-risk patients

Item	Reference
Venturi (air-entrainment) mask	fixed entrainment ratio — a precise, flow-independent FiO_2 for controlled oxygen in chronic hypercapnia
Reservoir bag empties fully	delivered flow is below the patient's inspiratory demand — raise the flow
VAP bundle	head-of-bed elevation, scheduled oral care, subglottic-secretion-drainage tube, daily sedation interruption paired with an SBT screen
Neonatal PPV	begin with room air at 40–60 breaths/min; ventilate when the heart rate is below 100/min
Neonatal compressions	heart rate below 60/min despite effective ventilation — coordinated 3:1 with ventilation, oxygen at 100%
Saturation probe sites	preductal = right hand; postductal = a foot

WHAT THIS SHEET DOESN'T COVER

- Managing any specific patient: ventilator settings are individualized at the bedside — this sheet prints reference anchors only, not a clinical protocol.
- Drug doses, sedation and paralytic protocols, and disease-by-disease management pathways.
- Waveform libraries beyond the single flow-starvation sign, ventilator brand menus, and alarm-by-alarm troubleshooting.
- Timed, scored practice under exam conditions — and the numeric RTE cut scores, which NBRC has not published.
- An explanation for every answer — why the right answers are right and the wrong ones are wrong.
- A fresh set of questions on every attempt, so practice never repeats itself.

Start with free NBRC Respiratory Therapy sample questions: passprofessor.com/nbrc-rte-exam-prep/

Examination facts: NBRC's published RTE transition materials, as verified in the PassProfessor NBRC lane dossier (October–November 2026). Clinical reference values are drawn from the PassProfessor NBRC question bank's own explanations and are stated bare, as reference anchors.

© PassProfessor · passprofessor.com