

EUROPEAN DIPLOMA IN INTENSIVE CARE

PART II / EXAMINATION PREPARATION

VOLUME 01

EDIC II

Decoded

BUILD THE KNOWLEDGE. MASTER THE APPROACH.

Turn core critical care into clear, confident answers.

Clinical cases, image interpretation and structured exam practice.

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FIRST EDITION

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How to Use This Book

EDIC Part II tests whether you can do the job. It checks that you can look at a chest film, a ventilator screen, a set of gases or a deteriorating patient and say, in the right order and in the examiners' language, what is going on and what you will do next. This book is built to train that skill.

What is inside

Each system chapter follows the same five-layer structure:

1. **Core synthesis:** the high-yield physiology, definitions, scores and management algorithms you are expected to quote, compressed into tables and lists you can revise from.
2. **Trials you must name:** the landmark studies behind each recommendation. You need the trial name, the population, the intervention and the bottom line in one sentence.
3. **CBS stations:** computer-based image, curve and data stations of the kind used in the exam. Each has 8–12 marking points, with model “expected answers” listed the way an examiner’s marking sheet lists them.
4. **CCS long case:** a clinical case scenario that unfolds over several vignettes, from admission through a complication to weaning or end-of-life decisions, with the numbered questions and the answers that score.
5. **Examiner’s pearls and red flags:** the points that separate a borderline pass from a clear pass, and the errors that cost candidates the station.

How the answers are written

The model answers are deliberately **listed, prioritised and short**. In the real exam each predefined answer is worth one point. Examiners tick what they hear. They do not reward eloquence, and they cannot give credit for a correct idea that you never said. Where a question says “any three”, the list given is usually longer than three, so you can see the whole answer space.

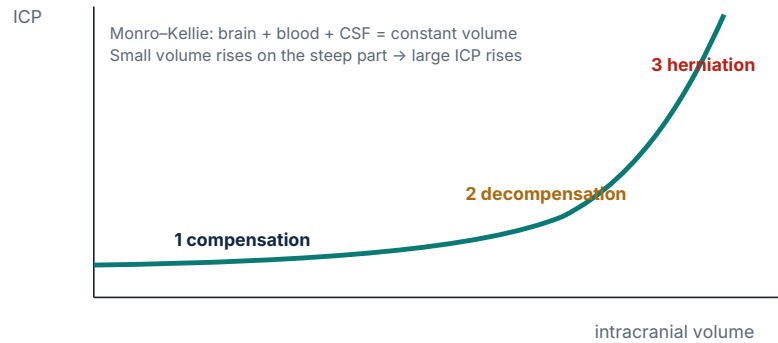
HOW TO WORK THROUGH A STATION

- Cover the expected answers. Set a timer: 12 minutes for a CBS station, about 25 minutes for a CCS station.
- Say your answers aloud, in a structured order (see *Exam Technique*).
- Uncover and tick. Every missed point goes into a personal “gap list” you revise the night before the exam.

Images and data

The images are real clinical images: radiographs, CT and MRI, echocardiograms, lung ultrasound, ECGs, monitor and ventilator screens, blood-gas printouts and laboratory panels. Annotations have been removed so that each image can be used as an unseen station. Laboratory values are given in SI units with conventional units where the exam commonly uses both. Flags **H** and **L** mark values outside the reference range.

Modality	Normal / threshold	Notes
TCD MCA mean flow velocity	30–80 cm/s	> 120 cm/s vasospasm, > 200 severe; Lindegaard ratio (MCA/ICA) > 3 vasospasm, > 6 severe; PI > 1.2 suggests raised ICP
ONSD	< 5 mm	> 5.0–5.7 mm correlates with ICP > 20 mmHg
BIS	40–60 general anaesthesia	
EEG	Alpha 8–13 Hz awake; theta/delta in encephalopathy	Burst suppression; generalised periodic discharges; NCSE (Salzburg criteria)



1.11 Practice stations

CBS 1.1 A gas that hides three disorders

COMPUTER-BASED STATION · 12 MIN

HISTORY

A 58-year-old man with insulin-treated diabetes has vomited for 4 days. He is drowsy, with a respiratory rate of 10/min.

ARTERIAL BLOOD GAS ON AIR

Test	Result	Test	Result
pH	7.29 L	Na ⁺	134 mmol/L
PaCO ₂	6.4 kPa (48 mmHg) H	Cl ⁻	82 mmol/L L
PaO ₂	8.6 kPa L	HCO ₃ ⁻	22 mmol/L
Glucose	28 mmol/L H	Albumin	40 g/L
β-hydroxybutyrate	5.8 mmol/L H	Lactate	1.6 mmol/L

Q1 Describe the acid-base status, showing your calculations.

1 each

EXPECTED ANSWERS

- ✓ Acidaemia, pH 7.29.
- ✓ Anion gap = $134 - (82 + 22) = 30 \text{ mmol/L}$ (albumin normal): high anion gap metabolic acidosis.
- ✓ Cause: **diabetic ketoacidosis** (glucose 28, ketones 5.8).
- ✓ Delta ratio = $(30 - 12)/(24 - 22) = 9$, far above 2: a coexisting **metabolic alkalosis**, explained by vomiting (hypochloraemia, Cl 82).
- ✓ Expected PaCO₂ by Winter's = $1.5 \times 22 + 8 = 41 \pm 2 \text{ mmHg}$. The measured 48 mmHg is higher, so there is also a **primary respiratory acidosis** (hypoventilation from drowsiness).
- ✓ Conclusion: a **triple disorder**. The near-normal bicarbonate hides the severity of the ketoacidosis.

Q2 Calculate the A-a gradient and interpret it.

1 each

EXPECTED ANSWERS

- ✓ $\text{PAO}_2 \approx 20 - 1.25 \times 6.4 = \mathbf{12.0 \text{ kPa}}$; $\text{A-a} = 12.0 - 8.6 = \mathbf{3.4 \text{ kPa}}$: raised.
- ✓ So hypoventilation alone does not explain the hypoxaemia. Think of **aspiration pneumonitis** (vomiting, drowsy) or atelectasis.

Q3 List four immediate management steps.

4

EXPECTED ANSWERS

- ✓ Airway protection: consider intubation (GCS, aspiration risk); NG tube to decompress the stomach.
- ✓ IV crystalloid resuscitation (0.9% saline or balanced) with potassium replacement guided by levels.
- ✓ Fixed-rate insulin 0.1 units/kg/h once $\text{K}^+ \geq 3.5 \text{ mmol/L}$; add 10% glucose when glucose $< 14 \text{ mmol/L}$.
- ✓ Hourly ketones and glucose, 2-hourly VBG; chest film; look for the precipitant (infection, missed insulin, MI).

CBS 1.2 The comatose drinker

COMPUTER-BASED STATION · 12 MIN

HISTORY

A 44-year-old man is found confused and then comatose after a weekend of heavy drinking. He has no ethanol detectable on breath testing.

LABORATORY RESULTS

Test	Result	Test	Result
pH	7.08 LL	Measured osmolality	338 mOsm/kg H
PaCO_2	2.9 kPa L	Na^+	140 mmol/L
HCO_3^-	6.5 mmol/L LL	Glucose	6 mmol/L
Cl^-	103 mmol/L	Urea	7 mmol/L
Lactate (analyser)	9.8 mmol/L H	Lactate (lab, LDH method)	3.1 mmol/L H
Ionised Ca^{2+}	0.92 mmol/L L	Urine microscopy	Envelope-shaped crystals