COLLEGE OF INTENSIVE CARE MEDICINE
OF AUSTRALIA AND NEW ZEALAND

FIRST PART EXAMINATION

WEDNESDAY 25 FEBRUARY 2026

AFTERNOON PAPER – SHORT ANSWER QUESTIONS

INSTRUCTIONS FOR CANDIDATES

- Write your answers in the booklets provided.
- Each SAQ should be answered in a **separate** answer booklet.
- You should aim to allocate **10 minutes** to answer each SAQ.
- All SAQs are worth **equal** marks.
- SAQs with more than one part have the proportion of marks for each part indicated.
- Record your **candidate number** and **question number** on the cover of each book and on each page of the booklet.
- **Please DO NOT write in the blue margins of the answer booklets.**
- **At the end of the exam hand your answer booklets and question papers to the Invigilator**

GLOSSARY OF TERMS

• Calculate:	Work out or estimate using mathematical principles
• Classify:	Divide into categories; organise, arrange
• Compare and contrast:	Examine similarities and differences
• Define:	Give the precise meaning
• Describe:	Give a detailed account of
• Explain:	Make plain
• Interpret:	Explain the meaning or significance
• Outline:	Provide a summary of the important points
• Relate:	Show a connection between
• Understand:	Appreciate the details of; comprehend

PLEASE USE A SEPARATE BOOKLET TO WRITE YOUR ANSWER FOR EACH QUESTION

Question 11

a) Outline the scientific principles that apply to the measurement of end-tidal carbon dioxide using capnography. Include the techniques of sampling in your answer (30% of marks).

b) Describe a normal capnograph waveform and its features (20% of marks). *A diagram may assist you with your answer.*

c) Outline the ventilation and perfusion information that can be derived from the capnograph waveform (50% of marks).

Question 12

a) Describe the physiological factors that contribute to pulmonary vasoconstricton. Include the mechanisms involved in your answer (60% of marks).

b) For each of the inhaled pulmonary vasodilators, nitric oxide and prostacyclin:

i) describe the mechanism(s) of action (25% of marks),

ii) outline the adverse effects (15% of marks).

Question 13

Outline the determinants of venous return to the right heart.

Question 14

a) Outline the distribution of calcium in the body and provide the normal range of plasma calcium concentration (20% of marks).

b) Outline the regulation of plasma calcium (50% of marks).

c) Outline other physiological factors that may influence plasma calcium concentration (30% of marks).

Question 15

Compare and contrast neostigmine and sugammadex using the following headings:

a) drug class and mechanism of action (30% of marks),

b) indications for use (15% of marks),

c) dose and dosing considerations (15% of marks),

d) pharmacodynamics and adverse effects (40% of marks).

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Question 16

With respect to bile, outline the following:

a) composition (20% of marks),

b) functions (20% of marks),

c) storage (10% of marks),

d) factors regulating delivery into the duodenum (50% of marks).

Question 17

a) Compare and contrast fever and hyperthermia using the following headings:

i) physiological mechanisms (30% of marks),

ii) causes (30% of marks).

b) With respect to paracetamol:

i) outline the mechanism of action (15% of marks),

ii) list the adverse effects (10% marks),

iii) outline mechanism of toxicity. (15% of marks).

Management of toxicity is NOT required.

Question 18

With respect to viscoelastic assays, describe the expected alterations and the underlying mechanisms resulting from the following:

a) platelet dysfunction (40% of marks),

b) therapeutic heparin use (40% of marks),

c) hyperfibrinolysis (20% of marks).

Either TEG or ROTEM is acceptable for your answer.

Question 19

(a) Explain the multi-compartment pharmacokinetic model (80% of marks).

(b) Outline with examples, the characteristics of drugs that adhere to this model (20% of marks).

PLEASE USE A SEPARATE BOOKLET TO WRITE YOUR ANSWER FOR EACH QUESTION

Question 20

(a) Classify hypersensitivity reactions and provide a brief outline of the immunological mechanisms underlying each type (20% of marks).

(b) Explain the immunological basis of anaphylaxis (50% of marks).

(c) Outline the pharmacology of adrenaline relevant to its use in the management of anaphylaxis (30% of marks).

---------- END OF SHORT ANSWER QUESTIONS FOR AFTERNOON PAPER ----------