COLLEGE OF INTENSIVE CARE MEDICINE
OF AUSTRALIA AND NEW ZEALAND

SECOND PART WRITTEN EXAMINATION

WEDNESDAY MARCH 11 2026

AFTERNOON PAPER

(A) Write your answers in the blue books provided. **Each** question should be answered in a separate booklet. Please **DO NOT** write 2 short answer questions in the same booklet.

(B) Start each answer on a **new booklet** and indicate the **question number**. It is not necessary to rewrite the question in your answer book.

(C) You should aim to answer each question in **ten** minutes.

(D) All questions are worth ten marks each in total.

(E) Record your **candidate number** and each **question number** on the cover of each book, page, and hand in all books.

GLOSSARY OF TERMS

Assessment:	Generic term that implies determining an underlying diagnosis, encompassing; history, clinical examination, and relevant investigations.
Compare and contrast:	Provide a description of similarities and differences. You may tabulate your answer.
Critically evaluate:	Provide and explain the evidence available relating to a topic.
Define:	Provide the meaning of a requested topic
Discuss:	Explain the underlying key principles. Where appropriate, this may include controversies and/or advantages and disadvantages.
Explain:	Make plain or known in detail.
Illustrate:	Make clear by using specific example(s) or a diagram to demonstrate.
Interpret:	Provide the meaning of the given data/information.
Justify:	Provide a rationale to support your stated position. Where relevant give evidence.

Answer Each Question in a Separate Booklet

List:	Provide a series of items or points, in bullet or numbered format
Management:	Generic term that implies determining an overall management plan, encompassing; resuscitation, definitive treatment, initial and ongoing monitoring with supportive treatment.
Outline:	Provide an organised overview of the important points.
Summarise:	Condense relevant information into a systematic arrangement or classification.

NOTE

Where laboratory values are provided, abnormal values are marked with an asterisk (*****).

Answer Each Question in a Separate Booklet

Question 16

A 72-year-old patient with a previous thoracic aortic graft develops fever, rising inflammatory markers, and new haemodynamic instability.

a) List the key investigations and justify how they would help confirm aortic graft infection

(4 marks)

b) Outline a prioritised management plan assuming aortic graft infection is confirmed

(6 marks)

Question 17

A 10-day-old infant presents to a regional emergency department with a 24-hour history of poor feeding and tachypnoea. The infant is unrousable on presentation.

a) List three non-cardiac differential diagnoses

(3 marks)

b) Outline the features on assessment that would point to a cardiac cause for this infant's presentation

(7 marks)

Question 18

A patient day 5 after mechanical mitral valve replacement remains dependent on temporary epicardial pacing.

a) List **six** risk factors for requiring a new permanent pacemaker after cardiac surgery

(3 marks)

b) Outline the clinical considerations in planning for potential permanent pacing in this patient

(7 marks)

Question 19

Outline the features on history that would suggest a high risk for each of the following complications after a hepatic resection/partial hepatectomy.

a) Post-operative bleeding

(6 marks)

b) Acute kidney injury

(2 marks)

c) Delirium

(2 marks)

Question 20

A 69-year-old patient is admitted to hospital with pneumonia. They have a history of bipolar affective disorder treated with lithium for over 25 years. Lithium was ceased on admission.

On day 5 of hospital admission, they become increasingly agitated and are referred to ICU.

Investigations

Test	Result	Reference range
Serum sodium	**160 mmol/L***	135–145
Serum osmolality	**332 mOsm/kg***	275–295
Serum potassium	4.0 mmol/L	3.5–5.0
Serum phosphate	**0.45 mmol/L***	0.8–1.5
Serum urea	**10.4 mmol/L***	2.5–7.8
Serum creatinine	**148 µmol/L***	60–110
Serum lithium	**0.3 mmol/L***	0.6–1.2
Serum calcium (corrected)	**2.75 mmol/L***	2.15–2.60
Urine output	3.6 L in preceding 24 hours	—
Fluid balance (preceding 24 h)	−1.9 L	—
Urine osmolality	240 mOsm/kg	50–1200
Urine sodium	24 mmol/L	—

a) Explain the abnormalities and state the most likely diagnosis

(5 marks)

b) Outline your management of the electrolyte abnormalities

(5 marks)

Answer Each Question in a Separate Booklet

Question 21

A 60-year-old patient has known idiopathic interstitial lung disease (ILD). They have undergone an emergency laparotomy for sigmoid perforation.

a) Outline your assessment to establish the baseline severity of the patient's lung disease

(6 marks)

b) Assuming this patient has severe ILD, provide and justify your initial ventilator settings on arrival to ICU

(4 marks)

Question 22

a) Outline the potential complications in a patient with snake bite who presents with signs of envenomation

(5 marks)

b) Outline the specific management of an envenomated patient

(5 marks)

Question 23

Regarding the determination of death in the context of organ donation:

a) Outline the process for neurological determination of death

(6 marks)

b) Outline the process for circulatory determination of death

(4 marks)

Question 24

A 52-year-old patient presents with acute dyspnoea and presyncope.

Observations are as follows:
BP 88/50mmHg
HR 120bpm
SaO2 94% on 8L O2

Pulmonary embolism (PE) is confirmed on CT Pulmonary Angiogram. The patient has no significant medical history.

a) Outline the pathophysiology of haemodynamic collapse in acute PE

(3 marks)

b) Outline and justify your approach to PE risk-stratification in this patient

(3 marks)

c) Discuss the immediate management priorities, including options for specific therapy

(4 marks)

Question 25

A 32-year-old patient has been admitted from the emergency department with a traumatic spinal cord transection at the level of C6.

Outline the pathophysiology and clinical consequences of this injury on the following:

a) Respiratory function

(6 marks)

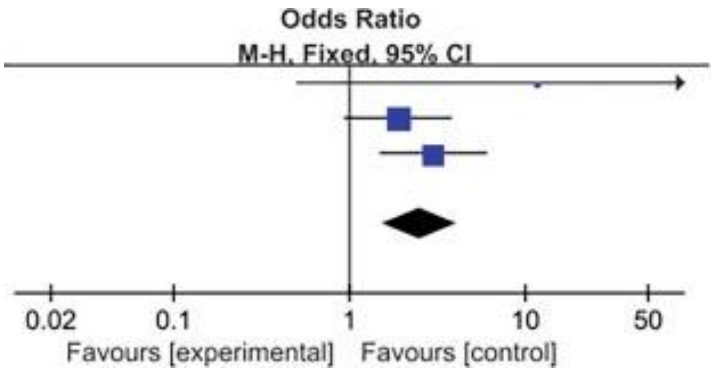
b) Autonomic function

(4 marks)

Question 26

A systematic review of the literature was undertaken on the use of aminoglycosides and the association with intensive care unit acquired weakness (ICUAW).

Study or Subgroup	With ICUAW Events	Total	Without ICUAW Events	Total	Weight	Odds Ratio M-H. Fixed. 95% CI
Amaya-Villar 2005	2	9	0	17	1.3%	11.67 [0.50, 273.50]
Anastasopoulos 2011	20	40	52	150	54.2%	1.88 [0.93, 3.81]
Nanas 2008	28	44	52	141	44.5%	3.00 [1.48, 6.05]
Total (95% CI)		93		308	100.0%	2.51 [1.54, 4.08]
Total events	50		104			



Heterogeneity: $Chi^2 = 1.79$, df = 2 (P= 0.41); $I^2 = 0\%$

Test for overall effect: Z = 3.71 (P = 0.0002)

a) With respect to the above forest plot explain the meaning of:

i) the horizontal lines

(1 mark)

ii) the position of the square

(1 mark)

iii) the size of the square

(1 mark)

b) Outline the advantages and limitations of forest plots

(4 marks)

c) Provide an interpretation of the data and justify your answer

(3 marks)

Answer Each Question in a Separate Booklet

Question 27

a. Outline the clinical presentation (including the timeline) of amniotic fluid embolism

(4 marks)

b. Outline assessment of a patient with suspected amniotic fluid embolism. In your answer, include the challenges in confirming the diagnosis

(6 marks)

Question 28.1

A 56-year-old patient presents with one-month history of weight loss and shortness of breath.

The results of the blood tests are as follows:

Parameter	Value	Normal Range
Haemoglobin	**128 g/L***	135 – 180
White Cell Count	6.1 x 109/L	4.0 – 11.0
Platelets	**35 x 109/L***	150 – 400
Prothrombin time	**23.3 sec***	12.0 – 16.5
INR	**2.0***	0.9 – 1.3
APTT	**45.7 sec***	27.0 – 38.5
Fibrinogen	**0.7 g/L***	2.0 – 4.0
Total Protein	**39 g/L***	60 – 80
Albumin	**24 g/L***	35 - 50
Total Bilirubin	**215 µmol/L***	< 20
ALT	**202 U/L***	< 40
ALP	**243 U/L***	30 – 110
GGT	**394 U/L***	< 60
Ferritin	**120000 µg/L***	30 - 620
Iron	15 µmol/L	9 – 30
Transferrin	**13 µmol/L***	23 – 43
Transferrin saturation	**58%***	14 – 45

a) Give the diagnosis indicated by these results

(2 marks)

b) Give **<u>three</u>** possible underlying causes

(1.5 marks)

Question 28.2

A 52-year-old patient presents with bruising and a retroperitoneal haematoma five weeks after starting warfarin for a proximal deep vein thrombosis (DVT) with a target international normalised ratio (INR) of 2.5.

The investigations are as follows:

Parameter	Patient Value	Normal Adult Range
Haemoglobin	**122 q/L***	135 - 180
White Cell Count	10.1 x 109/L	4.0 - 11.0
Platelets	298 x 109/L	150 - 400
Prothrombin time	**29.3 sec***	12.0 - 16.5
International normalised ratio	**2.3***	0.9 - 1.3
Activated partial thromboplastin time	**117.0 sec***	27.0 - 38.5
Fibrinogen	3.9 a/L	2.0 - 4.0

a) List the likely underlying cause for this coagulation profile

(2 marks)

b) List **one** test you could do to confirm this

(1.5 marks)

Question 28.3

A 49-year-old patient presents with confusion. The results of the blood tests are as follows:

Parameter	Patient Value	Normal Adult Range
Haemoglobin	**86 q/L***	135 - 180
White Cell Count	**11.2 x 109/L***	4.0 - 11.0
Platelets	**23 x 109/L***	150 - 400
Prothrombin time	14.0 sec	12.0 - 16.5
Activated partial thromboplastin time	35.0 sec	27.0 - 38.5
Fibrinogen	2.1 q/L	2.0 - 4.0
Thrombin time	**14.0 sec***	11.5 - 13.5
Urea	**12.1 mmol/L***	3.0 - 8.0
Creatinine	**356 µmol/L***	45 - 90
Lactate dehydrogenase	**2342 U/L***	140 - 280

a) List **one** likely diagnosis

(1 mark)

b) Give **four** additional investigations to support your diagnosis

(2 marks)

Answer Each Question in a Separate Booklet

Question 29

A patient is being admitted post-operatively following coronary artery bypass surgery. You are attending the post-operative handover.

a) List the key information related to the anaesthetic and the operation you would want to know

(4 marks)

b) For each item on the list explain the relevance to the patient management during the post-operative ICU admission

(6 marks)

Question 30

An intubated patient was admitted to the ICU following a self-harm attempt by hanging:

a) List **six** potential complications, other than cardiac arrest or death

(3 marks)

b) Discuss the different radiological modalities in the evaluation of this patient on ICU admission

(7 marks)

END OF AFTERNOON PAPER