Answer Each Question in a Separate Booklet

COLLEGE OF INTENSIVE CARE MEDICINE
OF AUSTRALIA AND NEW ZEALAND

SECOND PART WRITTEN EXAMINATION

Wednesday 13th of August 2025

MORNING 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

Critically evaluate:	Provide and explain the evidence available relating to a topic.
Outline:	Provide a summary of the important points.
List:	Provide a list.
Compare and contrast:	Provide a description of similarities and differences. You may tabulate your answer.
Assessment:	Generic term that implies determining an underlying diagnosis, encompassing; history, clinical examination, and relevant investigations.
Management:	Generic term that implies determining an overall management plan, encompassing; resuscitation, definitive treatment, initial and ongoing monitoring with supportive treatment.
Discuss:	Explain the underlying key principles. Where appropriate, this may include controversies and/or advantages and disadvantages.
Explain:	Make plain or known in detail.

NOTE

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

Answer Each Question in a Separate Booklet

Question 1

A 60-year-old patient remains intubated with a reduced consciousness level 6 hours following endovascular clot retrieval (ECR) for an acute middle cerebral artery (MCA) stroke. Sedation was stopped immediately post procedure.

a) List **six** likely causes of the reduced conscious state (3 marks)

b) Outline your assessment of this patient's reduced conscious level (7 marks)

Question 2

Compare and contrast prothrombin complex concentrate (PCC) and fresh frozen plasma (FFP) in the management of a warfarinised patient with major haemorrhage under the following headings:

a) Constituents and methods of administration (2 marks)

b) Advantages (4 marks)

c) Contraindications and potential adverse effects (4 marks)

Question 3

A 75-year-old patient is admitted to intensive care following endovascular aneurysm repair (EVAR) for ruptured abdominal aortic aneurysm (AAA). On day 2 of admission the patient develops bloody diarrhoea. Ischaemic colitis is suspected.

a) Outline the mechanisms that may contribute to bowel ischemia in this setting (3 marks)

b) Outline the investigations that would be useful in evaluating this patient for ischemic colitis. In your answer, include the expected investigation findings (3 marks)

c) Outline the principles of management for bowel ischemia following EVAR (4 marks)

Answer Each Question in a Separate Booklet

Question 4

You have been asked to review a new "Drug X" as to whether it should be added to the ICU formulary. It is administered over 7 days for cardiogenic shock to improve ejection fraction (EF).

The following study data has been provided:

	Outcome	
	Improved EF	Unchanged EF
Drug X (n=100)	96	4
Placebo (n=100)	92	8

For this set of data:

a) Calculate and explain the odds ratio (OR) (2 marks)

b) Calculate and explain the relative risk reduction (RRR) (2 marks)

c) Calculate and explain the number needed to treat (NNT) (2 marks)

d) List the additional information that would aid your decision-making regarding the addition of the drug to the ICU formulary (4 marks)

Question 5

A patient in ICU requires intubation and is known to have a previous Grade 1 view on laryngoscopy.

a) Outline the physiological factors that could increase the risk of adverse events during intubation

(4 marks)

b) Outline your strategies for optimising a physiologically unstable patient to minimise the risk of adverse events during intubation

(6 marks)

Question 6

a) Discuss the considerations involved in the decision to discharge patients directly home from the ICU

(6 marks)

b) Outline the reasons why two different ICUs might have different rates of direct home discharge from ICU

(4 marks)

Answer Each Question in a Separate Booklet

Question 7

A 45-year-old patient is admitted to the ICU with a severe acute traumatic brain injury (TBI) with raised intracranial pressure (ICP). On day 5 a ventilator associated pneumonia (VAP) has developed.

a) Outline the challenges where treatment strategies of one of these conditions may adversely affect the management of the other condition

(4 marks)

b) Outline your specific management strategies to resolve these challenges

(6 marks)

Question 8

List the abnormalities in serum biochemistry tests you would expect to see in each of the following conditions.

For each biochemical laboratory abnormality listed, explain why it occurs. You may tabulate your answer.

a) Acute pancreatitis (3 marks)

b) Rhabdomyolysis (4 marks)

c) Addisons disease (3 marks)

Question 9

A 67-year-old patient develops severe subcutaneous emphysema of the upper chest wall and neck three hours after a transbronchial biopsy of a lung nodule. The patient is not intubated.

a) Outline your management of the severe subcutaneous emphysema

(6 marks)

b) Outline your approach to positive pressure ventilation if intubation is required

(4 marks)

Question 10

a) Discuss the features of an ideal electronic Clinical Information System (CIS) (7 marks)

b) List the ways electronic drug prescribing can contribute to improving critical care safety and quality outcomes

(3 marks)

Answer Each Question in a Separate Booklet

Question 11

A 45-year-old patient with a body mass index (BMI) of 52 kg/m^2 is admitted to ICU intubated after a large ventral hernia repair. The procedure was uneventful.

Discuss the specific challenges that may impact on the management of this patient in the first 24 hours of ICU admission. In your answer include strategies to address these factors.

(10 marks)

Question 12.1

An 81-year-old-patient is admitted to the ICU with a 24-hour history of altered mental state and confusion. The patient has a history of type II diabetes managed with metformin.

The following blood results were taken on admission.

Arterial blood	Patient	Reference
pH	**7.30***	7.35-7.45
PCO_2	**31 mmHg* (4.0 kPa)**	35-45 (4.6 -6.0)
PO_2	90 mmHg (12.0 kPa)	
$HCO3^-$	**20 mmol/L***	22-26
Na^+	140 mmol/L	135 -145
K^+	3.9 mmol/L	3.5-5.0
Cl^-	**105 mmol/L***	95-105
Urea	**21.8 mmol/L***	3.0-8.0
Creatinine	**220 umol/L***	45-90
Glucose	**40 mmol/L ***	3.5-6.0
Lactate	**4.8 mmol/L ***	.5-1.6

a) Give the clinical condition most consistent with the above data. Justify your answer from the results provided. (2 marks)

b) List **three** complications of this condition.

(1.5 marks)

Question 12.2

These are the biochemical results taken from a 50-year-old patient, found collapsed at home. The patient was missing from an alcohol rehabilitation program. Blood was drawn for investigation.

Parameter	Patient	Reference
Na	**126 mmol/L***	135 - 145
K	3.5 mmol/L	3.5 - 5.0
Urea	**7.0 mmol/L***	
Creatinine	**250 umol/L***	45-90
Urea	7.0 mmol/L	3.0 – 8.0
Bilirubin (Total)	**509 umol/L***	<26
Protein (Total)	**40 g/L***	60 - 80
Albumin	**20 g/L***	38 - 48
Alkaline phosphatase (ALP)	**153 U/L***	30 - 110
γ-Glutamyl transferase (GGT)	**459 U/L***	<40
Alanine transferase (ALT)	**336 U/L***	<35
Creatinine Kinase (CK)	**400 U/L***	55 - 170
TroponinT	**0.1 mcg/lL***	0.00 - 0.03
Glucose	**3.2 mmol/L***	3.5 – 6.0
Ammonia	**342 umol/L***	0 - 50
Lactate	**3.7 mmol/L***	0.5 – 1.6

Based on these results,

a) Explain the most likely cause of the reduced conscious state. Justify your response
(1.5 marks)

b) List other investigations that would support the diagnosis. Justify your response
(2 marks)

c) Outline the significance of the high plasma creatinine but normal urea concentrations
(3 marks)

Question 13

A 34-year-old patient is admitted to the ICU with suspected tetanus.

a) Outline the features on assessment that would support this diagnosis
(4 Marks)

b) Outline your management of generalised tetanus including the management of anticipated complications.
(6 Marks)

Answer Each Question in a Separate Booklet

Question 14

With respect to acute right ventricular dysfunction (RVD) post emergency coronary artery bypass grafting (CABG) surgery:

a) List **six** causes of RVD in this scenario (3 marks)

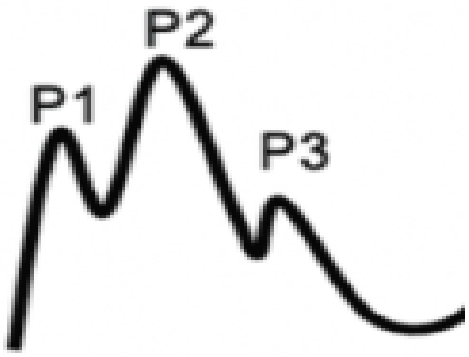
b) Outline the management principles of RVD in this scenario (7 marks)

Question 15

a) Regarding the intracranial pressure waveform pictured below:

i. What is indicated by the labels P1, P2 and P3? (3 marks)

ii. Interpret this waveform. (1 mark)



b) You are called to the bedside of a patient who was admitted to ICU following a traumatic brain injury. The patient is sedated and intubated with an external ventricular drain (EVD) in situ. The EVD has stopped draining and no waveform is visible on the monitor.

Outline your assessment to determine the cause (6 marks)

END OF MORNING PAPER