COLLEGE OF INTENSIVE CARE MEDICINE
OF AUSTRALIA AND NEW ZEALAND

SECOND PART EXAMINATION

EXAM REPORT

AUGUST / OCTOBER 2022

This report is prepared to provide candidates, tutors, and Supervisors of Training with information regarding the assessment of candidates' performance in the CICM Second Part Examination. Answers provided are not necessarily model answers but a guide as to what was expected and for use as an educational resource. Trainees should discuss the report with their tutors so that they may prepare appropriately for future examinations. Trainees should not rely solely on writing practice answers to previous exam questions for exam preparation, and first establish a strong knowledge base from learning at the bedside and studying relevant texts, journals, and on-line sources.

The exam comprises a written section and an oral section. The written exam consists of two 2.5hr papers of 15 short answer questions each. The pass mark for the written section is derived by the Angoff method and for this sitting was set at 51.5%. The oral exam consists of eight interactive vivas and two separate clinical "hot cases". The vivas and clinicals were completed face-to-face over two weeks in two cities (Melbourne and Sydney). Due to COVID and travel restrictions, some candidates based internationally, completed the vivas online and clinicals locally.

The tables below provide an overall statistical analysis as well as information regarding performance in the individual sections. A comparison with data from the four previous exams is provided.

In all sections of the exam the candidate must demonstrate performance consistent with that of a junior consultant, i.e., demonstrate he/she has the ability for safe, effective, independent practice as an Intensivist. Candidates who are not at this level are encouraged to defer their attempt at the exam.

Overall Performance	2022.2	2022.1	2021.2	2021.1	2020.2	2020.1
Presenting for written (Including SIMG)	52	38	64	54	45	50
Carrying a pass or exempted from a previous attempt	29	24	26	25	2	11
SIMG Exempt	3	4	4	0	0	0
Total number presenting (written + carry + SIMG)	81	62	90	79	47	61
Invited to orals (passed written section)	23	21	46	40	29	37
Total number invited to oral section	52	45	70	66	31	48

Analysis of Performance in Individual Sections	2022.2	2022.1	2021.2	2021.1	2020.1 / 2020.2	
Successful in the written section	23/52 44%	21/38 55%	46/64 72%	40/54 74%	29/45 64%	37/50 74%
Successful in the Hot case section	27/51 53%	21/45 47%	37/70 53%	35/66 53%	45/74 61%	
Successful in both Hot cases	16/51 31%	14/45 31%	25/70 36%	22/66 33%	26/74 35%	
Successful in the Viva section	44/51 86%	40/45 88%	56/70 80%	40/66 61%	55/74 74%	

Sectional Pass Rates	2022.2		2022.1		2021.2			2021.1			2020.1 / 2020.2		
	Pass rate	Highest individual mark	Pass rate	Highest individual mark	Pass rate		Highest individual mark	Pass rate		Highest individual mark	Pass rate		Highest individual mark
Hot case 1	49%	85%	51%	82%	67%		80%	58%		85%	55%		57%
Hot case 2	59%	90%	47%	85%	49%		90%	44%		85%	51%		65%
	Week 1		Week 1	Week 2	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3	Day 1	Day 2	Day 3
Viva 1	84% / 80%		100% / 82%	74% / 78%	79% / 90%	100% / 86%	74% / 80%	80% / 89%	91% / 90%	78% / 82%	87% / 95%	55% / 76%	73% / 72%
Viva 2	65% / 83%		59% / 70%	78% / 84%	58% / 66%	83% / 76%	65% / 73%	71% / 73%	775 / 68%	48% / 83%	57% / 88%	77% / 85%	82% / 85%
Viva 3	69% / 74%		55% / 66%	74% / 70%	46% / 72%	65% / 71%	57% / 75%	33% / 73%	45% / 80%	30% / 57%	70% / 78%	55% / 71%	95% / 85%
Viva 4	59% / 75%		45% / 72%	26% / 57%	71% / 77%	100% / 79%	74% / 79%	62% / 71%	41% / 60%	61% / 63%	63% / 79%	82% / 75%	73% / 90%
Viva 5	84% / 81%		68% / 78%	87% / 90%	54% / 66%	43% / 78%	22% / 70%	67% / 64%	23% / 66%	13% / 64%	37% / 85%	41% / 100%	91% / 85%
Procedure Viva	76% / 82%		95% / 95%	87% / 94%	67% / 83%	96% / 96%	61% / 94%	62% / 80%	64% / 78%	83% / 73%	53% / 85%	41% / 93%	86% / 83%
Radiology Viva	92% / 90%		55% / 55%	61% / 71%	42% / 60%	17% / 60%	57% / 69%	52% / 69%	32% / 60%	17% / 56%	40% / 89%	59% / 69%	36% / 61%
Communication Viva	63% / 90%		59% / 92%	65% / 90%	58% / 90%	48% / 90%	48% / 85%	43% / 88%	68% / 78%	74% / 95%	57% / 95%	50% / 95%	91% / 88%

Oral Section Pass Rates	2022.2	2022.1	2021.2	2021.1	2020.2	2020.1
Candidates who passed in written section and passed the overall exam	20/52 **38%**	12/38 **32%**	27/46 **59%**	24/40 **60%**	14/29 **48%**	28/37 **76%**
All candidates invited to oral section and passed the overall exam (written + carry + SIMG)	36/51 **71%**	29/45 **64%**	41/70 **59%**	32/66 **48%**	16/31 **52%**	36/48 **75%**
Overall Pass Rate	36/79 **46%**	29/62 **47%**	41/90 **45%**	32/79 **40%**	16/47 **34%**	36/61 **59%**

EXAMINERS' COMMENTS

Written Paper

The pass rate for the written section was 44%. Candidates who failed questions did so for one or more of the following reasons:

- Insufficient knowledge of the topic in question
- Insufficient detail and/or depth of the answer
- Poorly structured answer
- Inadequate reference to supportive evidence where relevant
- Failure to answer the question as asked
- Omission of all or part of the question

Candidates that failed questions most often gave insufficiently detailed answers that were not at the level expected of a junior consultant. Candidates often gave generic "proforma" answers that did not deal with the specific issues in the question.

Candidates are advised to read the questions carefully and thoroughly and ensure they answer the question as asked and address all parts of each question. Examiners commented that candidates had not appeared to consider the mark distribution in some multi part questions, spending too little time on the more important sections. Candidates are reminded to make sure their writing is legible and to avoid using non-standard abbreviations. Candidates are also reminded that professional conduct is assessed throughout the exam process and that inappropriate comments written on the answer paper are not acceptable and may impact the subsequent mark.

As with the previous written paper, some of the marks in this examination sitting were very low, suggesting that candidates did not have the breadth of knowledge and application required to pass the written component of the part 2 exam. **Candidates are encouraged to listen to feedback and advice from their SOTs and educational advisors when considering the correct time for them to attempt the part 2 examination.**

SECOND PART WRITTEN EXAMINATION

(A) Write your answers in the blue books provided. Questions should be answered in groups of **TWO per book only**, except for QUESTION 15 which must be answered in a separate booklet:

(B) Start each answer on a **new page** 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) The questions are worth **equal** marks.

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

GLOSSARY OF TERMS

Critically evaluate:	Evaluate 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, interpret, account for.

NOTE

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

Please note that in this report all images from the SAQs have been removed.

Question 1

Critically evaluate the role of proton pump inhibitors to prevent upper gastrointestinal bleeding in ICU patients using the following headings in your answer:

a) Rationale **(30% marks)**

b) Disadvantages **(20% marks)**

c) Evidence **(30% marks)**

d) My clinical practice **(20% marks)**

A core topic of routine clinical practice and relevance, that was generally well answered. Those who scored less marks were not broad enough in their approach to rationale, disadvantages, or making plain their clinical practice. Some candidates did not provide enough detail, particularly regarding evidence. Better answers noted recent evidence, controversies, and remaining questions, and noted hypothesis generating findings from studies to date.

Maximum Score	9.167
Percentage scoring >5/10	82.7%

Question 2

A 75-year-old patient was admitted to ICU for management of cardiogenic shock after percutaneous coronary artery intervention (PCI). An intra-aortic balloon pump was inserted post procedure.

An hour into the ICU admission the nurse alerts you that the diastolic augmentation alarm, set at 100 mmHg, is triggering.

a) **List the causes of ineffective diastolic augmentation.**

(40% marks)

b) **Explain the timing of diastolic augmentation in the following 1:2 IABP graphs (Scenarios 1 to 3 shown below). Outline the physiological consequences of the IABP traces.**

(20% marks)

Many candidates lacked knowledge regarding balloon pump traces and augmentation. Candidates who scored well took a systematic approach to part A (e.g., patient factors and balloon factors). In Part B, some candidates did not clearly state the physiological effects expected.

In part b) the question required an explanation on timing and augmentation in general, with expected physiological consequences. Many candidates listed this and did not go into enough depth by explaining. Candidates are reminded to read the glossary at the start of the question.

Maximum Score	8.500
Percentage scoring >5/10	53.8%

Question 3

Discuss the following methods for randomisation in clinical trials using the following categories in your answer: definition, advantages, and disadvantages.

You may tabulate your answer.

a) **Simple randomisation** **(25% marks)**

b) **Block randomisation** **(25% marks)**

c) **Stratified randomisation** **(25% marks)**

d) **Covariate adaptive randomisation** **(25% marks)**

There was a wide variation in answer quality, with simple explanations required for a satisfactory answer. These terms remain core to current trial designs and should be well understood by trainees.

Maximum Score	7.500
Percentage scoring >5/10	55.8%

Question 4

A 60-year-old patient was admitted to the ICU 3 days ago with MRSA pneumonia. The patient is febrile, intubated and ventilated, with an FiO_2 0.7 and a noradrenaline infusion at 40 mcg/min. The CT today shows bilateral lung infiltrates with a moderate left sided empyema.

a) **List your options for the drainage of the empyema including <u>one</u> advantage and <u>one</u> disadvantage each. (50% marks)**

b) **Outline the advantages and disadvantages of intravenous Vancomycin vs intravenous Linezolid in this patient. (50% marks)**

Candidates scored well if they structured their answers to give a clear outline in part b). What was lacking in some answers candidates was knowledge around surgical options in part a).

Maximum Score	8.250
Percentage scoring >5/10	86.5%

Question 5

a) **List the disease specific interventions for a severe myasthenic crisis in a patient who is invasively ventilated. (50% marks)**

b) **List four classes of drugs with the potential to exacerbate a myasthenic crisis. (20% marks)**

c) **Discuss the challenges for a successful extubation in a patient specifically after a myasthenic crisis. Your answer should include methods to address the challenges. (30% marks)**

Most candidates had a superficial understanding of myaesthenia gravis and myaesthenic crisis. Candidates who scored well were familiar with the pathogenesis of the disease and the triggers and treatments. However, even those candidates who referred to specific challenges such as fatiguability, bulbar dysfunction and secretion burden in the management section, often did not give a detailed discussion of how to manage these. Most candidates mentioned pyridostigmine and/or neostigmine, IVIG, plasma exchange, steroids and/or other immunosuppressants, and therefore scored well for part (a) (which was worth 50%).

Maximum Score	8.167
Percentage scoring >5/10	82.7%

Question 6

You are attending a Rapid Response/ MET call.

The patient is a 67-year-old male with no previous past medical history who underwent a transurethral resection of the prostate (TURP) 4 hours ago. He became confused postoperatively and now has a tonic-clonic seizure.

a) **List <u>three</u> likely causes of seizures in this situation. (15% marks)**

b) **Outline your assessment and management plan, from the time of the tonic-clonic seizure to ICU admission.**

(85% marks)

Focus of the question was hyponatraemia due to TURP syndrome, with resulting neurological symptoms and seizure. Marks were weighted towards specific management, those who scored well specified the treatment and targets for sodium correction in addition to general response to a seizure on the ward, and specified indications for intubation and CT brain in this context. Some candidates appeared to misunderstand the pathogeneses of TURP syndrome and discussed glycine toxicity and hyperammonaemia interchangeably within the answer.

Maximum Score	7.833
Percentage scoring >5/10	63.5%

Question 7

With respect to wound infections in patients with thermal injuries (burns), discuss under the following headings:

a) Risk factors **(10% marks)**

b) Local signs **(30% marks)**

c) Systemic features **(20% marks)**

d) Diagnostic challenges **(40% marks)**

Most marks were allocated to part d), and most candidates included the difficulty differentiating infection from SIRS and contamination from infection, however, this was the usual extent of the answer. Candidates should use the associated marking allocation throughout the question, to guide them to the breadth and depth of answers required.

Maximum Score	8.350
Percentage scoring >5/10	48.1%

Question 8

Compare and contrast a focused cardiac ultrasound with a formal diagnostic transthoracic echocardiogram (TTE), using the following headings in your answer:

a) Indications **(20% marks)**

b) Assessments made **(40% marks)**

c) Limitations **(40% marks)**

Most candidates described the indications for a focused cardiac ultrasound, however, the indications for formal diagnostic TTE were less well described (very few candidates included stroke, arrhythmia, peripheral embolus). The assessments of a focused cardiac ultrasound were generally well described although the assessments of TTE were less well described, and the windows and modes were infrequently described. The limitations of each study could have been better answered with only a few candidates including TTE cannot exclude IE, left atrial appendage clot, and PFO)

Maximum Score	7.400
Percentage scoring >5/10	55.8%

Question 9

With respect to the use of Parenteral Nutrition (PN) in critically ill patients, briefly discuss using the following headings in your answer:

a) **Supplemental PN – rationale, timing, along with your evidence-based approach to supplemental PN. (60% marks)**

b) **Principles of prescription of Total Parenteral Nutrition (TPN) for a critically ill ICU patient. (40% marks)**

This question was poorly answered with a common lack of details in specific areas, which were a lack of evidence, or evidence that was incorrectly cited / interpreted. There commonly no clear approach provided about the candidates own practice. Furthermore, in part b) of the question, there was minimal details about required vascular access and ongoing monitoring.

Maximum Score	7.750
Percentage scoring >5/10	53.8%

Question 10

An ICU patient is suitable for consideration of donation after circulatory determination of death (DCDD).

a) **Outline the process of determination of death in these patients. (30% marks)**

b) **Define the term 'functional warm ischaemic time' and discuss its significance to subsequent graft function. (40% marks)**

c) **Compare and contrast graft survival rates in recipients of kidney, liver, heart, and lung transplantation from DCDD and from donation after neurological determination of death. (30% marks)**

This area of clinical practice is learned in mandatory CICM curriculum workshops, and therefore understanding of the process for determination of death in DCD patients should be well understood. The definition of functional warm ischemia time was incorrectly defined by most candidates, and knowledge of graft survival between different organs was also commonly incorrect.

Maximum Score	8.250
Percentage scoring >5/10	48.1%

Question 11

Regarding catastrophic antiphospholipid syndrome (CAPS.)

a) **Outline the pathophysiology, clinical and diagnostic features. (70% marks)**

b) **Outline the specific treatment options for CAPS. (30% marks)**

This question was poorly answered, and a lot of this was due to the nuance and context of the question. Most candidates answered the question with reference to APS or the presence of AP antibodies, and not CAPS, which is a severe manifestation of antiphospholipid syndrome that involves accelerated and widespread thrombosis, which may lead to multi-organ failure. CAPS appears to involve a vicious spiral of progressive complement activation, leading to microvascular thrombosis and tissue damage. There was a poor

understanding of the pathophysiology in the answers, and many candidates gave answers pertaining to the diagnosis of the organ damage caused by CAPS, rather than the diagnosis of the syndrome itself.

Maximum Score	5.417
Percentage scoring >5/10	9.6%

Question 12

Outline the design aspects and safety features of an intensive care single patient room, including the clinical rationale where appropriate. (Specific features of a negative/positive pressure room are not required in your answer).

The answers to this question demonstrated a significant lack of breadth of knowledge with insufficient details of the categories discussed. Many candidates answered this question with reference to isolation rooms, instead of patient's single room.

Maximum Score	6.267
Percentage scoring >5/10	1.9%

Question 13

Outline the pathophysiology, assessment, and management of mesenteric ischaemia.

Most candidates interpreted pathophysiology as causes, and so scored poorly on first section of the question. In general, there was a lack of specific knowledge, with many answers giving generic answers, and many answers were not at the required level of knowledge / expertise.

Maximum Score	7.000
Percentage scoring >5/10	59.6%

Question 14

A 60-year-old patient presented confused and short of breath. The past medical history includes a cystectomy for a urinary bladder carcinoma five years ago.

The patient is hemodynamically stable and has received 500 ml of 0.9% saline.

The ABG and biochemistry results are as follows:

Parameter	**Patient Value**	**Adult Normal Range**
FiO_2	0.28	
pH	7.15*	7.35 – 7.45
pO_2	64 mmHg (8.5 KPa)	
pCO_2	32 mmHg (4.2 KPa)*	35.0 – 45.0 (4.6 – 6.0)
SpO_2	94%	
Bicarbonate	11 mmol/L*	22.0 – 26.0
Base Excess	- 17 mmol/L*	-2.0 – +2.0
Lactate	1.2 mmol/L	0.5 – 1.6

Parameter	Patient Value	Adult Normal Range
Sodium	134 mmol/L*	135 – 145
Potassium	4.3 mmol/L	3.5 – 5.0
Chloride	111 mmol/L*	95 – 105
Glucose	5.2 mmol/L	3.5 – 6.0
Urea	28.1 mmol/L*	3.0 – 8.0
Creatinine	299 µmol/L*	45 – 90
Magnesium	0.70 mmol/L*	0.75 – 0.95
Albumin	28 g/L*	35 – 50
Protein	62 g/L	60 – 80

a) Explain the above acid base abnormality and show relevant calculations. (20% marks)

b) List the potential causes of the acid base abnormality with rationale. (40% marks)

After 48 hours his biochemistry results show the following values.

Parameter	Patient Value	Adult Normal Range
Sodium	152 mmol/L*	135 – 145
Potassium	2.9 mmol/L*	3.5 – 5.0
Chloride	122 mmol/L*	95 – 105
Bicarbonate	10.0 mmol/L*	22.0 – 26.0
Glucose	5.2 mmol/L	3.5 – 6.0
Urea	29.0 mmol/L*	3.0 – 8.0
Creatinine	193 µmol/L*	45 – 90

c) Explain the biochemical abnormalities. Give likely causes for the abnormalities and include your rationale. (20% marks)

d) Outline your specific management of the above biochemical results taken after 48 hours.

(20% marks)

Data interpretation questions are normally answered well, however, this question scored much less than usual. Many candidates appeared to misread the question and gave answers that were not related to the question. Candidates also spent a lot of time demonstrating calculations which were not relevant to the question asked, which means they would lose valuable time across the paper. The rationale for possible abnormalities were not addressed adequately by most candidates. Possible abnormalities and treatment options were often at superficial level of knowledge.

Maximum Score	6.167
Percentage scoring >5/10	17.3%

Question 15

a) **Outline the mechanism of action of 3,4-methylenedioxymethamphetamine (MDMA/"Ecstasy"). (20% marks)**

b) **List the common features of MDMA toxicity. (30% marks)**

c) **Outline the management of a patient presenting with MDMA toxicity. (50% marks)**

Most candidates did not know mechanism of MDMA toxicity, and many answers were generic and did not address specific therapies. Many candidates listed the features but failed to subsequently address these in the management section.

Maximum Score	7.500
Percentage scoring >5/10	42.3%

Question 16

A patient is admitted intubated and ventilated with massive haemoptysis.

a) **List the investigations that will assist with localizing the site of bleeding. Include the advantages and limitations of each investigation in your answer.**

(50% marks)

b) **A single active bleeding site is found to originate from the left lung. Discuss the specific management options for the bleeding.**

(50% marks)

The role of rigid bronchoscopy was not listed as an option in many candidates' answers, and there was also a lack of consideration for the different sided DLTs for several candidates. The clinical scenario presented was urgent and many candidates listed investigations which would have led to patient detriment e.g. MRI. Many candidates answered part b) with the management of coagulopathy when specific management of an isolated bleeding site was required. Clinical management and the answers in the part 2 CICM exam often require context, and this is no different in the vivas and clinical cases, and there are further comments to demonstrate this later in the report.

Maximum Score	6.500
Percentage scoring >5/10	44.2%

Question 17

a) **List <u>five</u> causes of an Addisonian crisis. (20% marks)**

b) **List <u>five</u> laboratory abnormalities of an Addisonian crisis. (20% marks)**

c) **Outline the priorities of treating an Addisonian crisis. (60% marks)**

Answers in part a) were commonly around causes of Addison's disease rather than causes or precipitants of an adrenal crisis. Some candidates listed more than the number asked in part a), and this is a reminder to trainees that if the question asks for five answers, and candidates list more than five, only the first five answers will be considered.

Maximum Score	7.533
Percentage scoring >5/10	59.6%

Question 18

a) List the problems interpreting the following ABG results and explain the reasons why:

i. Sample from a patient with severe hypothermia. (30% marks)

ii. Delayed sample processing by 45 minutes. (20% marks)

b)

i. Outline the causes of pseudohypernatremia or pseudonormonatremia in critically ill patients. (20% marks)

ii. List <u>three</u> causes of factitious hyponatraemia in critically ill patients. Give an example of each. (30% marks)

This question was poorly answered, with many candidates not answering the questions asked. For example, in part a), many candidates listed the clinical effects of hypothermia rather than its effects on the ABG analysis. Knowledge of sodium measurements and hyponatraemia were either at a superficial level, incorrect, or omitted.

Maximum Score	6.400
Percentage scoring >5/10	9.6%

Question 19

Outline the principles of initial assessment and management of an 8-year-old child having their first generalized seizure.

Most candidates gave good answers and used an appropriate structure. Those candidates who did not gain good marks, gave answers which lacked pertinent details, especially around control of seizures in Paediatrics patients.

Maximum Score	8.167
Percentage scoring >5/10	82.7%

Question 20

a) List the common CT and MRI features of severe hypoxic ischaemic encephalopathy (HIE) that appear after 72 hours. (40% marks)

b) Outline how neuro-imaging findings may assist in prognostication for HIE. (60% marks)

What was required to score well in this question was an understanding of positive and negative predictive value of these imaging modalities, and how they need to be used and interpreted in conjunction with other prognostication tests. Many candidates mentioned a multimodal prognostic model, however, they failed to elaborate on how they are utilised in a multimodal approach.

Maximum Score	7.167
Percentage scoring >5/10	46.2%

Question 21

a) Outline the risk factors for developing an invasive fungal infection in a critically ill patient. (60% marks)

b) Discuss the role and limitations of galactomannan and beta-Glucan antigen testing in diagnosing suspected invasive aspergillus infection. (20% marks)

c) List <u>four</u> situations where an azole would NOT be appropriate first line empiric treatment. (20% marks)

Although reasonably well answered, many answers lacked structure, with various facets of information listed in a random order. Those answers that categorised well scored better. This is not to say that answers that were not categorised were penalised, but to state that those answers that used a sensible categorisation contained more relevant information. Candidates should consider this when answering the questions in the paper, and whilst we appreciate that time management is critical in the paper, practicing answering written questions prior to the written exam in this manner will lead to improved answers in the exam itself. This reflects clinical practice where you be required to outline the generic and specific problems of a patient has to a colleague.

Maximum Score	7.833
Percentage scoring >5/10	78.8%

Question 22

Outline the principles and stepwise processes you would use, to address and conclude a complaint made by a patient's family.

Candidates commonly discussed how to have a family meeting where the family have some difficult questions or issues they would like answered. Few candidates spoke about the nature of the complaint, and therefore would it be informally dealt with, require a formal process, or even referral. No candidate spoke about either hospital, LHD, or state guidelines for dealing with complaints. Virtually all trainees discussed the need for empathy and an apology.

Maximum Score	7.333
Percentage scoring >5/10	59.6%

Question 23

Compare and contrast diastolic heart failure (heart failure with preserved ejection fraction) and systolic heart failure (heart failure with reduced ejection fraction).

You must include the following headings in your answer: pathophysiology, echocardiography features, likely etiologies, and management.

You may tabulate your answer.

The etiology part of the question was generally answered well, however, the answers to the pathophysiology and management parts lacked detail, especially the rationale for the suggested managements. The echocardiography part of the answer often lacked details of imaging findings, and once again outlined pathophysiology, which had already been answered.

Maximum Score	6.667
Percentage scoring >5/10	40.4%

Question 24

Regarding the provision of palliative care to ICU patients, outline the advantages and disadvantages of using:

a) **A traditional Intensive care consultant - based approach (integrative palliative care). (50% marks)**

b) **Palliative care specialty involvement in the ICU by specific consultation (consultative palliative care). (50% marks)**

Generally answered well by outlining the limitations of an ICM physician, especially time pressure, care of other critically ill patients and transition of care to the ward. There were multiple references to ICM physicians considering palliation as failure of ICU therapy or having "guilt" which impacts provision of palliative care. Virtually all candidates discussed specific clinical aspects, whereas other aspects such as resources, staffing, and model comparisons, were not addressed.

Maximum Score	7.333
Percentage scoring >5/10	78.8%

Question 25

a) **Outline the pathogenesis of Graft Versus Host Disease (GVHD). (20% marks)**

b) **List <u>four</u> common risk factors for developing acute GVHD. (20% marks)**

c) **Outline the clinical presentation of GVHD. Include details of system involvement and timing of acute, chronic and late onset GVHD presentations in your answer. (30% marks)**

d) **Discuss your diagnostic evaluation of suspected acute GVHD, including the rationale for your approach. (30% marks)**

A detailed knowledge on GVHD was lacking for many candidates, and many candidates did not recognise GVHD as different from graft failure/graft rejection. Many candidates could not outline the different clinical pictures in acute vs chronic GVHD. Whilst most candidate mentioned skin/liver/GIT involvement, very few candidates recognised bronchiolitis obliterans and neuromyopathy as part of the clinical picture of chronic GVHD. Poorer answers in evaluation did not include the need for the differential diagnosis of sepsis to be excluded, and the rationale for diagnostic evaluation was commonly omitted.

Maximum Score	7.250
Percentage scoring >5/10	25.0%

Question 26

26.1

The following data refer to a patient admitted to ICU with septic shock on a background of active rheumatoid arthritis.

Parameter	Patient Value	Adult Normal Range
Haemoglobin	86 g/L*	125 – 180
Serum ferritin	298 µg/L	15 – 300
Serum iron	7 µmol/L*	9 – 27
Total Iron Binding Capacity (TIBC)	52 µmol/L	47 – 70
Transferrin Saturation (Iron / TIBC x 100)	28%	16 – 40
Erythropoietin level	15 U/L	4 – 28
C-reactive protein (CRP)	321 mg/L*	< 8

a) State the abnormality demonstrated in this patient? Give your reasoning. (20% marks)

b) State the pathogenesis of these changes? (20% marks)

c) State the principles of management? (10% marks)

26.2

The following data refer to a patient admitted electively to ICU following extensive pelvic surgery for invasive endometrial carcinoma. The patient has remained in ICU for 22 days because of complications including acute kidney injury.

Parameter	Patient Value	Adult Normal Range
Haemoglobin	66 g/L*	125 – 180
Serum ferritin	14 µg/L*	15 – 300
Serum iron	3 µmol/L*	9 – 27
Total Iron Binding Capacity (TIBC)	86 µmol/L*	47 – 70
Transferrin Saturation (Iron / TIBC x 100)	9%*	16 – 40
Erythropoietin level	41 U/L*	4 – 28
C-reactive protein (CRP)	60 mg/L*	< 8

a) State the abnormality demonstrated in this patient? Give your reasoning. (20% marks)

b) List two potential causative factors in this patient. (10% marks)

c) Briefly outline the available treatment options to correct the demonstrated abnormality including any disadvantages/risks. (20% marks)

Very well answered, with most candidates demonstrating the ability to interpret and discuss anaemia. Many candidates omitted EPO and conservative treatment for iron-deficiency anaemia in the management part of the question. Poorer answers did not identify the cause of anaemia correctly.

Maximum Score	9.200
Percentage scoring >5/10	80.8%

Question 27

A 60-year-old patient is admitted to ICU following a MET call 7 days post emergency repair of a ruptured abdominal aortic aneurysm. Blood cultures grew Staphylococcus aureus and Enterobacter cloacae on day 5.

On admission the patient is confused, restless and diaphoretic. The blood pressure is 60/40 mmHg and heart rate is 148 beats/min.

a) List the most likely sources of the bacteraemia. (30% marks)

b) Outline your management plan for the septic shock. (70% marks)

Many candidates had a poor structure to their answer. Despite being 30% of the marks, many candidates had limited list of sources in part a). Answers were often lacking any detail in the resuscitation of the patient, which was required based on the scenario presented.

Maximum Score	6.875
Percentage scoring >5/10	46.2%

Question 28

Compare and contrast hepato-pulmonary syndrome, porto-pulmonary hypertension and hepatorenal syndrome. Use the following headings in your answer: definitions, pathophysiology, and specific treatment of these conditions.

You may tabulate your answer.

This question scored low, as many candidates could not define the different entities and therefore the subsequent aspects of the question were poorly answered.

Maximum Score	7.625
Percentage scoring >5/10	30.8%

Question 29

Regarding cervical spinal cord injury (SCI).

a) Define the following terms:

i. Complete SCI

ii. Neurological level of injury (20% marks)

b) List <u>four</u> incomplete syndromes related to SCI. (20% marks)

c) Compare and contrast the features of a complete SCI and central cord syndrome at neurological level of C4. (60% marks)

Whilst most candidates scored reasonably well in this question, many candidates answered the question with a to narrow a focus on the neurological findings, rather than the broader features e.g. prognosis/other organ dysfunctions/interventions when asked to compare and contrast. This aspect of the question was which was worth 60% of the marks.

Maximum Score	7.250
Percentage scoring >5/10	78.8%

Question 30

An 82-year-old patient has been transferred to intensive care following aortic valve replacement for native aortic valve endocarditis. The patient is intubated and ventilated.

Two hours post operatively, the vasoactive infusions are:

Noradrenaline 12 mcg/min (0.15 mcg/kg/min)

Dobutamine 5mcg/kg/min

The mean arterial pressure is 65 mmHg. The patient is paced at 90 beats/min, DDD mode.

The following information is obtained from the pulmonary artery catheter:

CVP 18 mmHg

PAP 45/22 mmHg

CI 4.6 L/min

SVRI 745 dynes.s.m^2/cm^5

SvO_2 70%

a) Explain the information derived from the PA catheter. (20% marks)

b) List the most likely differential diagnosis for the clinical state. (30% marks)

Three hours postoperatively the patient becomes hypotensive. An ECG rhythm strip (ECG 30) taken at this time is shown on page 11.

(Image removed from report)

a) List the abnormalities on the ECG. (20% marks)

b) Outline the management of the pacing issues. (30% marks)

Generally, well answered. Some candidates could not diagnose the issues in the first part of the question related to PA catheters adequately. The second part which was related to failure-to-capture was again well answered by most. Some candidates went into great depth about testing pacemakers, which didn't score marks and probably took a lot of time to write. Time management and answering the questions asked are two of the most important exam techniques which candidates can employ to score optimal marks for their level of knowledge.

Maximum Score	8.500
Percentage scoring >5/10	78.8%

SECOND PART ORAL EXAMINATION

EXAMINERS' COMMENTS

Clinicals "Hot cases" Section

The hot cases run for twenty minutes with an additional two minutes at the start of each case for the candidate to be given both a verbal and a written introduction to the case in question. This is to give candidates more opportunity to take in the relevant information and to plan a focussed approach to examination of the patient.

The following comments are a guide to the expected standard for performance in the hot cases:

- Candidates should demonstrate professional behaviour, treating the patient with consideration and respect.
- Candidates should address and answer the question asked of them in the introduction to the hot case.
- Candidates should interpret and synthesise information as opposed to just describing the clinical findings.
- Candidates need to seek information relevant to the clinical case in question.
- Candidates should be able to provide a sensible differential diagnosis and appropriate management plan. A definitive diagnosis is not always expected and, in some cases, may yet to be determined.
- Candidates should not rely on a template answer or key phrases but answer questions in the context of the clinical case in question.
- Candidates must be able to describe, with justification, their own practice for specific management issues.

Candidates who performed well in the hot cases, as in previous exams, were able to demonstrate the following:

- A professional approach showing respect and consideration for the patient.
- Competent, efficient, and structured examination technique and also able to appropriately adapt the examination to suit the clinical case in question.
- Seeking of information relevant to the case.
- Appropriate interpretation and synthesis of their findings.
- Presentation of their conclusions in a concise and systematic fashion, addressing the issue in question.
- Listing of a differential diagnosis that is relevant to the clinical case in question.
- Appropriate interpretation of relevant investigations.
- Discussion of management issues in a mature fashion, displaying confident and competent decision-making.
- An appreciation of the complexities and key issues of the case.
- Overall performance at the expected level (Junior Consultant).

Candidates who did not perform at the acceptable standard did so for reasons including the following:

- Missing or misinterpreting key clinical signs on examination.
- Failure to perform a focussed examination relevant to the case in question.
- Incomplete or poor technique for examination of a system.
- Poor synthesis of findings with limited differential diagnosis, sometimes compounded by missed key clinical signs on examination.
- Poor interpretation of imaging and data.
- Failure to grasp the key issues relevant to the case in question and a lack of insight into the problems.
- Inability to construct an appropriate management plan for the case in question.
- Hesitancy and/or uncertainty in stating a management plan.
- The need for significant prompting during the discussion with knowledge gaps.
- Limited time for discussion as a consequence of taking too long to present the clinical findings or to interpret basic data.
- Inability to convey the impression that he/she could safely take charge of the unit.

It is apparent that some candidates are very nervous, and this affects their exam performance. Candidates badly affected by nerves may benefit from sessions with a performance psychologist, drama coach, public speaking coach or similar.

Candidates are advised that they should not sit the Second Part Examination until they can confidently examine patients, present the relevant clinical findings, synthesise all the information and discuss management issues at the appropriate level**, which is a trainee who is ready to enter the transition year of the CICM training program, by demonstrating they have the ability for safe, effective, independent practice as an Intensivist.** Candidates who are not at this level are strongly encouraged to defer their attempt at the exam. Candidates should practise hot cases from the commencement of their exam preparation. To this end, candidates are encouraged to do the following in their daily clinical practice as preparation for the hot cases:

- Seek the opportunity to take charge of the unit and be responsible for management decisions.
- Practise examination of individual systems.
- Treat every case to be assessed at work as a hot case, i.e. pose a relevant question (e.g. 'Why is this patient not progressing?' 'What is the cause of the new fever?' 'Is this patient ready for extubation?'), perform a focussed exam and then present your findings to a colleague.

Vivas

The overall pass rate for the vivas was 86%, compared with 44% for the written paper and 53% for the hot cases, with vivas 2, 4, and the communication viva in particular, being answered poorly. Candidates who failed a viva mostly did so because of knowledge gaps, poorly structured answers, and an inability to give the rationale for their responses. As in the discussion for the hot cases, candidates should not rely solely on generic statements, key-phrases, and template answers, and, instead, tailor their responses to the specifics of the question and be able to justify and expand their response. Candidates are encouraged to practise viva technique and to discuss patient management, including the rationale for their decisions, with senior colleagues. As with the hot cases, candidates who are very nervous or have a poor technique may benefit from training with a performance coach.

CLINICAL "HOT CASES" SUMMARIES

The clinical 'hot cases' require candidates to assess patients currently in the ICU, regarding answering specific questions around clinical assessment, diagnosis, investigations, and management. Five examples of clinical 'hot case' questions from this examination sitting are given below.

- *This 76-year-old male presented to the emergency Department with shortness of breath, and was subsequently intubated and ventilated and transferred to the ICU for further management. Please examine and outline your most likely differential diagnosis for his respiratory failure*

- *This 72-yar-old-male presented to the ICU post-operative after a laparotomy for Boerhave's syndrome. He had a previous Whipple's procedure in 2021. Please examine and provide a management plan for the next 24 hours with respect to his post operative issue*

- *This 55-year-old female presented to ICU 10 days ago with a non-traumatic subarachnoid haemorrhage. She is beginning to emerge from her sedation. Please examine her cranial nerves and upper limb neurology. What would you tell your registrar are the main areas of concern over the next 48 hours?*

- *This 58-year-old female presented to the Emergency Department 12 days ago with a reduced level of consciousness, on a background history of nausea and vomiting. Please examine her to determine the most likely causes of her presentation*

- *This 32-year-old female presented to the Emergency Department 8 days ago with fever, shortness of breath, and shock. She was day 15 post-partum (G2P2) with a normal vaginal delivery. Please examine her with a view to determining the likely cause of her respiratory failure and its ongoing management*

The clinical ‘hot cases’ were assessed at the following venues:

Hong Kong
- Prince of Wales Hospital

NSW, Australia
- Nepean Hospital
- Royal North Shore Hospital

VIC, Australia
- Austin Hospital
- The Royal Melbourne Hospital
- The Alfred Hospital
- Monash Medical Centre

VIVAS STEMS

WEEK 1 (MELBOURNE/HONG KONG)

Viva 1

A 32-year-old woman presents to the emergency department with an exacerbation of her long-standing asthma.
On examination she is afebrile. Heart rate is 134/minute. Blood pressure is 130/80 mmHg. Her respiratory rate is 38/minute. Oxygen saturation is 94% on 6L oxygen. There is widespread expiratory wheeze, and she has high work of breathing. She speaks two to three words. She is anxious but cooperative. She has received continuous salbutamol nebulisation and intravenous hydrocortisone.

A COVID PCR is negative. The only finding on the chest X ray is hyperinflation. The emergency physician has referred her to intensive care for consideration of non-invasive ventilation.

Discuss the use of non-invasive ventilation in severe asthma.

This viva dealt with the assessment and ongoing management of acute severe asthma, including ventilatory management, specific management of cardiac arrest in this context, and aspects of long-term weaning from ventilation.

Maximum Score	8.00
Percentage Passed	84.31%

Viva 2

You receive a referral from the Emergency Department of a 67-year-old male who has presented with fever, myalgia, headache, and altered conscious state. The patient has been intubated because of agitation and drowsiness. He was noted to have a petechial rash.

Past medical history:

· Hypertension

· Coronary heart disease - previous coronary artery bypass grafting

· Ischaemic cardiomyopathy - LV ejection fraction 40% on a recent echocardiogram

What are the most likely causes of this presentation, and what specific investigations are required within the first hour?

This viva dealt with the differentials for shock in this context, including choice and rationale of fluid and catecholamine / vasopressor therapy, the use of steroids and other potential specific management, and subsequent management of distal limb ischaemia.

Maximum Score	8.25
Percentage Passed	64.70%

Viva 3

55-year-old female is admitted to the ICU with a temperature of 38.9° C . She has been unwell for three days with dysuria and right flank pain.

Initial observations include an invasive blood pressure of 80/55mmHg, a heart rate of 110 bpm in sinus rhythm and oxygen saturations of 94% on room air. Urine output has been 20ml per hr for the last 6 hours, with mottled extremities and prolonged capillary refill time.

Initial investigations show a serum creatinine of 420 µmol/L (45-90) and urea of 20 mmol/L (3-8), white cell count $12x10^9$ / L (4-11) with neutrophilia 10 $x10^9$ /L (2-8), and a platelet count 100 x 10^9/L.

What are your differential diagnoses for her low urine output?

This viva dealt with the assessment and ongoing management of acute kidney injury, including choice and rationale for different forms of CRRT, and a discussion around investigations to differentiate between autoimmune disease and sepsis.

Maximum Score	7.40
Percentage Passed	68.62%

Viva 4

You have been asked to review a 40-year-old male patient in the Emergency Department who has ingested an unknown quantity of citalopram and verapamil. What information will help identify if ICU admission is indicated?

This viva dealt with the assessment and ongoing management of a severe toxic co-ingestion of a SSRI and calcium antagonist, focusing on options for specific treatment and the rationale.

Maximum Score	7.40
Percentage Passed	58.82%

Viva 5

You are assisting on telemedicine. A 65-year-old female presents to a regional hospital with sudden onset of right sided hemiparesis. She is hemodynamically stable, and her GCS is 15. The most likely diagnosis is thought to be a stroke.

A CT scan is not available at this facility.

Based on history and examination, how would you differentiate between an ischemic and haemorrhagic stroke?

This viva dealt with the assessment and ongoing management of embolic CVA, including blood pressure, thrombolysis, and surgical options, along with the role of interventional neuroradiology.

Maximum Score	8.10
Percentage Passed	84.31%

Viva 6 – Radiology Station

The radiology station consisted of 4 plain X-rays and 3 CT scans.

Maximum Score	8.15
Percentage Passed	76.47%

Viva 7 – Procedure Station

A 66-year-old male is admitted to the ICU intubated and ventilated after left anterior descending artery stent for an ST elevation myocardial infarction following an out of hospital cardiac arrest.

6 hours after admission to the ICU, he has rising vasopressor requirements, a heart rate of 131 in sinus rhythm, blood pressure of 85/44 on 0.2mcg/kg/min (14mcg/min) noradrenaline and oxygen saturations of 95% on FiO_2 0.5.

Q1. What point of care ultrasound tests would assist with the diagnosis and management of this patient and why?

This viva explored knowledge and application of ultrasound in the ICU.

Maximum Score	8.95
Percentage Passed	92.15%

Viva 8 – Communication Station

You are taking over the care of Margaret, a 25 yo with intellectual and physical disability due to a chromosomal abnormality.

She was admitted with small bowel obstruction and developed a small bowel perforation requiring an emergency laparotomy, small bowel resection and primary anastomosis. There were many discussions before surgery about the direction of care and the patient's parent (Alex) advocated for Margaret to have full active treatment. On induction of anaesthesia, she aspirated.

She has been in ICU for 2 days, is critically unwell with pneumonia/ARDS and septic shock but is stable.

· Current sedation is morphine and midazolam 2-3 mg/hr each.

· Current supports are ARDS type ventilation with an FiO2 of 55% and noradrenaline at around 8 mcg/min.

· Other vital organ function is normal.

Overnight there was a drug error with a morphine bolus of 10 mg instead of 1 mg. The patient remained stable and unaffected with ongoing sedation adjusted as required. Margaret's parent phoned overnight, and the registrar informed them about the error.

Alex is very upset and has asked to meet with you today.

N.B.: Reminder for candidates to <u>not</u> to shake hands with the actors.

This viva consisted of a discussion with the family of a patient around the principles and practice of open disclosure, of a complication that has happened to their family member whilst in the ICU. There was also a need to explore the family's uncertainty regarding her current clinical status future clinical management

Maximum Score	9.00
Percentage Passed	62.74%