

Candidate number \_\_\_\_\_



# **Fellowship Practice Exam**

**December 2014**

**WRITTEN EXAMINATION  
SHORT ANSWER QUESTIONS**

**EXAMINATION TIME – 360 MINUTES**

## **Directions to Candidates**

1. All questions must be attempted.
2. All SAQs are of equal value, there is no specific mark allocation to individual points within each SAQ.
3. Answer each question in the spaces provided in this booklet.
4. Write your candidate number on every page – the booklet will be separated for marking purposes.
5. DO NOT write your name on the examination booklet.

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**SAQ 1**

A 40 year old man was injured in a campsite accident. He was burned when his shirt was set alight by an open fire. He has full thickness thermal burns to his entire right upper limb and entire anterior chest wall. There are no other injuries. Soon after arrival in your regional ED, he is intubated and ventilated. Ventilatory parameters are satisfactory. He weighs 100kg.

1. Estimate the percentage of total body surface area (TBSA) burned in this patient, showing your method of calculation.

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The patient has received initial fluid resuscitation and is cardiovascularly stable.

2. What is Parkland's formula?

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3. Use Parkland's formula to calculate the volume and rate of fluid you will use over the next 24 hours. State which type of fluid you will use.

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4. List five (5) parameters used for intravenous fluid rate adjustment in this patient.

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**ECG SAQ 2**



**SAQ 2**

A 47 year old lady presented to the emergency department with syncope and altered conscious state. She has a past medical history of hypertension, paroxysmal atrial fibrillation and depression.

Her observations in the emergency department are as follows:

GCS 14 (E3, V5, M6)  
BP 60/40 mmHg

An ECG is taken on arrival and shown on the page opposite.

1. Describe her ECG giving three (3) positive and two (2) relevant negative findings

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2. Describe four (4) different steps you would take to treat her hypotension.

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3. List two (2) pros and two (2) cons of using activated charcoal for this patient.

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**SAQ 3**

A 68 year old man presents to the ED with ongoing epistaxis, of spontaneous onset. The patient's medications include warfarin.

1. List six (6) features in the History that are important for your assessment of this patient.

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2. The patient is bleeding only from Kiesselbach's plexus (Little's area). He is haemodynamically stable. Outline six (6) steps you would take to control his epistaxis.

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3. List three (3) pieces of advice you would give him on discharge.

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**SAQ 4**

A 6 year old boy is brought in by ambulance with a penetrating chest wound after an incident with a knitting needle and loom bands (small rubber bands) while playing with his little brother.

A clinical photograph is supplied





SAQ 4 continued

1. Write three (3) statements that describe the injury in this photo.

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2. List six (6) possible complications that may be associated with this presentation

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The patient's chest pain worsens. Vital signs are:

RR 40 /min  
PR 160 bpm  
BP 60 systolic mmHg  
SaO<sub>2</sub> 98% on room air

3. Describe your three (3) most important management priorities

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**SAQ 5**

An office building collapse results in a large number of injured casualties in a major regional town served by only one hospital with an emergency department. The police have deemed the site safe for emergency responders.

1. List four (4) designated areas that will be required to be set up at the scene to coordinate the medical response to this incident.

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2. Outline four (4) differences between Disaster triage and Emergency Department triage.

Disaster Triage	Emergency Department Triage

3. List four (4) actions that will be required to prepare the Emergency Department for the arrival of casualties from this disaster.

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**SAQ 6**

An 82 year old woman from a nursing home is sent in by ambulance with increasing confusion and agitation. She is combative and agitated.

1. List five (5) differential diagnostic categories. Give 2 examples of each.

Diagnostic category	Example

2. You decide that her agitation needs management. List two (2) drugs and doses for managing her agitation. List two (2) potential adverse effects for each drug.

Drug	Dose	Adverse effects

3. List three (3) features distinguishing delirium from dementia

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**SAQ 7**

A 22 year old male is brought in by ambulance having been involved in a high speed motor vehicle accident.

On arrival his observations are as follows:

GCS	13	(E3, M6, V4)
PR	140	bpm
BP	80/50	mmHg
SaO2	96%	on room air

He has no significant past history and is on no medication

A portable pelvic xray is performed as part of his workup.



SAQ 7 continued

1. Describe the three (3) most important positive findings.

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2. List five (5) treatment priorities relevant to this patient

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3. Describe four (4) essential elements of a massive transfusion protocol

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**SAQ 8**

A 6 year old girl is brought to the emergency department by her concerned parents. She is unwell and complaining of a painful right eye. Her temperature is 38°C. Her left eye region is normal. This is her photograph.





SAQ 8 continued

1. List four (4) examination findings you will look for, which would suggest a major complication.

Examination finding	Complication

2. List three (3) investigations and their justification in this child.

Investigation	Justification

3. List five (5) management priorities, including brief details.

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**SAQ 9**

A 50 year old woman presents to the emergency department complaining of dizziness.

1. List your 4 most likely differential diagnoses.

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2. The patient describes true vertigo. List six (6) key features on assessment that differentiate between a peripheral and central cause for her symptoms. Include three (3) historical and three (3) on physical examination.

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3. List three (3) investigations that may be appropriate and justify when you would perform them.

<b>Investigation</b>	<b>When performed</b>

**SAQ 10 – CSF result**

			Reference range
Appearance	clear, colourless		
Glucose	3.0	mmol/L	2.8 - 4.0
Protein	750	mg/L	150 - 500
WBC			
Polymorphs	20	$\times 10^6/L$	<5
Lymphocytes	111	$\times 10^6/L$	<5
Red cells	8	$\times 10^6/L$	<5
Organisms	no organisms seen		
Serum Glucose	5.0		

**SAQ 10**

A 30 year old woman presents to the ED complaining of fever, headache, arthralgia and photophobia. She has been unwell for 5 days. Her symptoms initially started like an upper respiratory tract infection, and have not improved despite oral antibiotics.

1. List five (5) contraindications for lumbar puncture.

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A lumbar puncture is performed and the results are shown on the opposite page.

2. What are the two (2) most likely diagnoses?

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3. List 3 features of the CSF that support your diagnoses

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4. List two (2) pros and two (2) cons for the administration of intravenous antibiotics in this patient

Pros	Cons

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**SAQ 11**

A 65 year old male is brought to your tertiary emergency department with progressively increasing weakness in his legs

1. Outline three (3) key clinical differences between Guillaine Barre syndrome and acute spinal cord compression

<b>Guillian Barre</b>	<b>Acute spinal cord compression</b>

2. On examination the patient has bilateral lower limb weakness with loss of sensation from the nipples down, and absent sphincter tone.  
What is the most likely diagnosis?

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3. List five (5) potential causes for this condition in this patient.

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**SAQ 12**

A 35 year old woman presents to the emergency department with fever, rigors and vomiting. She is 5 days post chemotherapy (4<sup>th</sup> cycle) for breast cancer. On examination her observations are as follows:

Temp            39                    °C  
HR                120                    /min  
BP                80/60                mmHg  
RR                28                      /min  
Sats              96%                on 3L O<sub>2</sub> by nasal prongs

1. Describe your four (4) treatment priorities

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2. List 5 investigations and give justification for each

Investigation	Justification

3. List four (4) factors that influence antibiotic choice

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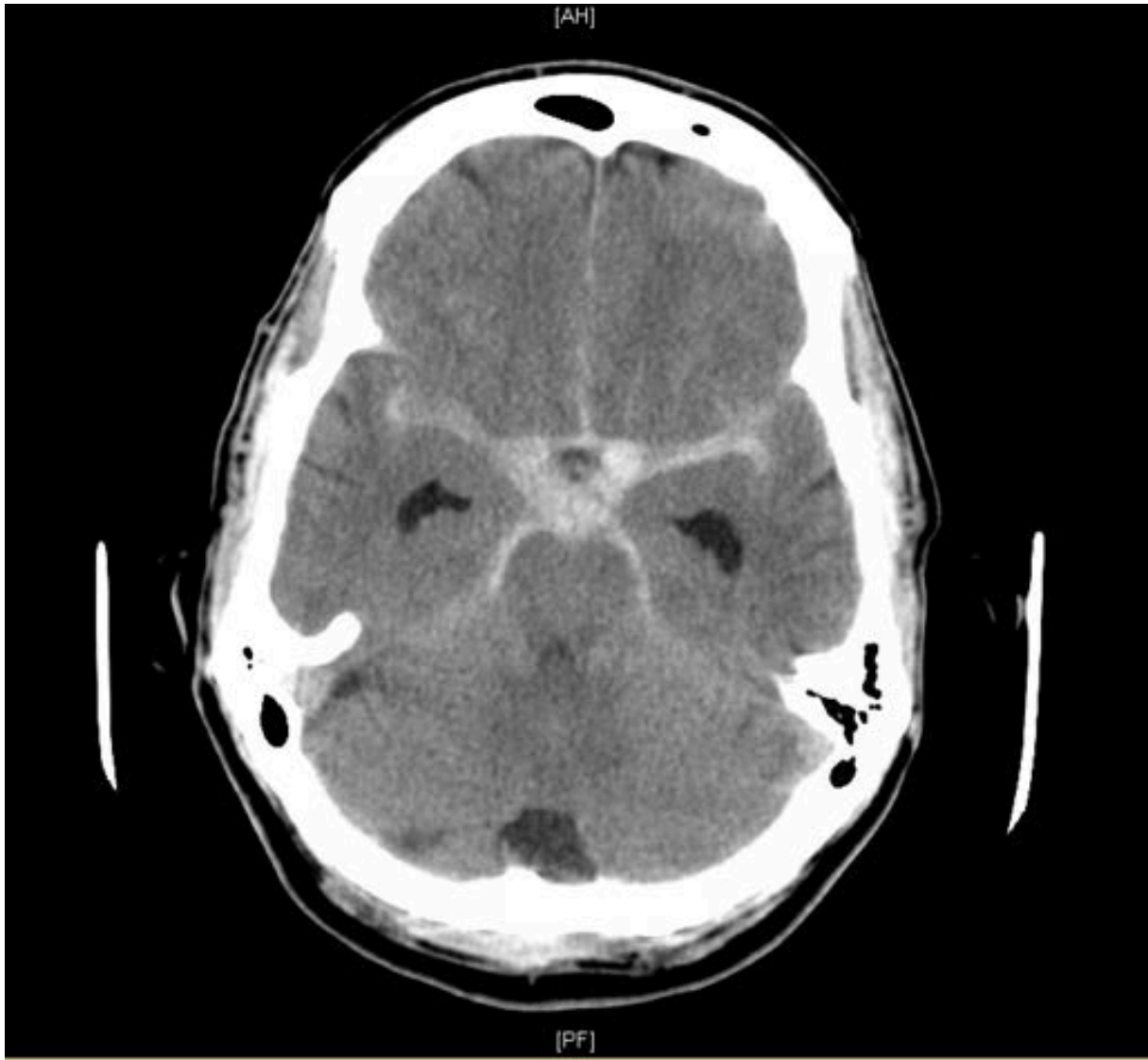
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**SAQ 13**

A 47 year old man presents with a sudden severe headache and confusion.

A single slice of his non contrast CT scan is shown.



SAQ 13 continued

1. Describe four (4) relevant findings on his CT scan.

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2. What is the most likely diagnosis?

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3. List four (4) important measures for neuroprotection in the emergency department.

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4. His BP is 200/100 mmHg. What antihypertensive will you use, include dose and route.

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5. What systolic BP range are you aiming for in mmHg?

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**SAQ 14**

A 5 year old boy presents with an exacerbation of his known asthma.

1. What four (4) signs on physical examination would suggest a severe (but **NOT** life threatening) exacerbation?

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2. List four (4) drugs with their doses, routes and indications for the use in the treatment of childhood asthma in the emergency department.

<b>Drug</b>	<b>Dose</b>	<b>Route</b>	<b>Indication</b>

3. List five (5) criteria for discharge.

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ECG SAQ 15



**SAQ 15**

A 45 year old man presents with vague symptoms of central dull chest pain and mild shortness of breath on exertion for the past 3 days.

His observations are:

Temperature	37	°C
BP	120/70	mmHg
RR	18	/min
O <sub>2</sub> saturations	99%	on room air

An ECG is taken and is shown on the opposite page

1. Interpret his ECG giving three (3) positive findings.

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2. List four (4) differential diagnoses for this appearance on the ECG.

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3. List three (3) features on assessment that would determine disposition.

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**SAQ 16**

A 38 year old woman presents with right upper quadrant pain and jaundice for 3 days. She has a past history of cholelithiasis and a penicillin sensitivity producing a rash.

Her observations are as follows:

BP	95/70	mmHg
HR	125	/min
RR	24	/min
O <sub>2</sub> saturations	99%	on room air
Temperature	39.2	°C
GCS	15	

1. What is the presumptive diagnosis?

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2. List four (4) important investigations to obtain in this woman.

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3. List four (4) management priorities.

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4. The woman responds to your treatment and her vital signs normalise. You are asked to write ongoing orders for admission. List 4 orders and their doses.

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**SAQ 17**

A 22 year old man presents with facial pain and a rash.

A clinical photograph is shown below.



SAQ 17 continued

1. What is your provisional diagnosis?

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2. Describe four (4) features on the clinical photograph that support this diagnosis.

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3. List five (5) important complications of this presentation.

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3. List three (3) key features on assessment that would mandate admission.

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**SAQ 18**

A 17 year old patient with severe spastic quadriplegia secondary to cerebral palsy is brought to the emergency department. The patient lives at home but is dependent on her parents for full care. She has been unwell for 48 hours with cough, fevers and increasing drowsiness.

1. Describe four (4) features on history that would determine that this patient requires inpatient admission.

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2. The ambulance crew have been unable to obtain IV access despite multiple attempts. Describe three (3) options of obtaining access for administration of medication.

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3. The patient is diagnosed with a severe pneumonia. The patient's parents would like full resuscitation with intubation and intensive care if required. Describe six (6) points to discuss with the family.

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**SAQ 19**

A 25 year old man is brought to your emergency department following a work place injury. He was cleaning equipment with a high pressure hose that snapped, striking him in the throat. He is seated upright on the ambulance stretcher, drooling and not talking. On examination he has a soft but audible stridor. His observations are all within the normal range.

1. List five (5) pieces of equipment you would like available for immediate management of his airway.

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2. Describe pros and cons for three (3) different options for securing his airway.

<b>Airway intervention</b>	<b>Pros</b>	<b>Cons</b>

3. Describe five (5) steps in your preferred first option for securing his airway. Include drugs and doses.

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**SAQ 20**

A 25 year old lady presents with severe epigastric pain and vomiting.

Her biochemistry results are shown below.

**Biochemistry**

			Reference range
Na	132	mmol/L	135 - 145
K	3.9	mmol/L	3.5 - 5.0
Cl	101	mmol/L	101 - 111
HCO <sub>3</sub>	24	mmol/L	22 - 32
Urea	4.6	mmol/L	2.5 – 7.8
Creat	60	umol/L	40 - 80
ALP	248	U/L	30 - 120
GGT	309	U/L	7 - 64
AST	27	U/L	10 - 50
ALT	55	U/L	7 - 56
Bilirubin	43	umol/L	0 – 20
Lipase	448	U/L	0 - 60



SAQ 20 continued

1. What is your diagnosis?

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2. What are the two (2) most likely underlying causes and why?

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3. List four (4) complications of this condition.

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4. List five (5) features that will help determine prognosis on admission?

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**SAQ 21**

You have been asked to write a protocol for chemical restraint in the emergency department.

1. List five (5) key stakeholders.

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2. List five (5) essential generic elements of any written protocol document.

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3. List three (3) drugs to be included in the protocol. Include doses and route.

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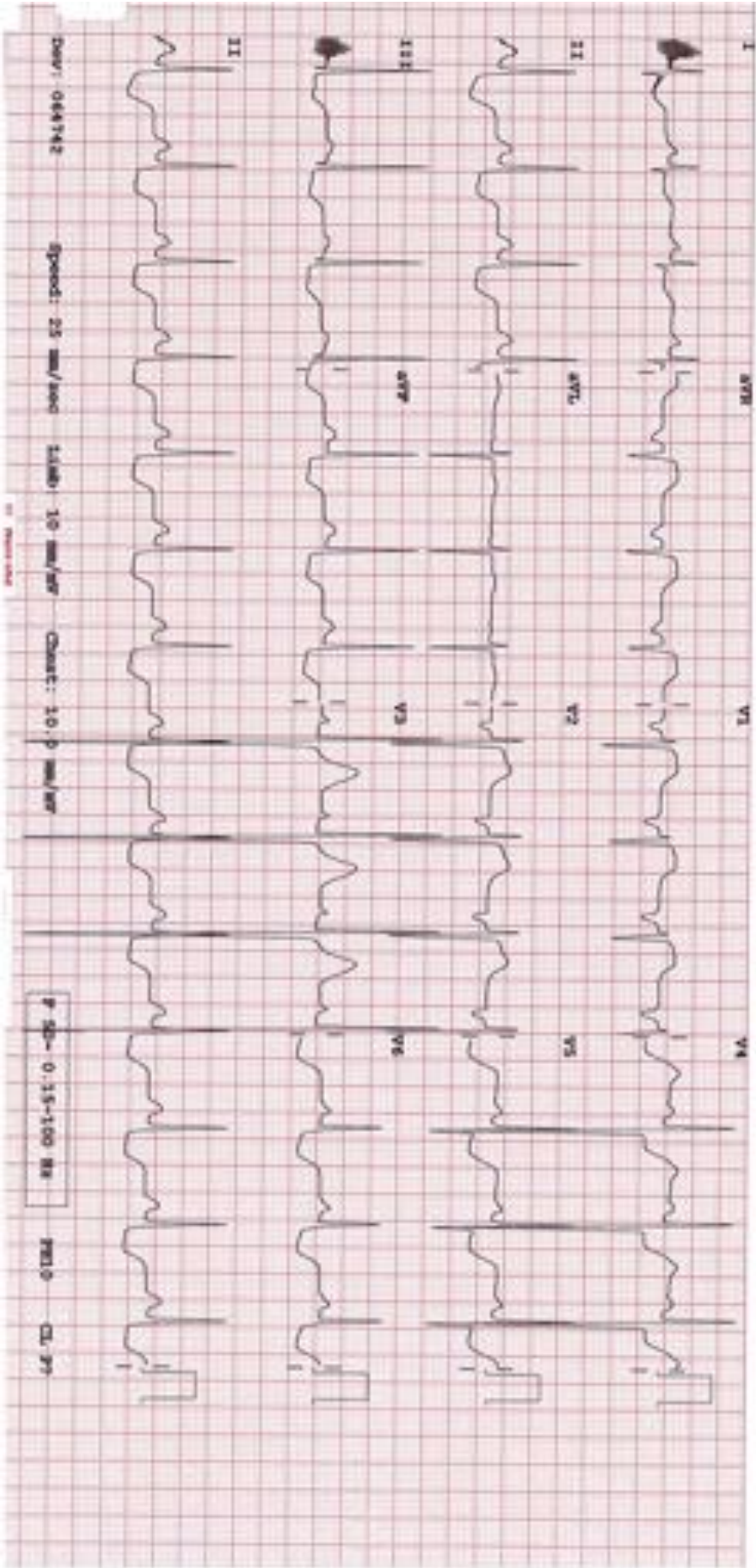
4. List three (3) indications for chemical restraint in the emergency department.

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ECG SAQ 22



**SAQ 22**

A 13 year old boy has a syncopal episode while playing sport. There was no trauma. He is unconscious for one minute and there is no seizure activity during this time, nor evidence of a post-ictal phase.

His observations are as follows:

BP	105/70	mmHg
HR	90	/min
RR	18	/min
O <sub>2</sub> saturations	99%	on room air
GCS	15	

An ECG is done and is shown on the page opposite.

1. List four (4) relevant findings on the ECG.

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2. What is the diagnosis?

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3. List two (2) of the most important complications associated with this diagnosis.

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4. List three (3) important management priorities during this current admission.

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**SAQ 23**

A 68 year old man presents 2 days after a prostate biopsy with fever and rigors.

His observations are as follows:

HR	120	/min
BP	90/50	mmHg
RR	16	/min
O <sub>2</sub> saturations	98%	on room air
Temperature	39	°C

1. What is the most likely organism?

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2. What antibiotic and dose will you administer?

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3. What was the conclusion of the ARISE trial on sepsis and EGDT?

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4. List four (4) potential uses of bedside ultrasound in this patient.

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**SAQ 24**

A 22 year old man presents with a hand injury after coming off a motorbike. He is complaining of pain in his left wrist and has no other injuries.

An xray is taken and is shown below.





SAQ 24 continued

1. Describe his xray giving three (3) relevant findings.

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2. List 3 short term and 3 long term complications of this injury.

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3. Describe four (4) steps in your management.

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**SAQ 25**

A 35 year old lady presents to your emergency department via ambulance. She delivered a healthy term baby 2 hours ago at home but has had significant PV bleeding since. She is conscious but her BP is 70/40.

1. What are the four (4) categories of causes for post partum haemorrhage? Give 2 examples of each.

Category	Example

2. Describe six (6) steps you would take to stop this woman's bleeding.

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Your attempts at stopping the bleeding in the emergency department are unsuccessful. You contact the O&G registrar who states he is busy in theatre for the next 2 hours and is unable to attend.

3. Describe your response.

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**SAQ 26**

A 2 year old boy is brought to your emergency department by his grandparents having found him unresponsive at their home. He has no significant past medical history.

On examination he is very drowsy with a GCS of 7 (E2, V1, M4) and has the following observations:

HR	140	/min
BP	80/50	mmHg
RR	18	/min
O2 saturation	100%	on 2L/min O2 via nasal cannulae
Temperature	36.5	oC

His initial blood results are shown:

**Venous blood gas**

			Reference Range
pH	7.1		7.35 – 7.45
pO <sub>2</sub>	50	mmHg	
pCO <sub>2</sub>	37	mmHg	40 – 52
HCO <sub>3</sub> <sup>-</sup>	11	mmol/L	24 – 32
Lactate	8.8	mmol/L	0.5 – 2.0
Na <sup>+</sup>	143	mmol/L	135 – 145
K <sup>+</sup>	3.8	mmol/L	3.5 – 4.8
Cl <sup>-</sup>	110	mmol/L	95 – 110
Glucose	1.8	mmol/L	3.0 – 6.0

SAQ 26 continued

1. List five (5) significant abnormalities on the blood gas

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2. What is the acid/base disturbance? Show your calculations.

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3. List five (5) relevant differential diagnoses.

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**SAQ 27**

A 78 year old woman from a nursing home presents with generalised abdominal pain and vomiting for the past 24 hours.

Her observations are as follows:

BP	165/82	mmHg
HR	90	/min
RR	20	/min
O <sub>2</sub> saturations	96%	on room air
Temperature	36.2	°C
GCS	14	(E4, V4, M6) normal for patient

An AXR is taken and shows no obstruction.  
Her CXR is shown below:



SAQ 27 continued

1. What is the presumptive diagnosis?

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2. List five (5) important features demonstrated on this xray. Include three (3) positive and two (2) negative findings.

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3. List four (4) immediate management priorities.

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4. What is the role of a nasogastric tube in this patient?

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**SAQ 28**

An 80 year old lady from home presents with sudden onset of shortness of breath and right sided pleuritic chest pain.

Her observations are as follows:

Temperature	37.5	°C
HR	120	/min
BP	90/60	mmHg
RR	30	/min
O <sub>2</sub> Saturations	92%	on 10L O <sub>2</sub> via Hudson mask

Her CXR is normal. You suspect a pulmonary embolism.

1. What is the utility of a d-dimer this this patient?

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2. Discuss three (3) possible radiological investigations for this patient. Include two (2) pros and two (2) cons for each.

Investigation	Pros	Cons

3. The use of thrombolysis in PE is controversial. List 3 possible indications for thrombolysis in PE.

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**SAQ 29**

A 14 year old male presents after ingesting "GHB" (gamma-hydroxybutyrate) one hour earlier. There are no co-ingestants. A venous blood gas shows normal acid-base status and electrolytes.

1. List four (4) important complications of a GHB overdose.

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2. List four (4) indications for intubation of this patient.

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3. Ten hours later the patient is GCS 14 (E4, V4, M6) and states he wants to leave. He moves towards the emergency department exit. List three (3) interventions in sequence to manage this scenario.

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**SAQ 30**

A 24 year old male presents with confusion after competing in a half marathon event.

His observations are as follows:

BP	95/60	mmHg
HR	118	/min
RR	24	/min
O <sub>2</sub> saturations	98%	on room air
Temperature	40.8	°C
GCS	13	(V3, E4, M6)

1. What is the most likely diagnosis?

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2. List four (4) important investigations for this diagnosis. Include a justification for each.

Investigation	Justification

2. List four (4) temperature control strategies.

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3. List four (4) other immediate management priorities for this patient.

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