

Candidate name: _____

Department of
Emergency Medicine

Princess Alexandra Hospital

FELLOWSHIP TRIAL EXAMINATION

2015.2

WRITTEN EXAMINATION

SHORT ANSWER QUESTIONS

EXAMINATION TIME: 3 HOURS

DIRECTIONS TO CANDIDATES

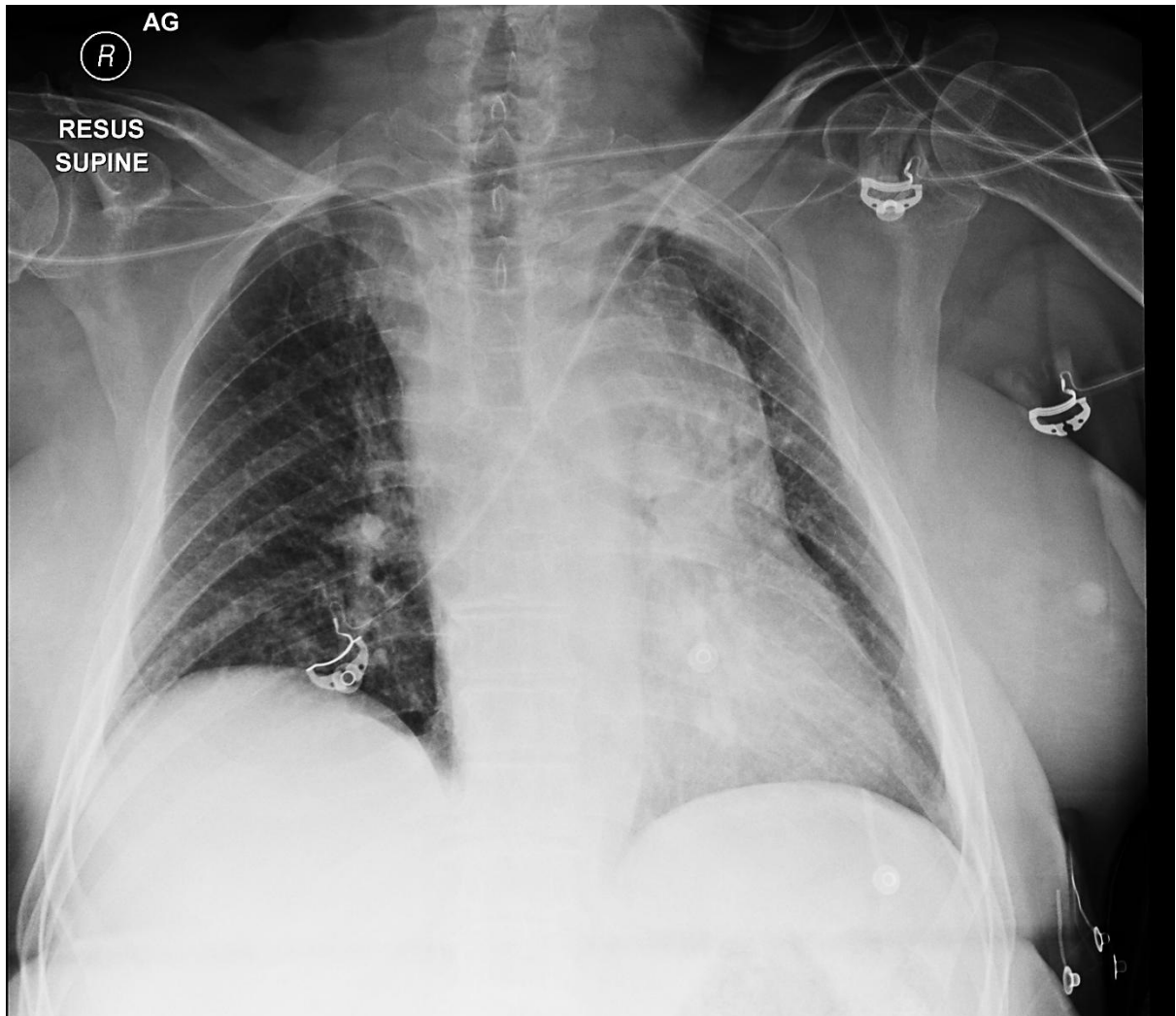
1. Answer each question in the space provided
2. Write your name on this page of the question paper
3. Write your initials on each subsequent page of the question paper
4. Cross out any errors completely
5. Do not begin the exam until instructed to do so
6. No examination papers or materials to leave the room

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SAQ 1

A 67 year old woman has been brought to the ED after falling from a second storey roof.

An initial chest Xray has been taken.



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1. Give the main pathology depicted on the chest x-ray. Include 4 radiographical supporting features. (5 marks)

Main pathology _____

Radiographical supporting features

The patient's vital signs are:

GCS	15	
Pulse	60	/min
BP	70/40	mmHg
RR	16	/min
O2 sats	99%	2L O2 via nasal prongs

Xray of the pelvis is normal.

FAST scan is normal.

Examination reveals no long bone fractures and no open wounds.

The patient cannot move her legs.

The patient is awaiting CT scanning to further delineate her injuries.

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2. What is the likely cause of this patient's hypotension? (1 mark)

3. Give 2 other differential diagnoses for her hypotension of traumatic aetiology. (2 marks)

There are no significant areas of haemorrhage on CT scan.

4. Give your management steps for her hypotension, including doses and end-points where appropriate. (3 marks)

SAQ 2

A 5 year old boy has been brought to the ED with anaphylaxis after eating a peanut butter sandwich at school.

1. Complete the table by listing assessment features which would suggest life-threatening anaphylaxis. Give two features in each category. (6 marks)

Category	Assessment Feature
Airway	
Respiratory	
Cardiovascular	

Candidate initials: _____

Your assessment has confirmed life-threatening anaphylaxis involving the cardiovascular and respiratory systems. There are no signs of airway involvement.

The patient's vital signs are:

GCS	13	E 3 V 4 M 6
Pulse	170	/min
BP	70/45	mmHg
RR	40	/min
O2 sats	88%	room air

2. List your management steps in the ED. Include drug doses and end-points where appropriate. (6 marks)

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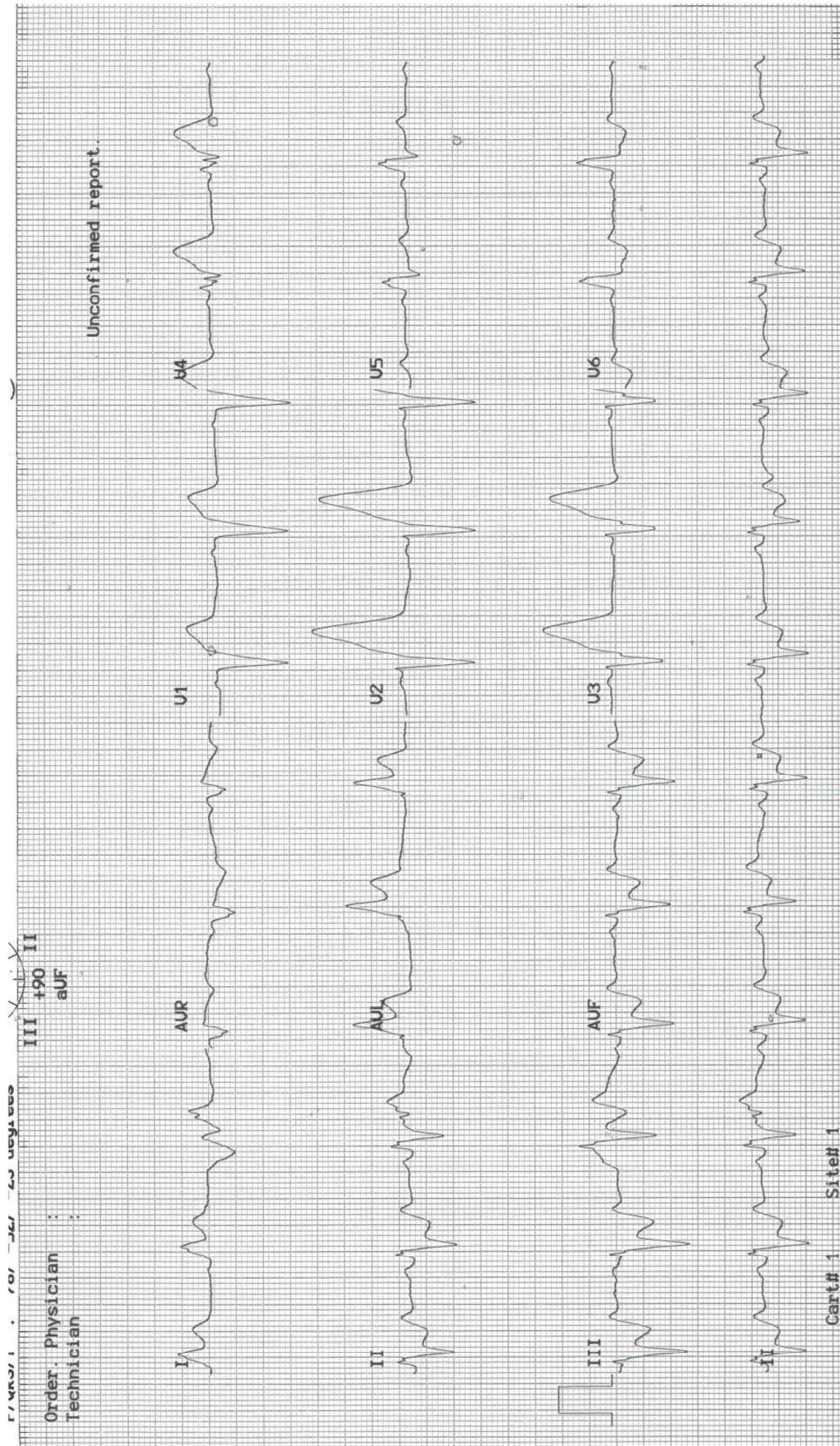
SAQ 3

A 50 year old woman has been brought to the ED with severe chest pain of 2 hours duration. She is alert and orientated.

Her ECG is given below.

1. List the abnormalities on the ECG. Include ECG evidence to support your statements. (5 marks)

2. What is the clinical significance of these abnormalities? (2 marks)



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3. List 3 life-threatening complications of this problem that may manifest in this patient in the ED. (3 marks)

4. List 4 factors that will determine this patient's disposition. (4 marks)

Candidate initials: _____

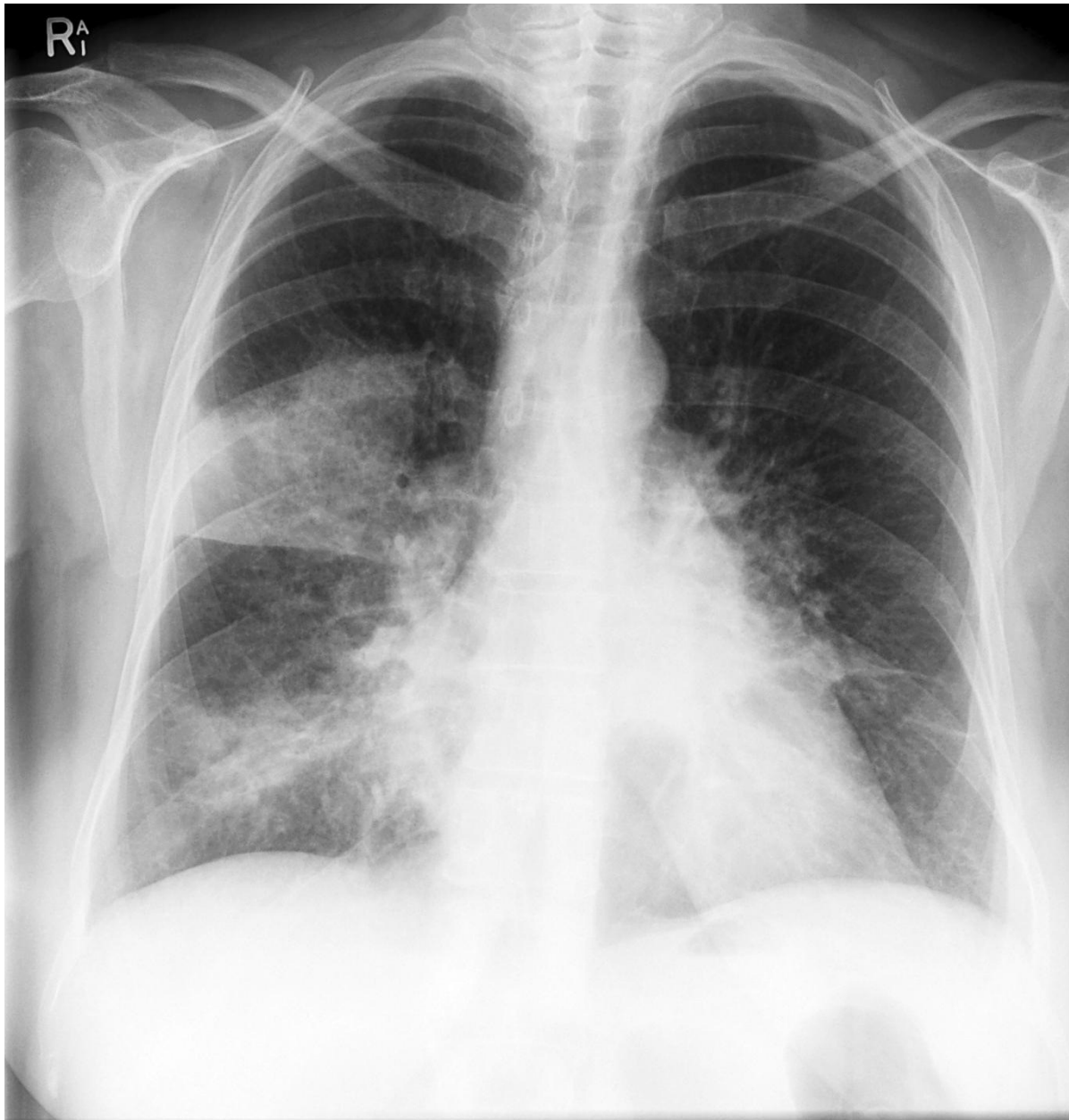
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SAQ 5

A 60 year old woman has presented to the ED with a 2 day history of shortness of breath and cough.

Her chest x-ray is given below.



Candidate initials: _____

1. List the abnormalities on the chest x-ray, including the radiographic supporting evidence. (5 marks)

2. Give your interpretation of the Xray findings. (2 marks)

Candidate initials: _____

Her vital signs are:

GCS	15	
Pulse	120	/min
BP	100/60	mmHg
RR	38	/min
O2 sats	88%	room air
Temperature	38.5	degrees

3. List your treatment steps. Give details of your doses and end-points where appropriate. (5 marks)

SAQ 6

A 65 year old woman has been brought to the ED with abnormal behaviour. She had been found wandering in the street yelling, "They are trying to get me!".

She is known to have schizophrenia.

She is unable to give any coherent history.

1. List 5 findings of your examination that would suggest delirium to be the cause of her presentation. (5 marks)

2. List 3 pieces of collateral history that would suggest psychosis to be the primary problem. (3marks)

Candidate initials: _____

While being assessed, the patient becomes very agitated and attempts to leave.

Assessment so far has suggested that the patient is incapable of making rational decisions.

3. List the management steps, in sequential order, that you would use to ensure the patient remains in the ED. Give brief details of each step. (5 marks)

SAQ 7

You are part of a helicopter retrieval team tasked to retrieve a patient from the scene of a high speed motor vehicle accident.

When you arrive on scene, you find the patient to be lying supine on the road.

1. List 5 possible indications for intubation of this patient prior to loading him on to the helicopter. (5 marks)

Upon your arrival, the patient becomes unresponsive to painful stimulus.

There are no palpable pulses.

ECG monitoring demonstrates sinus rhythm with a rate of 120 beats per minute.

Candidate initials: _____

2. List your immediate actions.

(4 marks)

Your initial actions restore a perfusing circulation.

3. List the important components of your fluid resuscitation strategy, assuming there is no clear evidence of head injury.

(3 marks)

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SAQ 8

A 28 year old man with type 1 diabetes has presented to the ED with vomiting for 2 days.

His venous blood gas is given below.

Venous blood gas

pH	7.41		(7.35 – 7.45)
pCO ₂	36	mmHg	(35 – 45)
HCO ₃	22	mmol/L	(18 – 26)
BE	2.2	mmol/L	(-3 - +3)
Na	132	mmol/L	(135 – 145)
K	5.1	mmol/L	(3.5 – 4.5)
Cl	82	mmol/L	(100 – 110)
Glucose	42	mmol/L	(3.0 – 7.8)
Lactate	3.0	mmol/L	(0.5 – 2.2)
Creatinine	367	umol/L	(73 – 108)

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2. List your management steps. Include doses and end-points where appropriate.
(8 marks)

Candidate initials: _____

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SAQ 9

An 18 month old boy has been brought to the ED with a rash.

His clinical photograph is provided below.



Candidate initials: _____

1. Provide a description of the clinical photograph. (4 marks)

2. List your 5 main differential diagnoses. (5 marks)

Candidate initials: _____

3. List and justify the 4 investigations you may perform on this child to elucidate the cause of the rash. (4 marks)

SAQ 10

A 24 year old man has presented to the ED with a severe headache.

He underwent revision of a ventriculo-peritoneal (VP) shunt 5 days ago in your hospital.

1. List 4 differential diagnoses that you would consider related to his VP shunt.
(4 marks)

Candidate initials: _____

2. List 3 investigations you could use to determine the presence of the above diagnoses.
For each investigation, give the abnormality for which you would be looking.
(6 marks)

Investigation	Abnormality

SAQ 11

A 32 year old G3 P2 woman has presented to your ED with a headache. She is 38 weeks pregnant. You are concerned that she may have pre-eclampsia.

1. List 4 features of your examination that would support this diagnosis. (4 marks)

2. List 5 investigations you would request, including the results that would be suggestive of complications related to pre-eclampsia. (5 marks)

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You have diagnosed pre-eclampsia. After a brief time in your ED, she has a generalised seizure.

3. List your management steps, including drugs, doses and end-points where appropriate. (5 marks)

Candidate initials: _____

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SAQ 12

A 57 year old woman has been brought to the ED after falling while dancing. She has an isolated left ankle injury. There are no wounds.

Her x-rays are shown.



Candidate initials: _____

1. List the abnormalities on the x-ray. Include your interpretation of the abnormalities.

(6 marks)

2. List your management steps, including details.

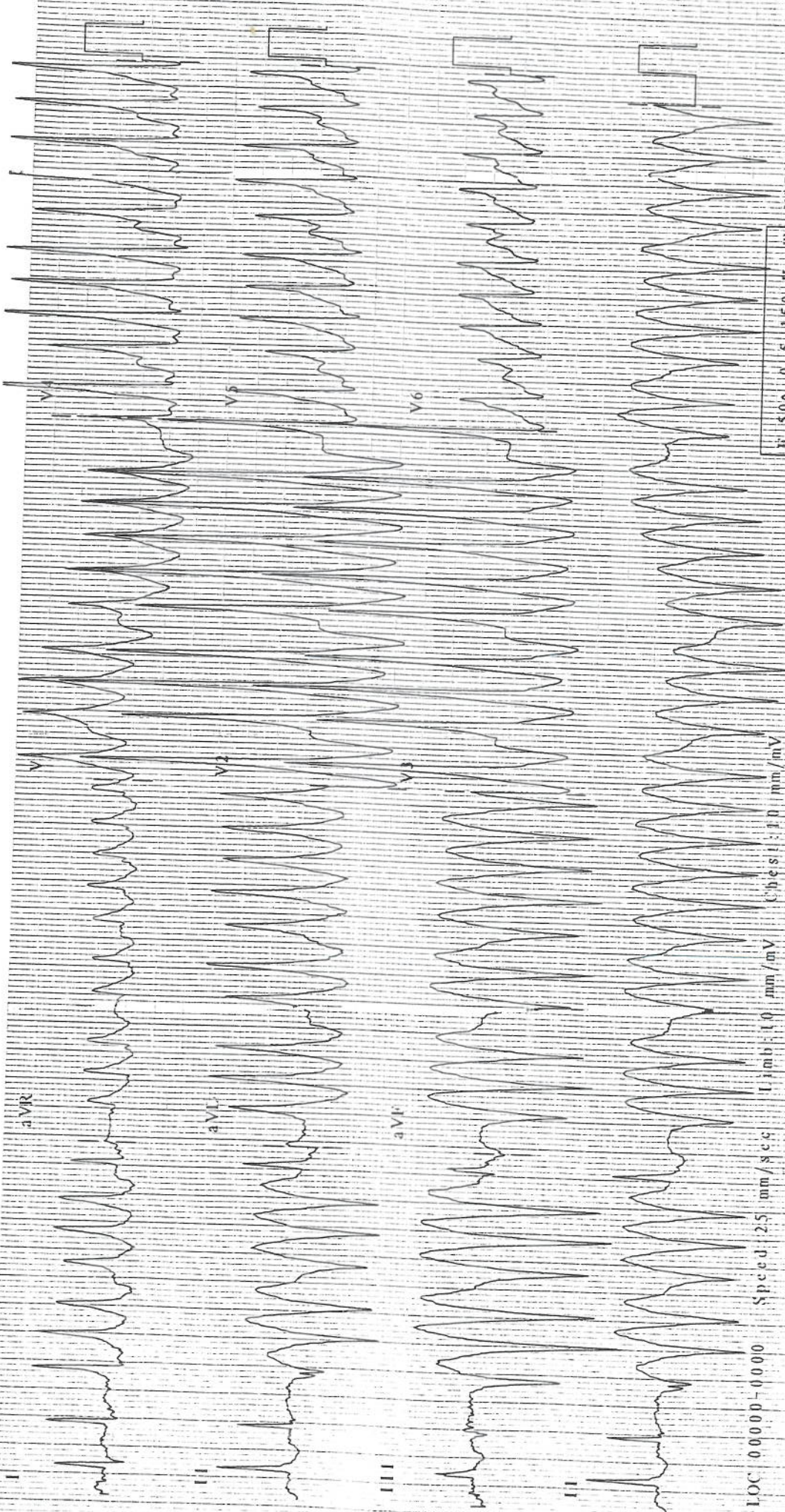
(4 marks)

SAQ 13

A 30 year old man presents to your ED with palpitations and shortness of breath.

His ECG is shown on the next page.

1. Describe the abnormalities on the ECG with supportive evidence. (6 marks)



LOC 00000-0000

Speed: 2.5 mm/sec

Time: 1.0 mm/mV

Cal: 1.0 mm/mV

P 500 0.5-150 Hz W

11P708

19148

Candidate initials: _____

His vital signs are:

GCS	14	E 4 V 4 M 6
BP	75/45	mmHg
RR	32	/min
O2 sats	99%	6L O2 via face mask

2. List your management steps. Include specific drugs and doses where appropriate.
(5 marks)

SAQ 14

A 2 week old boy has been brought to your ED by his mother.

He has been noted to be pale, floppy and less responsive than usual.

1. Complete the table by giving 5 differential diagnoses for his presentation, with 2 cardinal examination findings that would suggest each diagnosis. (15 marks)

Diagnosis	Cardinal Examination Finding

SAQ 15

A 44 year old man has presented with pain and swelling under his jaw.

His clinical photo is shown.



Candidate initials: _____

1. List 3 important abnormalities in the clinical photo. (3 marks)

2. Give your interpretation of the photograph. (2 marks)

On examination, the patient has the following vital signs:

GCS	15	
Pulse	120	/min
BP	100/65	mmHg
Temp	38.5	degrees
RR	18	/min
O2 saturation	99%	room air

He can only open his mouth to allow one finger between his incisors.

Candidate initials: _____

3. List your priorities for this patient's management, including details of drugs and doses where appropriate. (6 marks)

SAQ 16

A 45 year old man presents following an overdose of verapamil tablets.

1. List 6 important features of your toxicological history. (6 marks)

After a brief period in the ED, his vitals signs are:

GCS	11	E 3 V 3 M 5
Pulse	35	/min
BP	75/45	mmHg
RR	20	/min
O2 sats	100%	6L O2 via mask

SAQ 17

A 52 year old woman has been brought to the ED with right sided upper and lower limb weakness.

Your provisional diagnosis is a left middle cerebral artery territory ischaemic stroke.

1. List 5 differential diagnoses for this presentation. (5 marks)

2. List 3 relevant investigations you would do on this patient. Include the results for which you will be looking. (3 marks)

Test	Relevant Finding

Candidate initials: _____

Your assessment is consistent with the diagnosis of ischaemic stroke.

3. List 4 examination findings that would exclude this patient from being eligible for thrombolysis. (4 marks)

SAQ 18

You are the consultant in charge of the emergency department on a Sunday evening. You have a number of admitted patients in your department awaiting placement to an inpatient ward. All of your acute and resuscitation treatment spaces are full.

The ambulance service has called to advise they are bringing an unstable patient with a gunshot wound to the abdomen from a property 20 minutes away.

1. List 3 actions you could undertake within the ED to accommodate the inbound patient. (3 marks)

2. List 2 actions you would suggest to the hospital executive to minimise ongoing access block issues in the evening. (2 marks)

Candidate initials: _____

3. Provide 3 strategies such a facility could introduce to avoid similar access block issues on the weekend. For each strategy, please list 2 specific points on how the strategy might be implemented. (9 marks)

Strategy 1

Details

1.

2.

Strategy 2

Details

1.

2.

Candidate initials: _____

Strategy 3

Details

1.

2.

SAQ 19

A 25 year old man had been brought to the ED after being assaulted with a baseball bat. Assessment reveals isolated head injuries.

An image from his CT head scan is given.



Candidate initials: _____

1. List the abnormalities on the CT scan.

(6 marks)

After a short period in the ED, his vital signs are:

GSC	10	E 2 V 3 M 5
Pulse	100	/min
BP	140/70	mmHg
RR	20	/min
O2 sats	99%	6L O2 via mask

Candidate initials: _____

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SAQ 20

A 72 year old woman has presented with abdominal pain and fever of 2 days duration.

Some of her blood results are given below.

Na	125	mmol/L	(135 – 145)
K	4.4	mmol/L	(3.5 – 5.1)
Cl	89	mmol/L	(100 – 110)
HCO ₃	14	mmol/L	(22 – 32)
Glucose	7.5	mmol/L	(3.0 – 7.8)
Urea	23.7	mmol/L	(2.9 – 8.2)
Creatinine	219	mmol/L	(64 – 108)
Protein	65	g/L	(60 – 83)
Albumin	22	g/L	(35 – 50)
Bilirubin	255	umol/L	(<20)
Bili (conj)	198	umol/L	(<4)
ALP	867	U/L	(56 – 119)
Gamma GT	412	U/L	(<55)
ALT	178	U/L	(<45)
AST	153	U/L	(<35)
CK	55	U/L	(46 – 171)

Candidate initials: _____

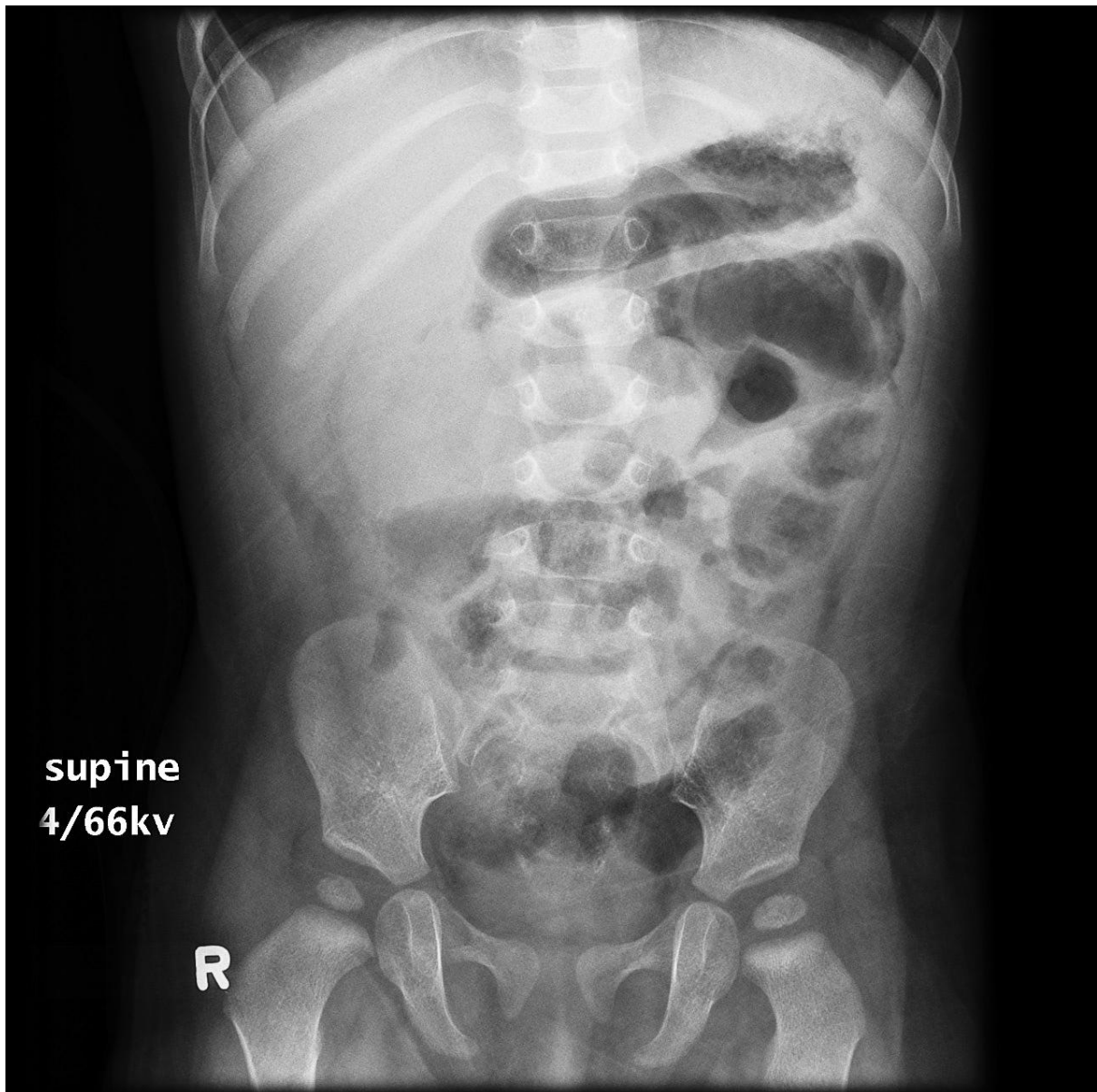
1. List the abnormalities with likely explanations. (7 marks)

2. Give your overall clinical interpretation. (3 marks)

SAQ 21

An 18 month old boy has been brought to your ED with vomiting and abdominal distension.

His abdominal x-ray is given below.



Candidate initials: _____

1. List the abnormalities on the x-ray, including your interpretation. (3 marks)

2. List 2 methods of definitive management of this problem. (2 marks)

The patient looks pale. His vital signs are:

Alert

Pulse 160 /min

BP 90/40 mmHg

RR 30 /min

O2 sats 99% room air

Candidate initials: _____

3. List your 3 main management steps, including details. (3 marks)

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

SAQ 22

A 32 year old man has been found unconscious in a park during winter.

On arrival to the ED, he has:

GCS	11	E 3 V 3 M 5
Temp	29.5	degrees

1. List 6 possible causes (aside from hypothermia) for his reduced level of consciousness. (6 marks)

Candidate initials: _____

2. Complete the table indicating the expected pathophysiological effects of hypothermia. (5 marks)

Body system	Effects	
Cardiovascular		
	Heart rhythm abnormality	
Respiratory		
Renal		
Metabolic		

Candidate initials: _____

3. List 5 methods of rewarming a hypothermic patient. For each method provide the clinical triggers for its use. (10 marks)

Method	Clinical Triggers

SAQ 23

A 30 year old man has been brought to the ED after falling down a staircase while intoxicated with alcohol.

He was intubated on scene due to a decreased level of consciousness.

He has no pre-existing medical problems.

Your registrar is having trouble ventilating the patient. The ventilator is sounding an alarm for high airway pressures and terminating inspiration at 150mL tidal volume each breath.

You suspect that the patient has significant aspiration lung injury.

1. List 5 other potential causes for this problem. (5 marks)

2. List your initial actions that will determine the cause of the problem. (5 marks)

Candidate initials: _____

You have determined that severe aspiration lung injury is the cause of the problem.

The patient's current vital signs are:

Pulse	110	/min
BP	110/70	mmHg
O2 saturations	88%	

Arterial blood gas has shown:

pO ₂	55	mmHg
pCO ₂	65	mmHg

The patient's current ventilator settings are:

Volume control

FiO ₂	1.0	
TV	500	mL
RR	12	/min
PEEP	5	cm H ₂ O
Pressure limit	35	cm H ₂ O
I:E ratio	1:2	

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Candidate initials: _____

3. List 3 changes to the ventilator settings that will improve the patient's oxygenation.
For each change, give a potential adverse effect of the change. (6 marks)

Change in ventilator setting	Potential adverse effect

SAQ 24

An 68 year old man has presented to the ED with severe chest pain, radiating to his back.

You are concerned about the possibility of an aortic dissection.

1. Give 2 diagnostic modalities for confirming the diagnosis. For each, outline the clinical circumstances where you would choose the modality. (4 marks)

Modality

Clinical use

Modality

Clinical use

Candidate initials: _____

A Stanford type A aortic dissection has been confirmed on imaging.

2. List your management priorities. Where relevant, give doses and end-points.

(5 marks)

3. List 4 life-threatening complications that might become evident in the ED.

(4 marks)

Candidate initials: _____

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SAQ 25

A 22 year old labourer has re-presented to your ED with a painful right elbow after a fall on to his out-stretched hand 4 days prior. He was seen in the ED after the accident and discharged with the diagnosis of a “sprained elbow”. He was provided with appropriate analgesia.

The x-ray below was taken on his initial presentation.



Candidate initials: _____

1. List the abnormalities on the x-ray. (3 marks)

2. What is the clinical significance of the situation? (2 marks)

The patient is angry and wishes to make a complaint.

3. List 7 key steps in your management of this situation. (7 marks)

SAQ 26

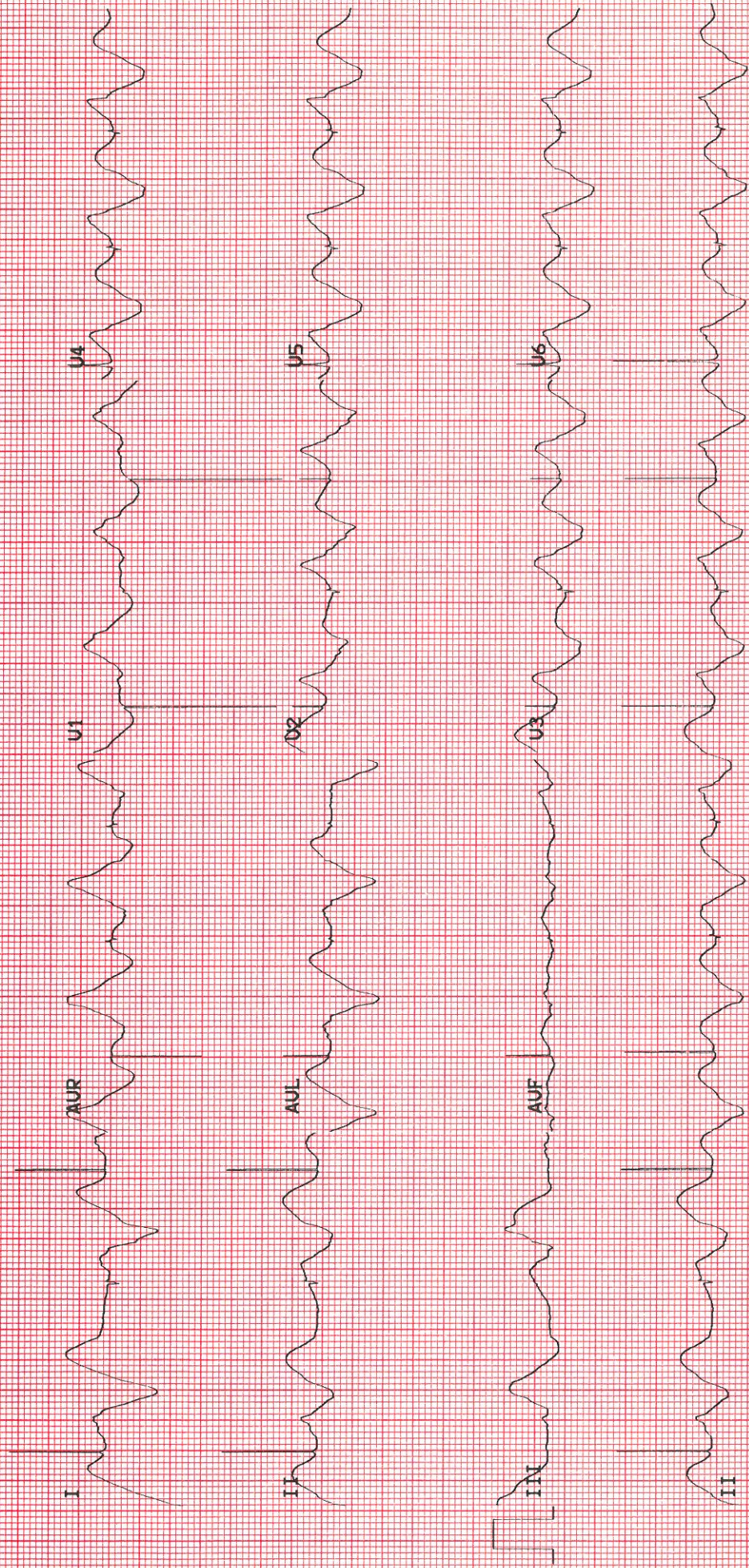
A 78 year old man has presented to the ED with general malaise and several episodes of syncope.

He has a history of type 2 diabetes with complications of ischaemic heart disease, chronic renal failure and peripheral vascular disease.

His ECG is shown.

1. List the abnormalities on the ECG. Include your overall interpretation. (5 marks)

Unconfirmed report.



Candidate initials: _____

The patient's vital signs are:

GCS	15	
BP	100/60	mmHg
RR	22	/min
O2 sats	95%	2L O2 via nasal prongs

He has evidence of mild pulmonary oedema on examination.

2. List your ED treatment steps based on the clinical information. Include details of drugs and doses where appropriate. (7 marks)

SAQ 27

A 23 year old man has been brought to the ED with a single stab wound to the left side of the chest.

Immediate FAST scan shows the following image.



1. What pathology is demonstrated?

(1 mark)

Candidate initials: _____

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SAQ 28

A 6 year old boy has been brought to the ED after falling off a swing. He landed on his head and was initially unconscious for a brief period. He complained of neck pain and hence an x-ray of his cervical spine was performed.

The image is given below.



Candidate initials: _____

1. Give your overall interpretation of the xray. Include the findings that support your interpretation. (2 marks)

2. List 3 possible clinical indications for further imaging of this child's cervical spine. (3 marks)

The child is mildly confused on initial examination (GCS 14).

3. List 6 features of your examination that would warrant investigation with a CT head scan. (6 marks)

SAQ 29

A 65 year old man presents with sudden onset of painless visual loss in the right eye.

1. Complete the table with possible diagnoses and one relevant cardinal examination finding that will discriminate the diagnosis. (10 marks)

Diagnosis	Cardinal examination finding

Candidate initials: _____

2. List 4 investigations that you might do in the ED for this patient. Provide justification for each. (4 marks)

Investigation	Justification

SAQ 30

A 35 year old diabetic woman has presented to the ED with left flank pain and fever.

A CT scan has been performed.



Candidate initials: _____

1. Give your interpretation of the CT scan, supported by the relevant radiological evidence. (3 marks)

The patient's vital signs are:

GCS	15	
Pulse	120	/min
BP	75/40	mmHg
Temp	39.5	degrees
RR	25	/min
O2 sats	99%	room air

2. List your management steps in the ED. Include doses and end-points where appropriate. (8 marks)
