

Candidate name: _____

Department of
Emergency Medicine

Princess Alexandra Hospital

FELLOWSHIP TRIAL EXAMINATION
2016.1

WRITTEN EXAMINATION

SHORT ANSWER QUESTIONS

EXAMINATION TIME: 3 HOURS

DIRECTIONS TO CANDIDATES

1. The exam is divided in to **three question booklets** and **one prop booklet**
 - Each question booklet is of equal value
2. Each mark is of equal weight
3. Write your name on the front page of each question paper
4. Write your initials on each subsequent page of the question paper
5. Answer each question in the space provided
6. Cross out any errors completely
7. Do not begin the exam until instructed to do so
8. No examination papers or materials to leave the room

Candidate initials: _____

PAH 2016.1 trial SAQ paper

PART 1

Questions 1 – 9

1 hour

Candidate initials: _____

SAQ 1 (double question)

A 25 year old woman has been brought to the ED after a high speed head-on motor vehicle accident.

Her initial chest x-ray is provided in the **PROPS BOOKLET**.

1. Give the **most important** pathology demonstrated on this x-ray, with 3 radiographic supporting features. (4 marks)

Most important pathology	Radiographic supporting features

2. What will be your **definitive treatment** of the diagnosis in Q1? (1 mark)

Candidate initials: _____

3. What other **clinically significant** pathology is demonstrated in this X-ray? Include the radiographic support for this diagnosis. (2 marks)

Pathology	Radiographic supporting features

You have managed the above injuries and have intubated the patient to optimise ongoing assessment and management.

After a short period, the ventilator has begun to alarm due to high pressures.

4. List **six possible causes** of high ventilator pressures. (6 marks)

- (1) _____

- (2) _____

- (3) _____

- (4) _____

- (5) _____

- (6) _____

Candidate initials: _____

SAQ 1 (continued)

The patient has undergone CT scanning to delineate her injuries.

A slice from her head CT is provided in the **PROPS BOOKLET**.

5. List the abnormalities seen on the image. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

CT scanning has revealed only chest and head injuries as demonstrated in the above images. The chest injury has been satisfactorily managed.

The patient has a dilated left pupil.

Her vital signs are:

GCS	3	sedated and paralysed
Pulse	100	/min
BP	90/60	mmHg
O2 sats	90%	FiO2 0.5

6. State your management steps, including drugs and doses and treatment end-points where appropriate. (8 marks)

Candidate initials: _____

SAQ 2

A 30 year old man has presented to the ED with a painful, swollen left foot after jumping over a high fence. There are no other injuries.

His x-rays are provided in the **PROPS BOOKLET**.

1. List **five abnormalities** on the x-ray. (5 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Candidate initials: _____

2. State your **key management steps** in the ED. Where appropriate, provide any doses of medications you will use. (5 marks)

3. List two **major early complications** of this injury for which you will be monitoring the patient. For each, give a cardinal clinical finding. (4 marks)

Complication	Cardinal clinical finding

Candidate initials: _____

SAQ 3

A 41 year old itinerant alcoholic has been brought to the ED with severe epigastric abdominal pain and vomiting.

His arterial blood gas, taken on room air, is provided in the **PROP BOOKLET**.

1. Comment on the following values on the arterial blood gas. Give likely causes for each abnormality. (8 marks)

Electrolyte	Comment	Likely Cause
Sodium		
Potassium		
Chloride		
Calcium		

Candidate initials: _____

2. List other **major abnormalities** present, and for each list 2 differential diagnoses.

(9 Marks)

Abnormality	Differential Diagnoses

SAQ 4

A 12 year old boy has been brought to your ED by his parents with profuse blood loss from his mouth. His clothes are covered in blood.

He had undergone tonsillectomy at your hospital 7 days prior.

On arrival, his vital signs are:

GCS	15	
Pulse	160	/min
BP	75/40	mmHg
RR	30	/min
O ₂ saturation	99%	room air

He looks pale and sweaty.

Your initial assessment is that he does not require immediate intubation.

Candidate initials: _____

After a brief period of time in the ED, the patient has a large vomit consisting of congealed blood. He appears to aspirate a significant portion of vomitus.

You have decided to intubate the patient to protect his airway and to facilitate ongoing management.

2. Complete the table by listing **three difficulties** you anticipate in his intubation, and the **solutions you will employ** to manage each. (6 marks)

Difficulty	Solution

Candidate initials: _____

SAQ 5

A 25 year old man has been brought to the ED with agitated behaviour. He was found by bystanders in a park screaming out "Help!" repeatedly.

1. List six features of your assessment that would suggest a **psychiatric cause** of his behavioural disturbance. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

SAQ 6

A 70 year old man has presented to the ED after a syncopal episode.

His ECG is provided in the **PROPS BOOKLET**.

The patient's vital signs are:

GCS	12	E3 V4 M5
BP	70/40	mmHg
RR	20	/min
O2 sats	99%	room air

He is pale and sweaty.

1. Give your **diagnosis** and supportive ECG findings. (5 marks)

Diagnosis: _____

Supportive Findings:

Candidate initials: _____

2. State your treatment steps **in sequential order**. Include details of drug doses and end-points. (10 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Candidate initials: _____

SAQ 7

You are working in an ED in North Queensland.

A nine year old child has been brought to the ED by her mother after being bitten by a snake in her backyard.

The patient has normal vital signs on arrival.

1. List **four specific features** of your examination. (4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

2. List the **two most relevant** laboratory investigations you will perform. (2 marks)

(1) _____

(2) _____

Candidate initials: _____

Initial assessment demonstrates **no evidence of envenomation**.

3. List your **discharge criteria** for this girl. (5 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

SAQ 8

Your tertiary department has received criticism about its management of ST elevation myocardial infarctions (STEMIs). In particular, there has been concern about time to percutaneous coronary intervention (PCI).

Your director has asked you to implement a protocol for patients with STEMIs.

1. List the **six steps** you will take in the development and implementation of this protocol. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

2. List **six specific measures** that might reduce time to PCI for these patients.

(6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

SAQ 9

A 7 day old boy has been brought to your ED with jaundice.

1. List **six causes of neonatal jaundice**. For each one, list a cardinal assessment (history, examination or investigation) finding. (12 marks)

Cause	Cardinal finding

Candidate name: _____

PAH 2016.1 trial SAQ paper

PART 2

Questions 10 - 18

1 hour

Candidate initials: _____

SAQ 10 (double question)

A 65 year old man has presented to the ED with shortness of breath.

His chest x-ray is provided in the **PROP BOOKLET**.

1. List the significant x-ray findings. (5 marks)

2. List **five specific infectious causes** of this pathology. (5 marks)

Candidate initials: _____

3. List **three non-infectious causes** of this pathology. (3 marks)

The patient's vital signs are:

GCS	14	E4 V5 M6
Pulse	130	/min
BP	80/40	mmHg
Temperature	39.3	degrees
RR	32	/min
O ₂ saturations	86%	room air

4. List your treatment steps in sequential order. Include details of drug doses and end-points where appropriate. (6 marks)

Candidate initials: _____

After initial therapy, you have decided to insert a central line. You have obtained consent for the procedure.

5. List eight key steps in inserting an internal jugular central line. (8 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

(7) _____

(8) _____

Candidate initials: _____

SAQ 11

A 75 year old man has been brought to the ED from his high level care nursing home with abdominal pain.

His abdominal x-ray is provided in the **PROP BOOKLET**.

1. Give your diagnosis, supported by the abnormal radiological findings. (4 marks)

Diagnosis: _____

Radiological Findings: _____

2. List **three possible methods** for management of this problem. (3 marks)

Candidate initials: _____

3. List six considerations when determining the **ceiling of care** for this gentleman.
(6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

SAQ 12

A 37 year old man has been brought to the ED after being found collapsed in the park. It was apparent from his attire that he had been running. His past medical history is unknown.

On arrival, his vital signs are:

GCS	7	E1 V2 M4
Pulse	130	/min
BP	80/40	mmHg
RR	32	/min
O2 saturations	91%	room air
Temperature	40.1	degrees

The working diagnosis is heat stroke.

1. List six complications of heat stroke. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

2. Give three differential diagnoses. For each, give a cardinal assessment feature.

(6 marks)

Diagnosis	Assessment feature

Candidate initials: _____

Her vital signs are:

GCS	15	
BP	110/60	mmHg
RR	25	/min
O ₂ saturations	100%	6L O ₂ via mask

2. State six key **treatment steps**, including drugs and doses. (6 marks)

- (1) _____

- (2) _____

- (3) _____

- (4) _____

- (5) _____

- (6) _____

Candidate initials: _____

SAQ 14

You have been asked to deliver a talk to a group of medical students about paediatric resuscitation.

1. Complete the following table regarding the **specific management** of paediatric advanced life support. (6 marks)

Topic	Details
Compression : ventilation rate	
Adrenaline dose	
Adrenaline timing (non-shockable rhythm)	
Amiodarone dose	
Amiodarone timing	
Energy setting for defibrillation	

Candidate initials: _____

2. List eight **reversible causes** to be considered in paediatric advanced life support.

(8 marks)

- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____
- (6) _____
- (7) _____
- (8) _____

Candidate initials: _____

SAQ 15

A 20 year old man has presented to the ED after falling off a wall on to his right hand.

The x-ray of his right forearm is provided in the **PROP BOOKLET**.

- 1. List the abnormalities on the x-ray. Include **detailed radiological descriptions** of each problem. (8 marks)

Candidate initials: _____

2. State four management steps for this injury. Include drug doses where appropriate.
(5 marks)

SAQ 16

A 36 year old man with a history of schizoaffective disorder has presented following a large overdose of citalopram.

His ECG is provided in the **PROP BOOKLET**.

1. In relation to this ECG, complete the following. (3 marks)

Rate: _____

Rhythm: _____

Axis: _____

2. What is the main abnormality manifest on the ECG and what does this abnormality represent at a cellular level? (2 marks)

3. List **three other agents** that could produce the same ECG abnormality. (3 marks)

Candidate initials: _____

4. List six examination features that would be **consistent with significant poisoning from citalopram**. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

SAQ 17

A 25 year old woman has presented to the ED with a painful left eye.

Her clinical photograph is provided in the **PROP BOOKLET**.

1. List four abnormalities in the photograph. (4 marks)

2. What is the likely diagnosis? (1 mark)

Candidate initials: _____

3. State three important steps in your management of this patient. (4 marks)

4. List three predisposing conditions for this problem. (3 marks)

SAQ 18

A 35 year old woman has been brought to the ED with a prolonged generalised seizure.

Her medical history is unknown.

1. List **four specific pharmacological options** for termination of her seizure, including doses. (4 marks)

2. List five differential diagnoses for her prolonged seizure. (5 marks)

Candidate initials: _____

3. List five **serious complications** of status epilepticus. (5 marks)

Candidate name: _____

PAH 2016.1 trial SAQ paper

PART 3

Questions 19 - 27

1 hour

Candidate initials: _____

SAQ 19 (double question)

A 26 year old woman presents with 3 days of lethargy and epigastric pain. She is 28 weeks pregnant.

Her vital signs are:

Temp	37.3	degrees
Heart Rate	110	beats per minute
Blood Pressure	140/90	mmHg
RR	26	breaths per minute
O ₂ Saturations	95%	room air

Her blood results demonstrate anaemia with thrombocytopenia and elevated transaminases and bilirubin. You suspect that she may have HELLP Syndrome.

Candidate initials: _____

1. List **three important differential diagnoses** for her presentation. (3 marks)

2. In addition to the findings provided, list six examination or investigative findings that would **support a diagnosis of HELLP syndrome or pre-eclampsia**. (6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

Candidate initials: _____

3. List five **life-threatening complications of pre-eclampsia** and HELLP syndrome.

(5 marks)

- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____

Whilst being assessed, the patient suffers a generalised tonic-clonic seizure

4. Describe your specific management of her seizure. Provide doses of any therapies used and state your clinical end-points (4 marks)

SAQ 20

A 40 year old woman presents to ED complaining of weakness and difficulty walking. On initial assessment she is found to have loss of power in both legs, but normal upper limb and cranial nerve function.

1. List 3 key differential diagnoses you would consider for her presentation. For each differential, provide supportive historical and/or examination features. (9 marks)

Differential diagnosis	Supportive Historical and Examination Features

Candidate initials: _____

You decide to perform a lumbar puncture as part of your workup.

2. Outline the **key aspects of consent** as they apply in this situation. (3 marks)

SAQ 21

Your registrar has called you to resus to help with a patient. An 18 year old male presented in diabetic ketoacidosis, complicated by a prolonged generalised seizure. He has been intubated for airway protection and is currently being sedated and mechanically ventilated, awaiting ICU review. His weight is 80kg.

A blood gas is provided in the **PROP BOOKLET**.

1. Complete the following table for calculations that can be made from the above blood gas. (10 marks)

Variable	Formula Used	Result	Clinical Implication in this case
Expected CO ₂			
A-a gradient			
Anion Gap			
Delta Ratio			
Corrected Sodium			

SAQ 22

You are notified by the public health unit of an impending aircraft arrival from West Africa. A suspected outbreak of Ebola Virus Disease (EVD) amongst health care workers has led to a large scale air evacuation. Your hospital is set to be one of several who will accept arrivals from this flight. The flight is scheduled to arrive in the next few hours.

1. **List and justify the different stakeholders** you would engage in your strategy for managing the possible surge of EVD patients.

(5 marks)

Candidate initials: _____

2. List the key principles of managing patients with suspected Ebola Virus Disease in the Emergency Department.

(4 marks)

You are told that the plane has landed and 10 patients are en route to your hospital. Your department is currently full with many patients awaiting admission or ward bed allocation.

3. List four strategies you might use to **prepare your department** for these arrivals.

(4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

SAQ 23

A 38 year old man presents with rapid palpitations for 30 mins. He feels lightheaded but denies any chest pain. ECG demonstrates a wide-complex tachycardia.

1. **List six ECG findings** that would support a diagnosis of Ventricular Tachycardia (VT)
(6 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

(6) _____

2. List four features you would seek on **history** that would support a diagnosis of VT
(4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

Candidate initials: _____

You diagnose Ventricular Tachycardia and elect to cardiovert the patient electrically.

3. State four key steps you would undertake in electrically cardioverting this patient in ED. Be specific with any therapies used. (4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

Candidate initials: _____

SAQ 24

An 18 year old girl is brought to ED after a collapse. She has a history of anorexia nervosa.

Her ECG is provided in the **PROPS BOOKLET**.

1. What is the **most important** abnormality shown on her ECG? (1 mark)
-

2. List one other associated abnormalities present on her ECG (1 mark)
-

Candidate initials: _____

3. State four **key investigations** you would perform in the ED on this patient. Provide your rationale for each investigation. (8 marks)

Investigation	Rationale

You explain to the patient that she will need to be admitted for further treatment and to address her eating disorder. She tells you she is going to discharge against your advice. Her parents plead with you to keep her in hospital “for her own good”.

4. List the conditions would need to be present for you to be able to **detain and treat her against her expressed wishes?**

(4 marks)

(1) _____

(2) _____

(3) _____

(4) _____

SAQ 25

A 3 year old boy with normal developmental milestones is brought in by his mother, who tells you that he has stopped walking on his right leg for the last 24 hours.

On initial examination, the child appears unsettled and will not walk or bear weight on his right leg.

You are worried the child may have septic arthritis of the hip joint.

1. List five important alternate differential diagnoses. (5 marks)

2. List four investigations that may aid in confirming or excluding septic arthritis as the cause of this child's presentation. Provide rationale for each investigation.(8 marks)

Investigation	Rationale

Candidate initials: _____

Your assessment indicates that septic arthritis is unlikely. The child is still not weight bearing but appears well and comfortable.

3. List five criteria that need to be met to **safely discharge this child**. (5 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

SAQ 26

A 50M presents with central chest pain radiating through to his back for 30 minutes. He is sweaty and pale and agitated. He has a background of hypertension for which he has not been treated

You are considering a diagnosis of a thoracic aortic dissection.

1. List three specific examination findings that would support a diagnosis of thoracic aortic dissection (3 marks)

(1) _____

(2) _____

(3) _____

2. For each of the following investigative modalities, indicate advantages and disadvantages **specific** to thoracic aortic dissection. (8 marks)

INVESTIGATIVE MODALITY	ADVANTAGE(S)	DISADVANTAGE(S)
CT Aortogram		
Trans Thoracic Echocardiogram		

SAQ 27

Your registrar has come to see you for help with a patient. They are seeing a 2 year old boy, who was brought to ED by their parent after they fell off the playground equipment at the park, hitting their head.

1. List five **accepted clinical indications** for CT Brain imaging for this child.(5 marks)

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Candidate initials: _____

The child appears well and interactive, with a forehead abrasion but no other injuries. You are told the child had one vomit after the fall, but is now tolerating fluids without intervention.

Despite your registrar's reassurances, the child's parent is demanding a CT scan.

2. Outline the key components of your response to this parent. (5 marks)

Candidate name: _____

Department of
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FELLOWSHIP TRIAL EXAMINATION
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SHORT ANSWER QUESTIONS

PROPS

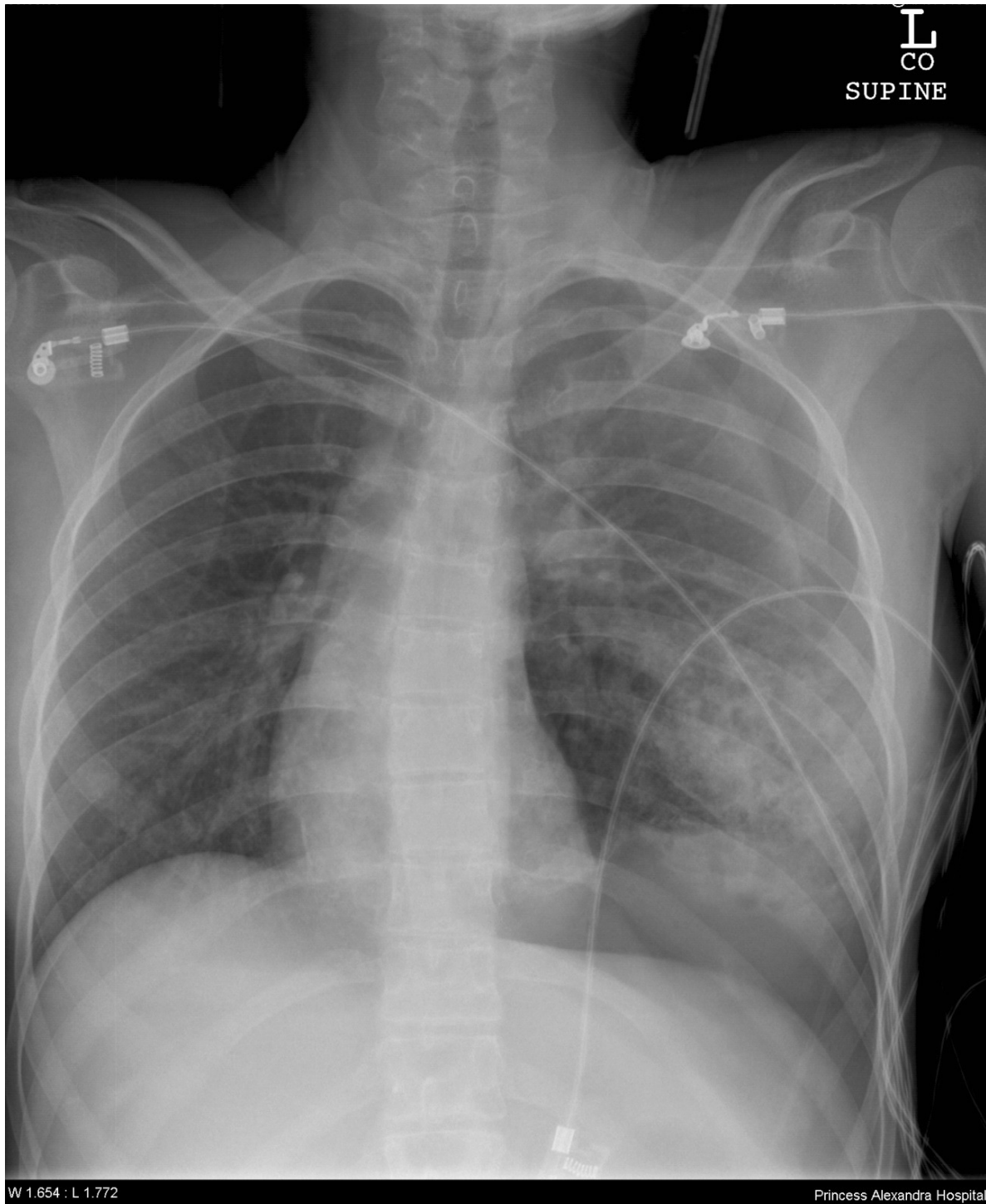
BOOKLET

Candidate initials: _____

SAQ 1

A 25 year old woman has been brought to the ED after a high speed head-on motor vehicle accident.

Her initial chest x-ray is given below.



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SAQ 1 (continued)

The patient has undergone CT scanning to delineate her injuries.

A slice from her CT head is provided.



SAQ 2

A 30 year old man has presented to the ED with a painful, swollen left foot after jumping over a high fence. There are no other injuries.

His x-rays are provided.



SAQ 3

A 41 year old itinerant alcoholic has been brought to the ED with severe epigastric abdominal pain and vomiting.

His arterial blood gas, taken on room air, is provided.

	Result	Units	Reference Range
pH	7.17		(7.35 – 7.45)
pCO ₂	30	mmHg	(35 – 45)
pO ₂	98	mmHg	(80 – 100)
HCO ₃	11	mmol/L	(18 – 26)
Na	117	mmol/L	(135 – 145)
K	3.5	mmol/L	(3.2 – 4.5)
Cl	64	mmol/L	(100 – 110)
Ca (ionised)	0.74	mmol/L	(1.15 – 1.32)
Lactate	8.1	mmol/L	(0.5 – 2.2)
Glucose	34.2	mmol/L	(3.0 – 7.8)

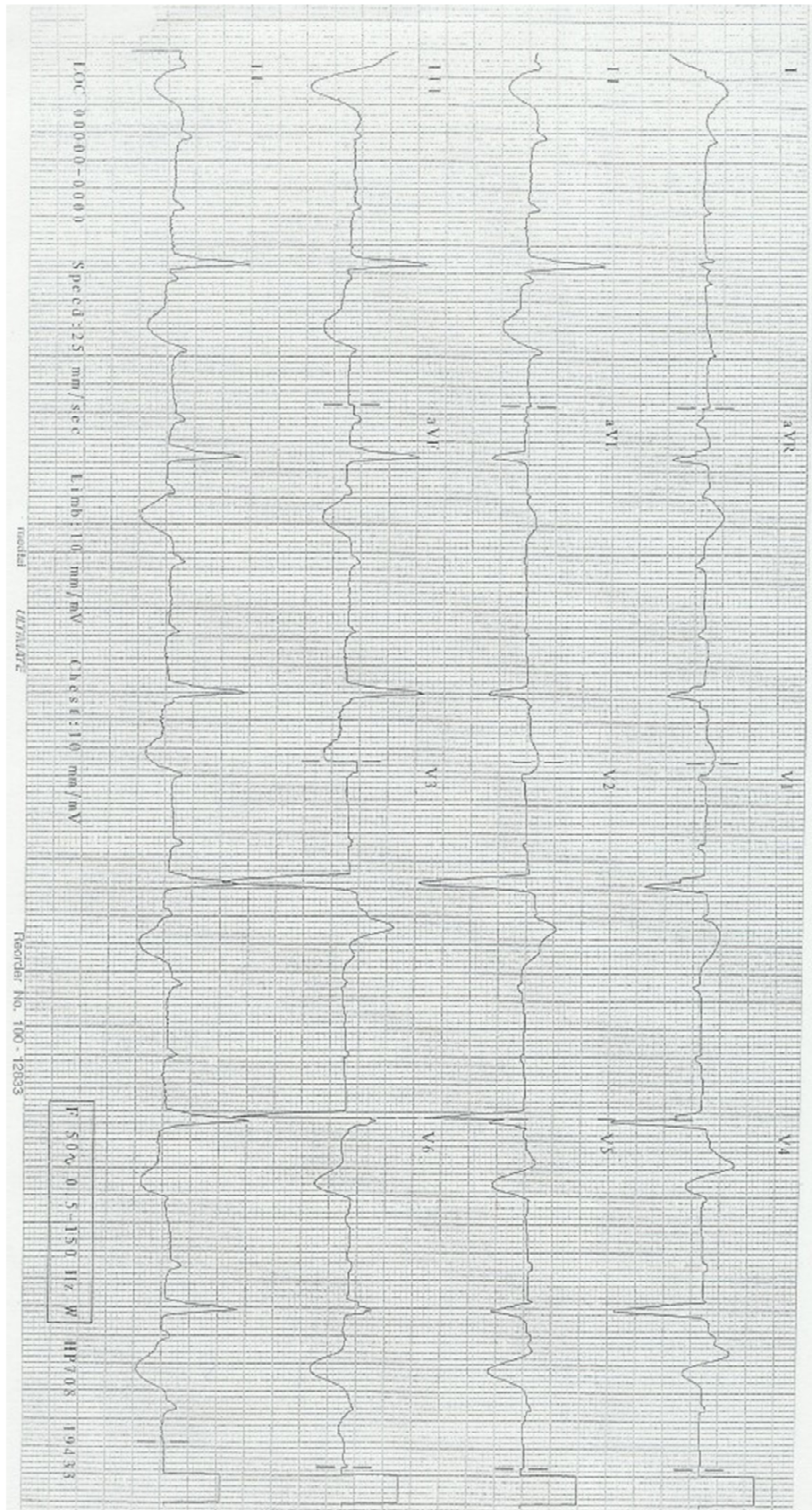
Candidate initials: _____

SAQ 4 – NO PROP

SAQ 5 – NO PROP

SAQ 6

A 70 year old man has presented to the ED after a syncopal episode.



Candidate initials: _____

SAQ 7 – NO PROP

SAQ 8 – NO PROP

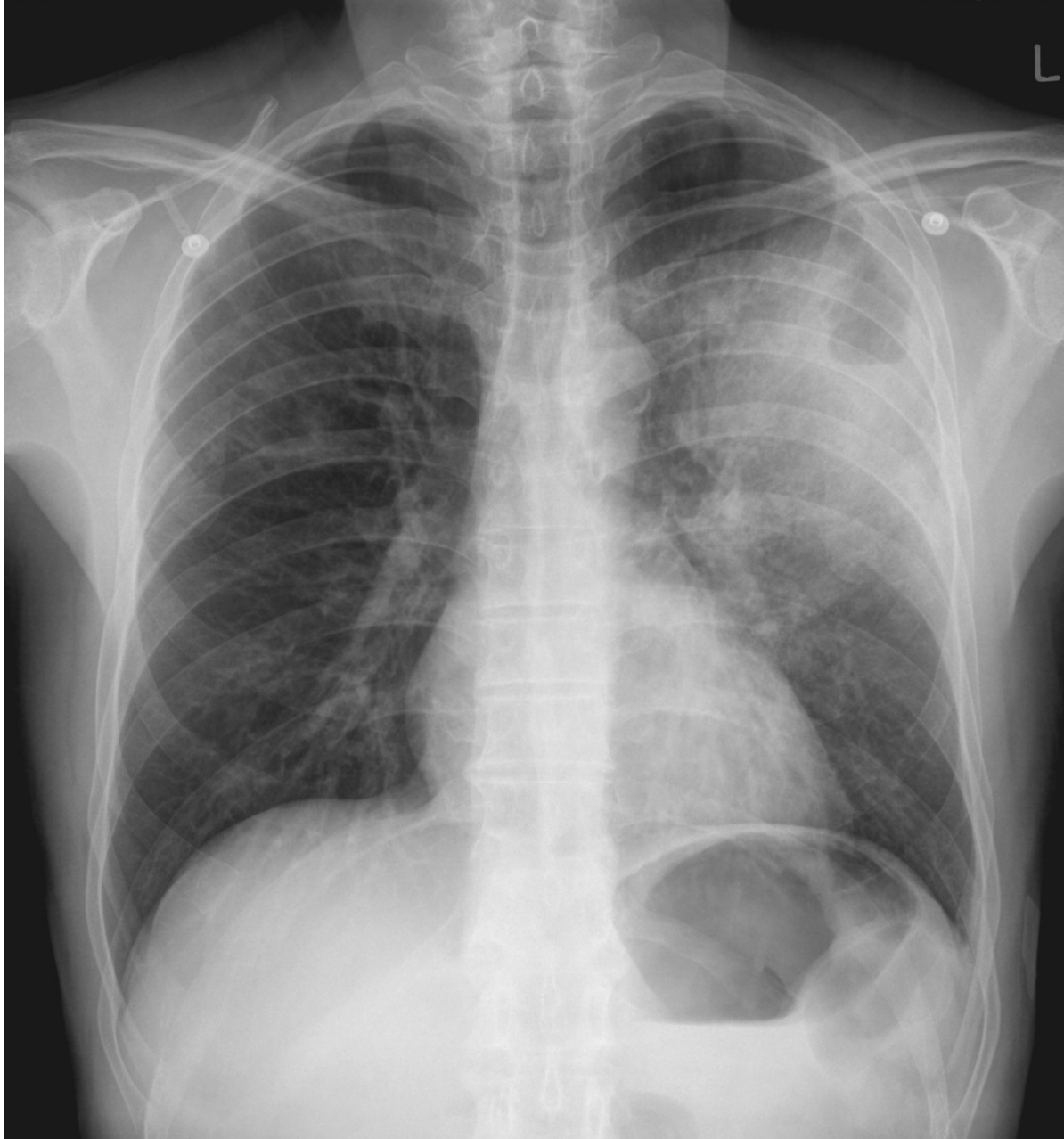
SAQ 9 – NO PROP

Candidate initials: _____

SAQ 10

A 65 year old man has presented to the ED with shortness of breath.

His chest x-ray is provided.



Candidate initials: _____

SAQ 11

A 75 year old man has been brought to the ED from his high level care nursing home with abdominal pain.

His abdominal x-ray is provided.



Candidate initials: _____

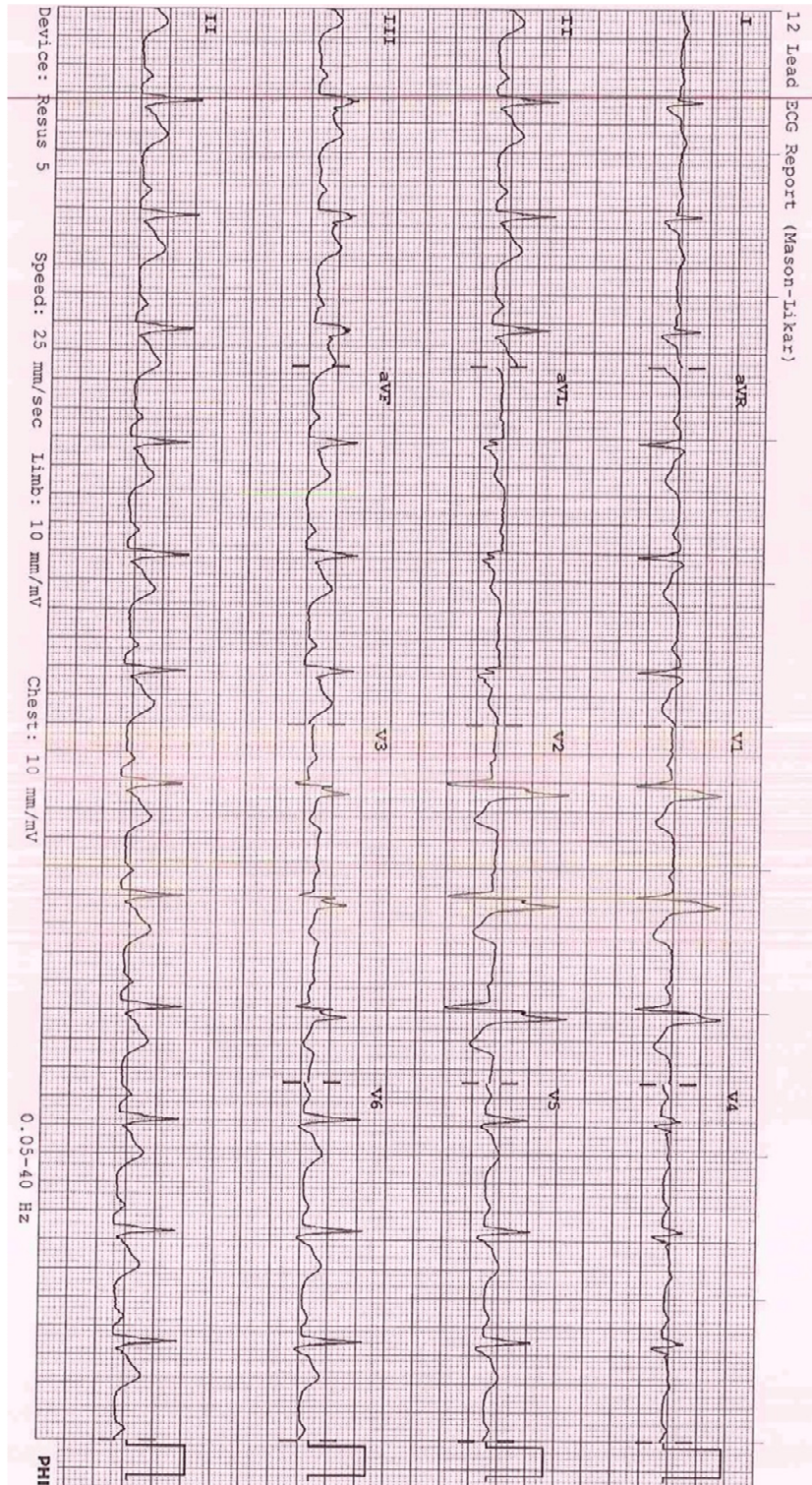
SAQ 12 – NO PROP

SAQ 13

A 56 year old woman has presented to your rural ED with 1 hour of central chest pain. The nearest tertiary centre is 3 hours away.

Her significant history is a myocardial infarction 2 years ago.

Her ECG is provided.



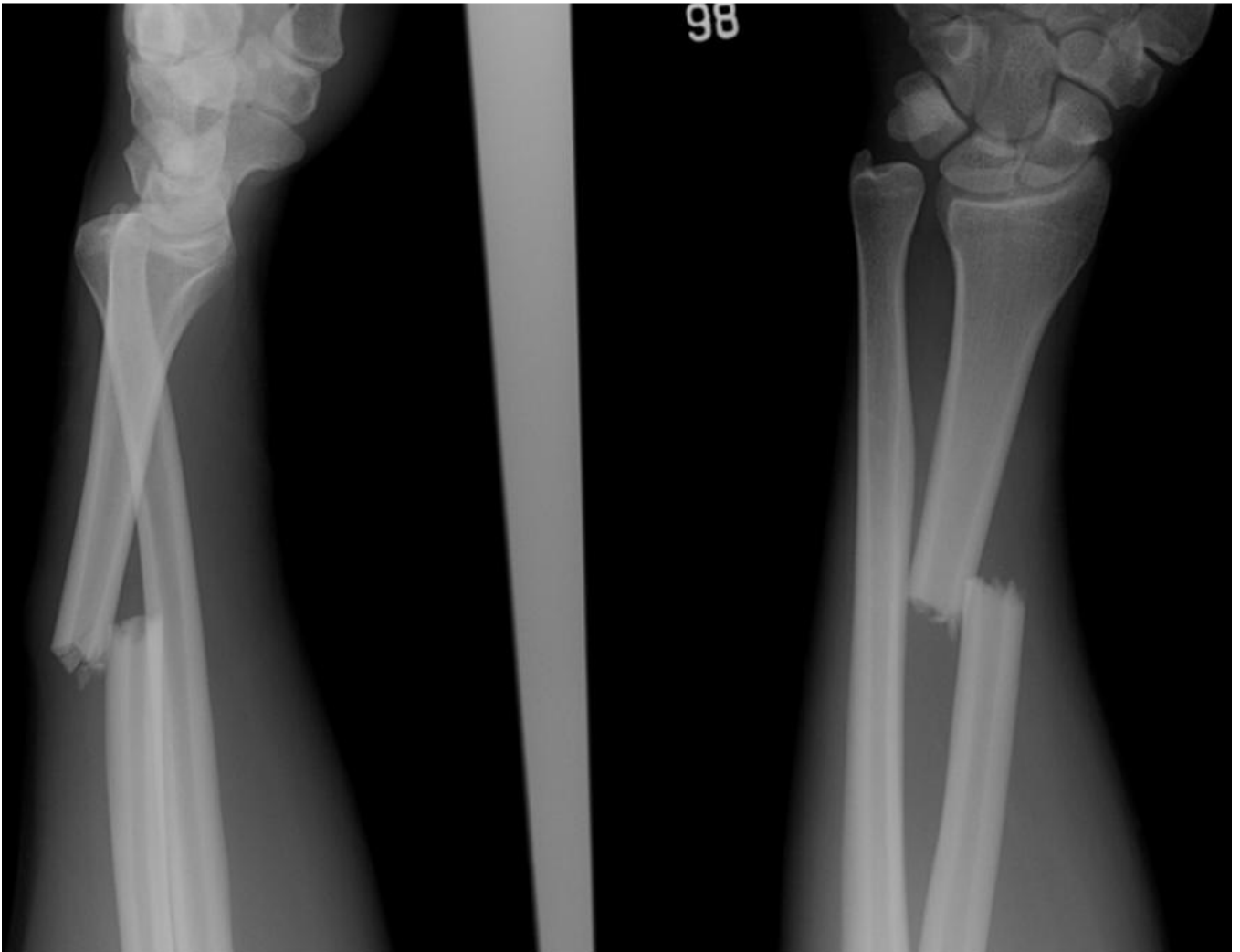
Candidate initials: _____

SAQ 14 – NO PROP

SAQ 15

A 20 year old man has presented to the ED after falling off a wall on to his right hand.

The x-rays of his right forearm are provided.

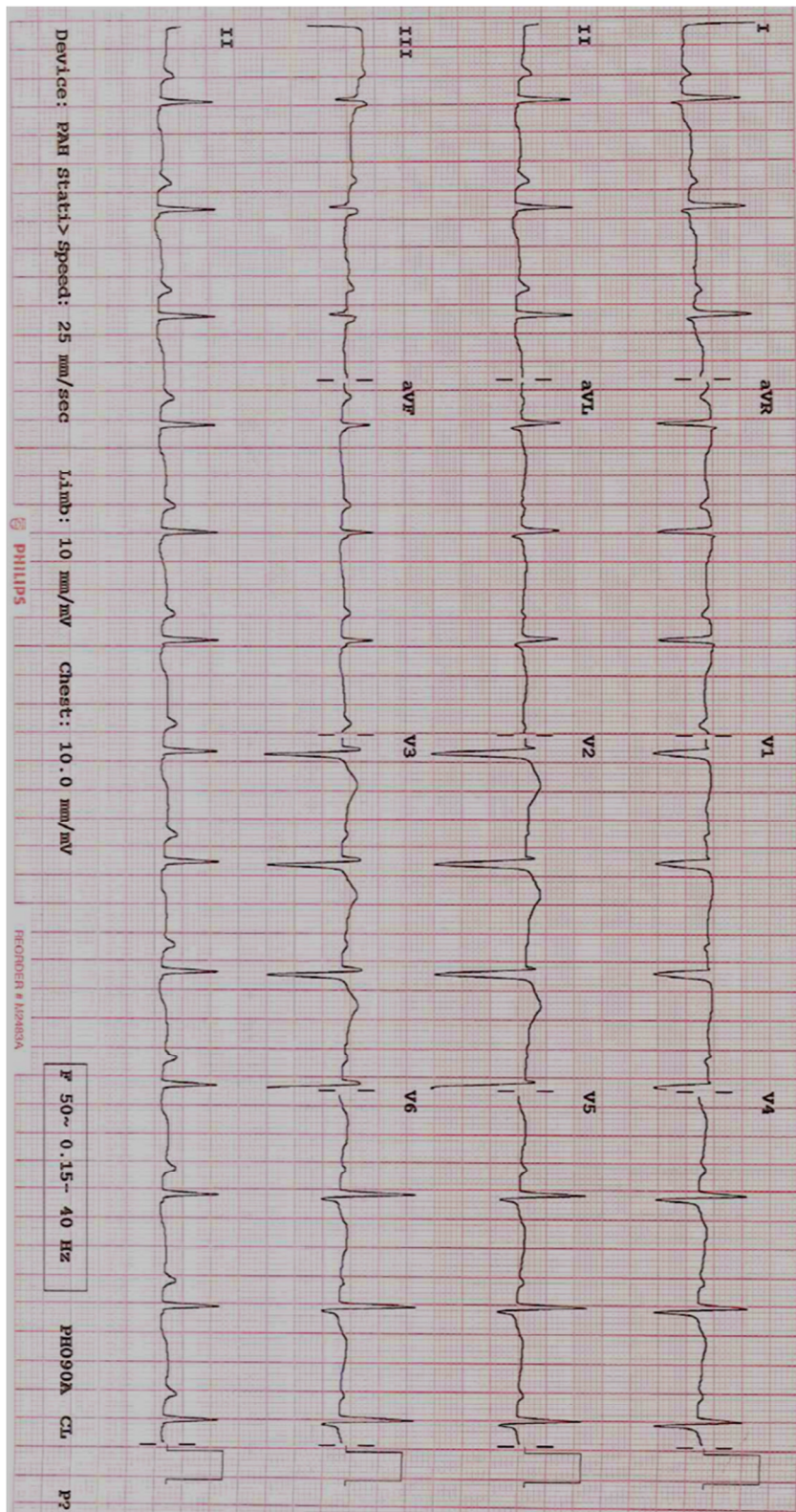


Candidate initials: _____

SAQ 16

A 36 year old man with a history of schizoaffective disorder has presented following a large overdose of citalopram.

His ECG is provided.



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Candidate initials: _____

SAQ 17

A 25 year old woman has presented to the ED with a painful left eye.

Her clinical photograph is provided.



Candidate initials: _____

SAQ 18 – NO PROP

SAQ 19 – NO PROP

SAQ 20 – NO PROP

SAQ 21

Your registrar has called you to resus to help with a patient. An 18 year old male (body weight 80kg) presented in diabetic ketoacidosis, complicated by a prolonged generalised seizure. He has been intubated for airway protection and is currently being sedated and mechanically ventilated, awaiting ICU review.

An arterial blood gas, taken with FiO₂ 1.0, is provided.

	Result		Reference
pH	7.02		7.35-7.45
PCO ₂	60	mmHg	30-40
PO ₂	200	mmHg	60-100
HCO ₃	11	mmol/L	22-31
BE	15		-3 – +3
Hb	155	mmol/L	120-165
Na	125	mmol/L	135-145
K	6.5	mmol/L	3.5-5.0
Cl	86	mmol/L	98-110
Gluc	35	mmol/L	3.5- 5.5
Lactate	2.5	mmol/L	<2

Candidate initials: _____

SAQ 22 – NO PROP

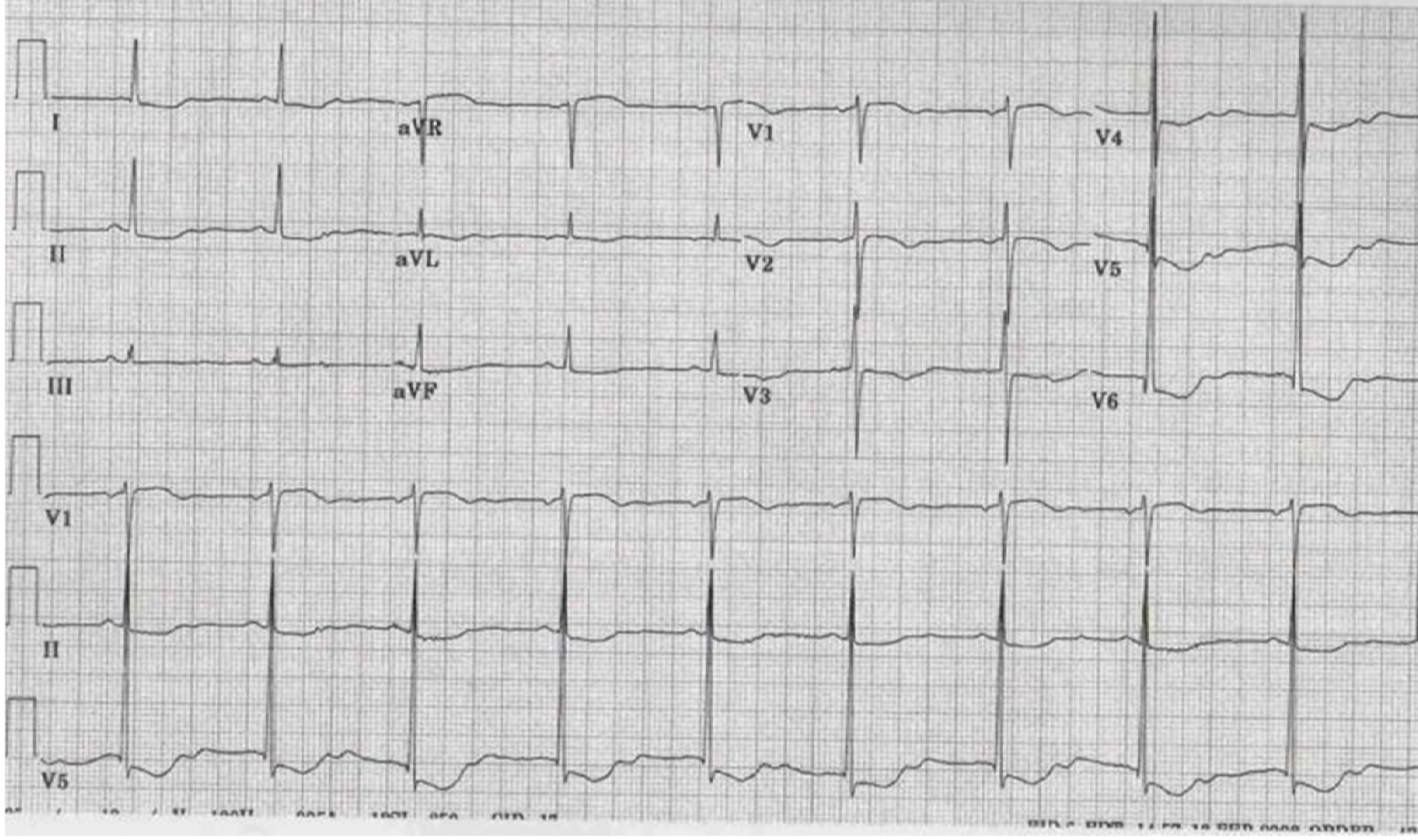
SAQ 23 – NO PROP

Candidate initials: _____

SAQ 24

An 18 year old girl is brought to ED after a collapse. She has a history of anorexia nervosa.

Her ECG is provided.



Candidate initials: _____

SAQ 25 – NO PROP

SAQ 26 – NO PROP

SAQ 27 – NO PROP