

FEx Net 2022 Collated SAQs:

Toxicology Questions

1. Carbamazepine
2. Citalopram
3. Digoxin
4. Diltiazem
5. Elderly
6. Eucalyptus Oil
7. GHB
8. Insulin
9. Iron
10. Iron
11. Iron
12. KCL
13. LAST
14. LAST Paeds
15. Lithium
16. Met Hb
17. Methamphetamine
18. Paracetamol
19. Paracetamol Liquid
20. Paracetamol SR
21. Polypharmacy
22. Polypharmacy
23. Polypharmacy
24. Polypharmacy
25. Polypharmacy
26. Quetiapine
27. Salicylate
28. Sodium nitrite
29. TCA
30. Toxidromes
31. Unknown
32. Unknown
33. VBG
34. VBG
35. Verapamil

Question 1 (17 marks)

A 30-year-old 90kg lady presents to your emergency department having taken a poly-pharmacy overdose including Panadeine Forte, carbamazepine and temazepam. You are considering treating her with activated charcoal (AC).

- i. List 4 general contraindications for this therapy (4 marks)

After a short period, she becomes drowsy, tachycardic (120 bpm) and hypotensive (85/43 mmHg). Further history reveals that she has taken up to 9g of carbamazepine.

- ii. List 4 investigations that should be performed in this patient (4 marks)

- iii. List 5 clinical features you would expect from a significant carbamazepine overdose (5 marks)

- iv. During your management, the patient has a generalized tonic-clonic seizure. List 4 conditions that should be excluded (4 marks)

Question 2 (14 Marks)

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

His ECG is provided below

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

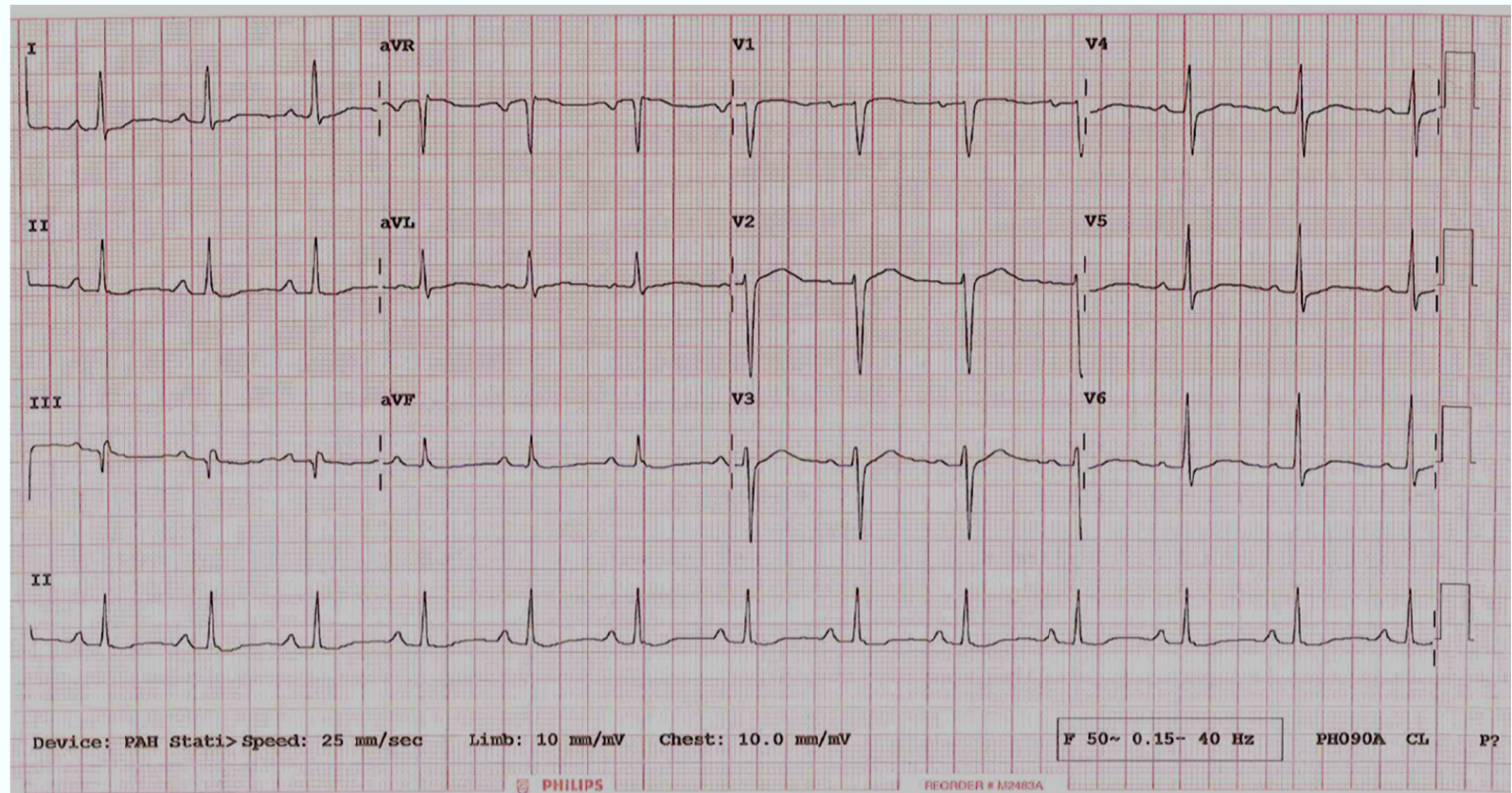
Rate:

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)



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

Question 3 (13 marks)

An 18 year old female presents to ED after an ingestion of 200 x 62.5mcg digoxin tablets. She has no past medical history of note and weighs 65kg.

- i. What is the potential lethal dose of digoxin (1 mark)

- ii. List the clinical features of ACUTE digoxin toxicity (3 marks)

- iii. List 3 relevant investigations you would perform in this patient (3 marks)

iv. List the indications for the use of digoxin immune Fab (Digibind) (5 marks)

v. What dose of digoxin immune Fab would be required for this patient (1 mark)

Question 4 (16 Marks)

A 60 year old male is brought to your Emergency Department following an intentional overdose. The ambulance crew report that he has ingested 25 Diltiazem XR 180mg tablets 5 hours ago.

His vital signs are:

HR	60	Sats	99% RA
BP	120/67	Temp	36.7 °C
RR	20	BSL	6.4

Questions:

1- List 4 factors associated with significant toxicity following calcium channel blocker poisoning?

(4 Marks)

2- List 4 clinical features that may occur with significant calcium channel blocker toxicity. (4 Marks)

3- Several hours later the patient becomes agitated and clammy. He is being managed in a Resus area with non-invasive monitoring.

His vital signs now are:

BP 87/40
HR 40
Sat 93% on RA
GCS 15/15

List in a step-wise approach your management of this patient. (8 Marks)

Question 5 (13 marks)

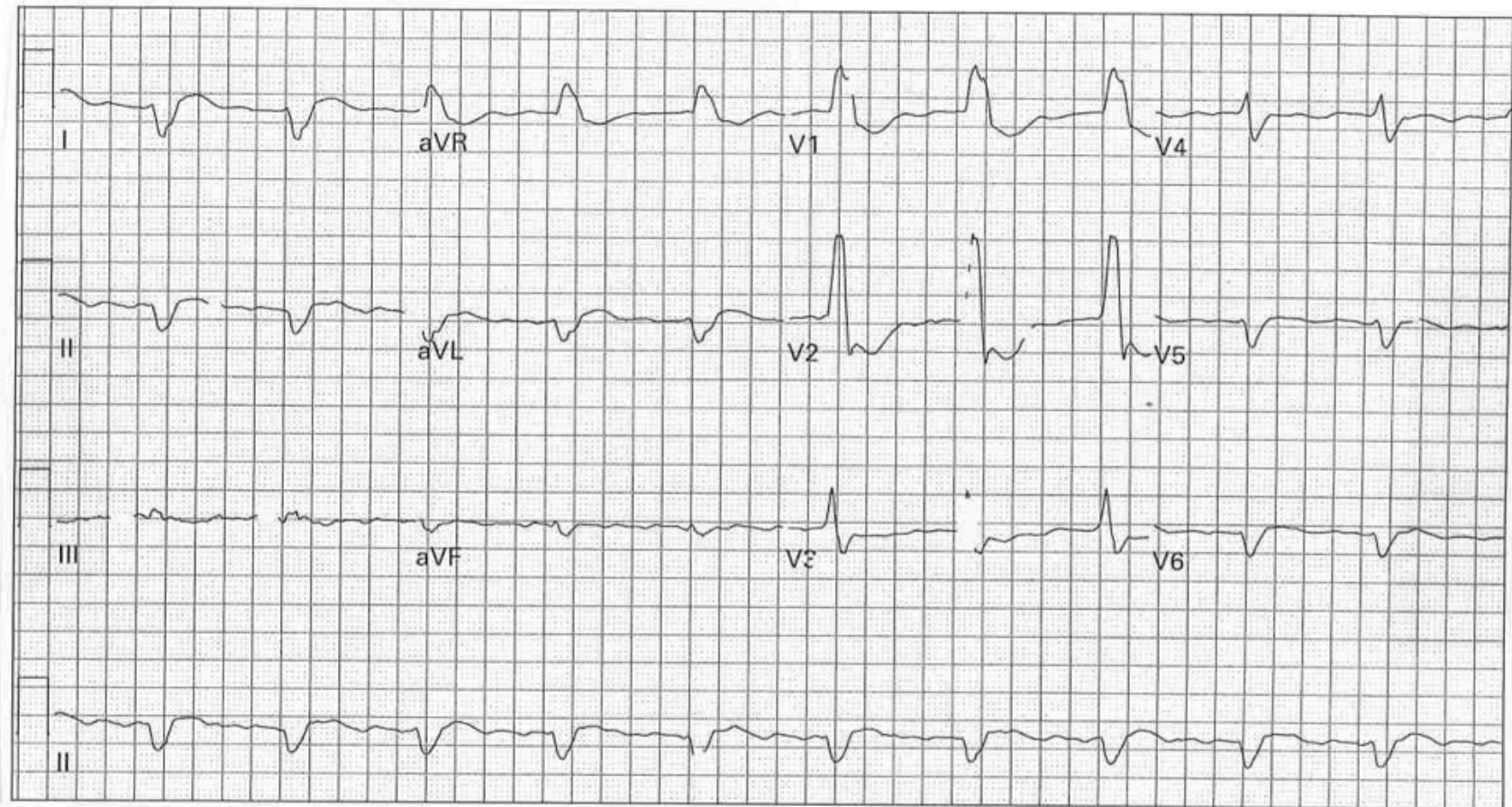
An 83 year old man presents with a 2 week history of lethargy, anorexia and dehydration. He has a past history of atrial fibrillation.

An ECG is obtained at triage.

- i. Describe the key features of the ECG (3 marks)

AN ECG IS SHOWN below

- ii. List 3 possible causes of these ECG abnormalities (3 marks)



His blood results show

K 6.4 mmol/L

Urea 20 mmol/L

Cr 200 μ mol/L

Digoxin 3.0 nmol/L

His HR has dropped to 30 with a SBP 100.

- iii. List 5 treatment steps (5 marks)

- iv. Briefly explain the controversy surrounding the use of intravenous calcium in this setting (2 marks)

Question 6 (12 marks)

A 4 year old girl presents to your ED after being found next to an empty vaporiser bottle containing 100% eucalyptus oil. On arrival she has the following vital signs:

- Heart rate 120 / min
- BP 98 / 60 mmHg
- RR 26 / min
- Sat 94% (Room
- Temp Air) 36.1°C

(i) List three (3) sequelae of poisoning from 100% eucalyptus oil (3 marks)

(ii) State four (4) key priorities in the acute management of this patient (4 marks)

(iii) List the five (5) components of a general toxicology 'risk assessment' (5 marks)

Question 7 (12 Marks)

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

Question 8 (10 Marks)

A 25 year old man has been taken to the ED after an overdose of insulin 30 minutes ago.

1. List 4 features of your toxicological history. For each, state the relevance to your management. (8 marks)

Historical feature	Relevance to management

The patient is hypoglycaemic and responds to a 25mL intravenous bolus of 50% dextrose.

He is subsequently alert, with normal vital signs.

2. List 2 steps, with end-points in your management of his overdose. (2 marks)

1) _____

2) _____

Question 9 (12 marks)

A 23-month old boy is brought in by his mother after ingesting an unknown quantity of her iron tablet thirty minutes ago. The child was found with 3 tablets remaining from a bottle that was previously around half full.

a). Complete the following table for the dose-related risk assessment of iron (4 marks)

Elemental iron dose (mg/kg)	Effect

One hour later, the child starts vomiting profusely and you are concerned he has had a significant ingestion of iron.

b). Complete the following table listing four (4) investigations you would perform and the corresponding result that would confirm significant iron ingestion. (4 marks)

Investigation performed	Result confirming significant ingestion

c). List two (2) methods of decontamination that are used in iron overdose and state when they would be used. (2 marks)

You consult with the on-call toxicologist who recommends starting chelation therapy.

d). State the drug and dose of the chelation therapy used in significant iron toxicity. (1 mark)

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Question 10 (16 marks)

A 2 year old boy has ingested iron tablets. He presents with his mother and he currently seems well. You calculate that he has possibly ingested 90mg/kg elemental iron.

- i. Complete the table (4 marks)

Elemental iron dose	System involved/Effects
<20mg/kg	
20-60mg/kg	
>60-120mg/kg	
>120mg/kg	

- ii. Complete the table of classical stages of iron toxicity (5 marks)

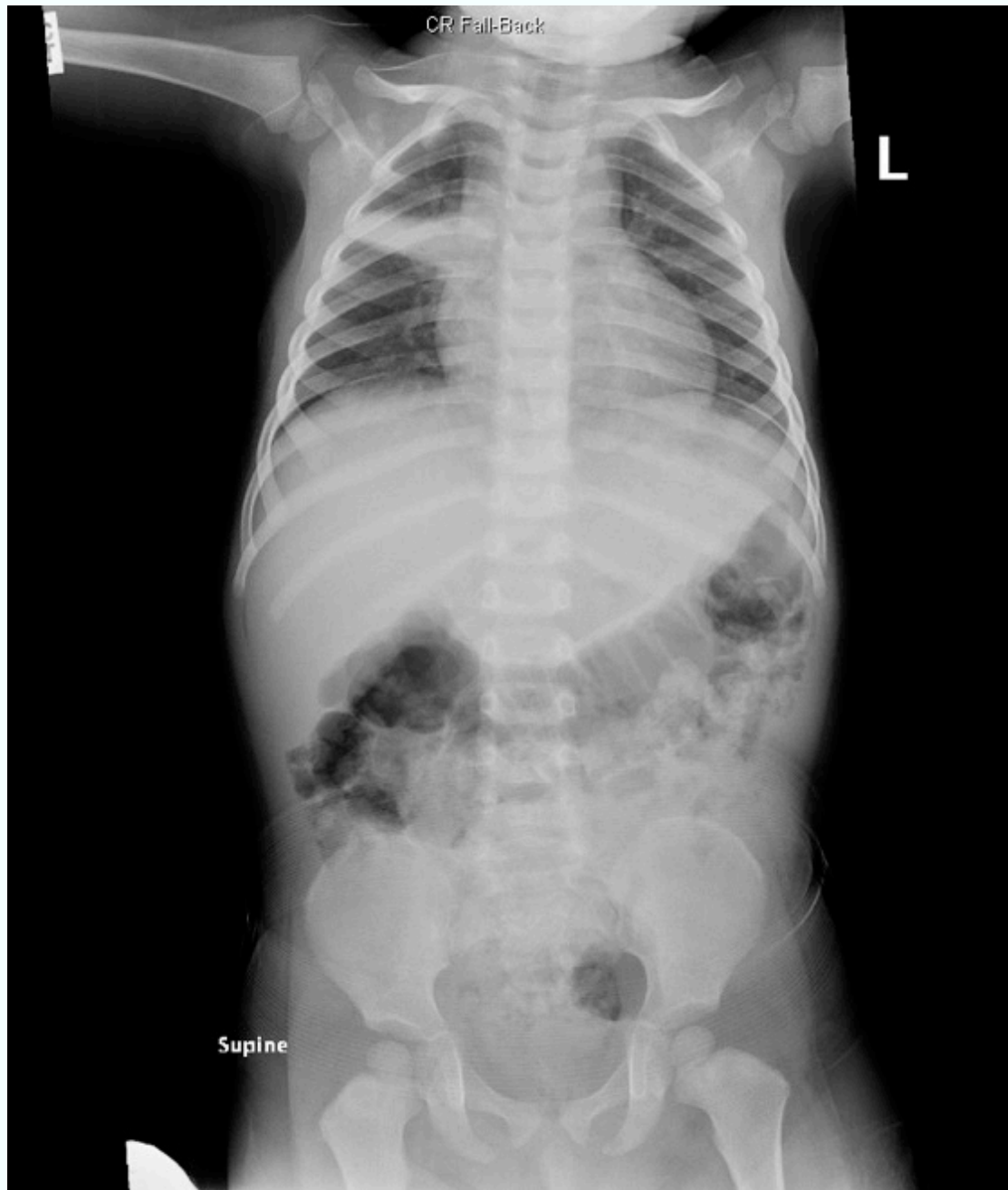
Time post ingestion	Clinical features
0-6 hours	
6-12 hours	
12-48 hours	
2-5 days	
2-6 weeks	

- iii. You obtain an Xray. List 2 relevant findings (2 marks)

AN XRAY IS SHOWN below

- iv. How does this xray alter your management plan (2 marks)

- v. List 3 blood tests that you will order and your reasoning for doing so (3 marks)



Question 11 (14 marks)

A 65 year old lady has been brought to ED after taking an overdose of iron tablets in a suicide attempt.

1. List 5 key components of your toxicological risk assessment of the overdose. (5 marks)

(

2. Complete the table for assessment features (2 each for history, examination and investigations) that would be most predictive of a potentially lethal iron ingestion. (6 marks)

Assessment feature	Finding suggesting potentially lethal ingestion
HISTORY	
EXAMINATION	
INVESTIGATION	

- 3. List 2 methods of decontamination that might be useful in this patient. (2 marks)**

(1) _____

(2) _____

- 4. Name the specific therapy for severe iron toxicity. (1 mark)**

Question 12 (14 marks)

A 68 year old female presents to your tertiary emergency department intoxicated, 2 hours after deliberately ingesting 120 x 600mg tablets of slow release potassium. She has been vomiting and has a GCS of 14 (confused). An initial VBG is performed.

pH	7.32	(7.35-7.45)
pCO ₂	35 mmHg	(35-38)
Lactate	5 mmol/L	(0.6-1.5)
Creat	110 mcmol/L	(45-90)
BSL	6.3 mmol/L	(3.9-5.8)
Na	133 mmol/L	(136-146)
K	6.1 mmol/L	(3.9-5.2)
HCO ₃	18 mmol/L	(21-28)
BE	-4 mmol/L	(-1.5-3.0)

- i. Outline your risk assessment with regard to her ingestion (4 marks)

- ii. List and briefly describe 2 specific toxicological interventions that may be used to manage her potassium ingestion (2 marks)

- iii. List an advantage and disadvantage for each of the methods listed above (4 marks)

- iv. List 4 other management priorities (4 marks)

Question 13 (12 Marks)

Your Registrar has asked you to review a 28-year-old man who is having a reduction of his fractured left radius performed under Bier's block using IV Prilocaine. Fifteen minutes into the procedure he is complaining of shortness of breath and light-headedness.

On examination, he appears cyanotic with oxygen saturation of 85% on pulse oximetry.

1. List 3 differential diagnoses for his deterioration? (3 marks)

2. List 2 investigations you would do in this patient with justification of how it will aid in your diagnosis? (2 marks)

Investigation	Justification

3. List 3 treatment options for the most likely diagnosis? (3 marks)

4. List 4 contraindications, in any patient, to performing a Bier's Block .

(4 marks)

Question 14 (16 marks)

An eight (8) year old boy presents with right thigh pain after falling two (2) meter out of a tree. Primary survey is unremarkable. He has obvious swelling of his right thigh, but no other apparent injuries. An XR reveals a mid-shaft femur fracture that is off-ended and significantly shortened.

As part of his management the senior registrar decides to perform a femoral nerve block with ultrasound guidance. They use 20ml of 0.75% Ropivacaine.

- a. What is the MAXIMUM safe dose of ropivacaine for this child with an estimated weight of 30kg? (1 mark)

- b. Outline the clinical features of local anaesthetic toxicity (6 marks)

Early symptoms	1	
	2	
Severe toxicity	1	
	2	
	3	
	4	

- c. The patient shows signs of SEVERE toxicity. List five (5) treatment options AND your reason for that option (5 marks)

Treatment option	Reason

- d. List four (4) measures to improve safety of nerve blocks in your department (4 marks)

Question 15 (14 marks)

A 50 year old female presents with chronic lithium poisoning. Investigations reveal a lithium level of 3.1 mmol/L, and serum creatinine 180 micromol/L.

- i. What is the volume of distribution of lithium (1 mark)
- ii. List 6 possible signs or symptoms of chronic lithium poisoning (6 marks)
- iii. Outline the principles of management in this patient (5 marks)
- iv. List 2 major differences between ACUTE and CHRONIC lithium poisoning (2 marks)

Question 16 (10 marks)

A 21 year old man is brought into the ED from a music festival complaining of shortness of breath and chest pain. His lips are cyanosed and vital signs are as follows:

T 36.2

P 121

BP 130/88

RR 34

SaO₂ 85% (10L/

min)



What is the likely diagnosis? (1 mark)

What is the pathogenesis of the patient's symptoms? (2 marks)

Name 4 agents that can cause this condition (4 marks)

Outline your management of this patient (3 marks)

Question 17 (19 marks)

A 28 year old male with a known history of ice abuse has been brought into your tertiary ED by ambulance having required pre-hospital sedation with intramuscular droperidol.

Vital signs are:

T	38.4 deg C
HR	128 bpm
BP	158/80 mmHg
RR	18 bpm
SaO2	100% on 6L via HM
GCS	9 (E2V2M5)

- i. Describe 5 possible causes of his presentation (5 marks)

- ii. List 5 investigations you would perform and provide your reasoning (5 marks)

- iii. The patient promptly suffers a grand mal seizure. Describe your initial management, including drug doses where appropriate (5 marks)

- iv. His Na⁺ level is 116 mmol/L. Outline the initial management of his hyponatraemia and plan for the next 24 hours (4 marks)

Question 18 (12 Marks)

A 21 year old woman has been brought to the ED after an intentional overdose of paracetamol.

- 1. List 4 key factors of your history that will influence your toxicological risk assessment.**

(4 marks)

- 1) _____
- 2) _____
- 3) _____
- 4) _____

- 2. List 3 potential indications for the administration of activated charcoal in this patient.**

(3 marks)

- 1) _____

- 2) _____

- 3) _____

The patient was admitted to your short stay unit overnight to receive an infusion of N-acetylcysteine as management for a high risk ingestion.

On your review the following morning, she is looking unwell.

- 3. List 5 criteria that would warrant transfer to a service with liver transplant capabilities.**
(5 marks)

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

Question 19 **(12 marks)**

A 3-year-old boy is brought in by his mother after ingesting an unknown quantity of liquid paracetamol. He had been playing quietly in his room for 10 minutes and was found with the empty bottle that previously was around three quarters full. The time of ingestion was 30 minutes prior to presentation. The entire 200ml bottle of paracetamol contains 10g of paracetamol. The child weighs 14kg.

a). What is your approach to decontamination of this child? (1 mark)

As part of your risk assessment you calculate the possible dose of paracetamol ingested.

b). What is the threshold ingested dose of paracetamol (in mg/kg) at and above which a serum paracetamol level should be measured? (1 mark)

You decide this child DOES require a paracetamol level to be checked.

c). How long after ingestion will you check a paracetamol level in this child? (1 mark)

The child's parents are appropriately concerned for their child and want to ensure there is no further risk to the child from accidental ingestions in the home. They ask you more questions about dangerous ingestions in children.

d). List 4 medications that may be life threatening if a small child ingested one or two pills. (4 marks)

After completing the appropriate testing, you have decided this child needs treatment with N-acetylcysteine. Soon after commencing the appropriate first infusion, the child develops wide spread erythematous flushing and wheeze.

e). List 5 steps in your immediate management. (5 marks)

Question 20 (10 Marks)

A 30 year old male has presented after an intentional slow-release paracetamol overdose.

- 1. List 2 specific indications for administration of activated charcoal in this patient. (2 marks)**

(1) _____

(2) _____

After initial assessment, the patient was commenced on an N-AcetylCysteine infusion whilst awaiting results. The serum paracetamol at 6 hours is shown on the nomogram in the **PROPS BOOKLET**.

- 2. List the criteria for cessation of N-AcetylCysteine therapy in this patient. (3 marks)**

- 3. List 5 criteria for transfer to a liver transplant service in the context of hepatotoxicity from paracetamol. (5 marks)**

(1) _____

(2) _____

(3) _____

(4) _____

(5) _____

Question 21 (19 marks)

A 30 year old 90kg lady presents to your emergency department having taken a poly-pharmacy overdose including panadeine forte, carbamazepine and temazepam. You are considering treating her with activated charcoal (AC).

- i. What dose would you use if you decided to administer AC (1 mark)

- ii. List 5 general contraindications for this therapy (5 marks)

After a short period, she becomes drowsy, tachycardic (120 bpm) and hypotensive (85/43 mmHg). Further history reveals that she has taken up to 9g of carbamazepine.

- iii. List 4 investigations that should be performed in this patient (4 marks)

- iv. List 5 clinical features you would expect from a significant carbamazepine overdose (5 marks)

- v. During your management, the patient has a generalized tonic-clonic seizure. List 4 conditions that should be excluded (4 marks)

Question 22 (16 marks)

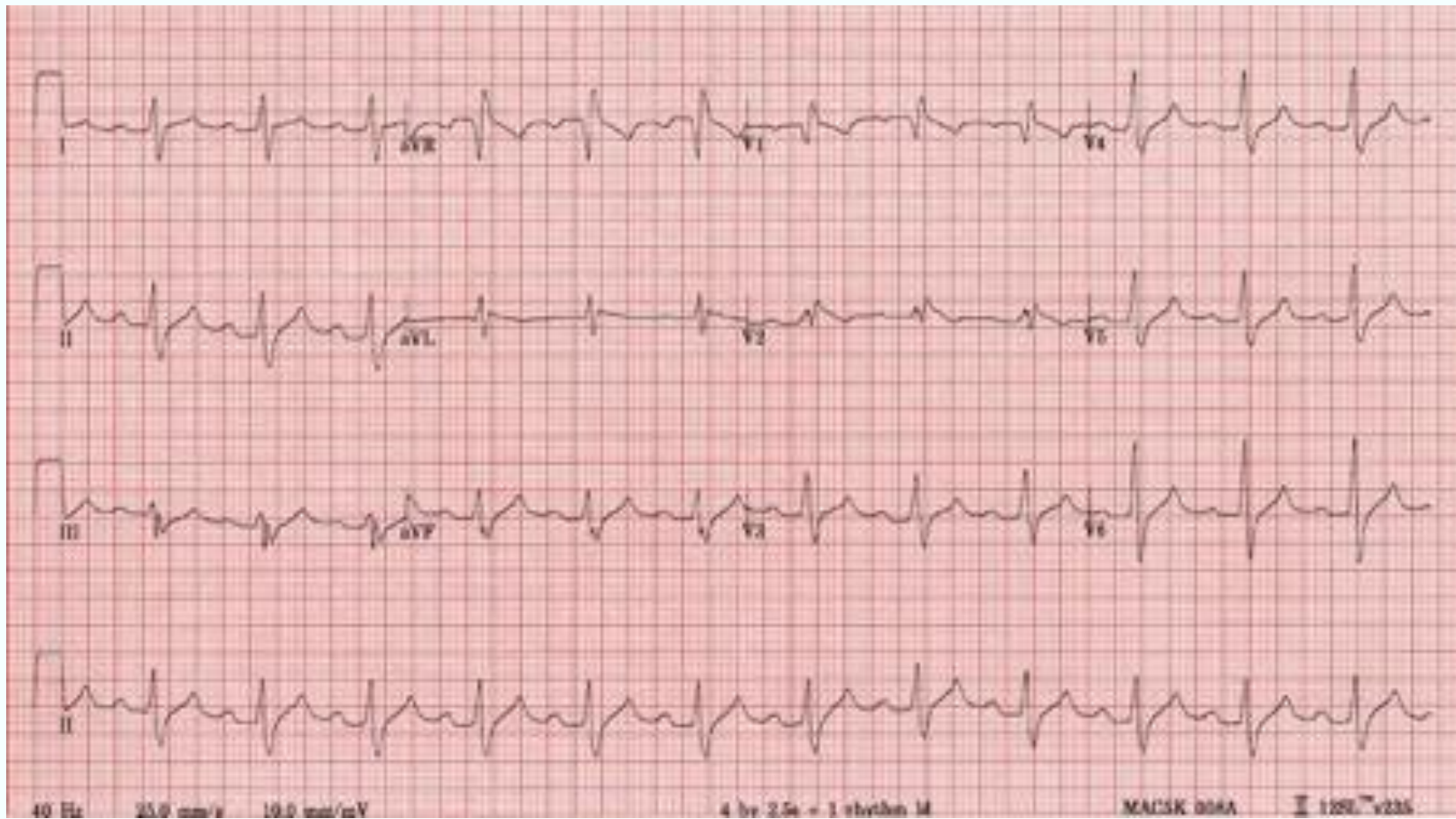
A 54 year old lady presents with alcohol intoxication. 2 hours after arrival you are asked to review her as she is increasingly drowsy.

Vital signs HR 75 bpm
 BP 102/64 mmHg
 SaO2 93% RA
 GCS 9
 Temp 36.5 deg C

- i. List 5 differentials for her condition (5 marks)

- ii. List 3 relevant findings on the ECG (3 marks)

A 12 LEAD ECG IS SHOWN BELOW



- iii. List 4 immediate life threats following a propranolol overdose and a specific treatment for each (8 marks)

Life threat	Specific treatment

Question 23 (19 Marks)

A 34 year old male is brought to your Emergency Department by the ambulance service following an intentional polypharmacy overdose.

Questions:

1- For the table below, List three common conditions and their treatments that need to be addressed in the resuscitation of a patient following an overdose?

(6 Marks)

Conditions	Treatment

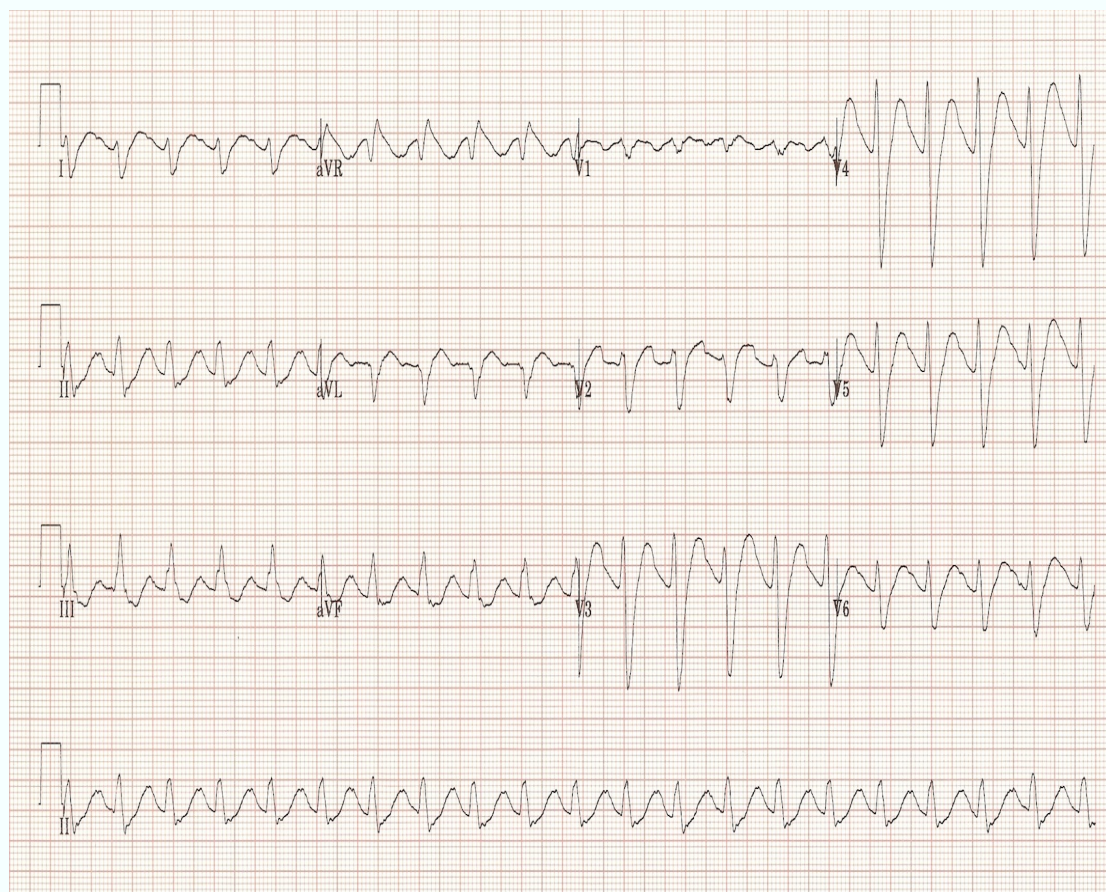
2- The patient is unconscious with nil response to vocal stimuli but with painful stimulation is withdrawing bilaterally and moaning. His respiratory rate is 8 with an obstructed pattern and saturations of 90% on room air.

What initial interventions are required to manage his low Sat?

(3 Marks)

3- Describe and interpret his ECG on the next page:

(4 Marks)



4- This patient's repeat vital signs include:

GCS 4/15 (E1, V2, M1)

HR 100

BP 75/60

RR 12

Sat 96% on a Hudson mask.

What are the priorities for this patient in the initial management?

(6 Marks)

Question 24 (18 marks)

You are the consultant working in an urban district ED. The ambulance bring in a 14 year old girl on an involuntary order after her mother found her in the bathroom with some empty pill packets.
She weighs 40kg.

Observations:

HR 105

RR 21

Sats 97% RA

BP 105/60

GCS 13/15 E3V4M6

The ambulance also bring in some empty pill packets, which were all prescribed yesterday. The missing pills include:

20 x 20mg Citalopram

20 x 300mg Quetiapine

50 x 25mg Amitriptylline

24 x 500mg/30mg Paracetamol/Codeine

- I. List four (4) key aspects of your risk assessment based on what she has taken?

(4 marks)

- II. For the table below, List three (3) key investigations that you would perform to help refine your risk assessment, including your reasoning (6 marks)**

Investigations	Reasoning

- III. What specific toxidrome would you assess this patient for? (1 mark)**

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- IV. List four (4) clinical features consistent with this toxidrome (4 marks)**

Further information

She clinically deteriorates, with GCS now 9/15 and BP

80/40

- V. List four (4) key treatments you would provide, including details: (4 marks)**

Question 25 (12 marks)

You have been tasked to retrieve a 42-year-old female from a rural base hospital to a tertiary referral centre 400km away. The estimated flight time is 75 minutes.

She was brought into ED after a polypharmacy overdose 90 minutes ago and is presumed to have ingested:

- Paracetamol 15 tablets x 500mg (7.5 grams)
- Olanzapine 25 tablets x 10mg (250mg)
- Diazepam 5 tablets x 5mg (25)

Her observations are:

SaO₂ 92%RA
 BP 100/60 mmHg
 Pulse 110 bpm
 RR 22breaths/min
 GCS 10 E2V4M4

a). State how you would manage this patient to enable safe transportation. For each decision provide a justification. (8 marks)

Decision	Justification

b). Complete the following table for the dose-related clinical effects that you would anticipate from an Olanzapine overdose. (4 marks)

Dose	Clinical features

Question 26 (12 Marks)

A 69 year old man has been brought to the ED after an overdose of an unknown quantity of quetiapine and diazepam. He was found on the floor of his apartment by his landlord. Due to a reduced level of consciousness, he has been intubated.

His blood results are shown:

Na	136	mmol/L	(135 – 145)
K	8.3	mmol/L	(3.5 – 5.1)
Cl	101	mmol/L	(100 – 110)
HCO ₃	16	mmol/L	(22 – 32)
Urea	15	mmol/L	(2.9 – 8.2)
Creatinine	285	umol/L	(64 – 108)
Glucose	7.3	mmol/L	(3.0 – 7.8)

1. List the abnormalities on the blood results, giving likely possible causes of each abnormality.
(6 marks)

2. What is the most likely clinical scenario responsible for the above blood picture? (2 marks)

3. List your management steps for his hyperkalaemia. Give doses. (4 marks)

Question 27 (10 marks)

A 42 year old man has presented to the ED after a large aspirin overdose.

1. List 5 clinical features of salicylate toxicity. (5 marks)

2. Complete the following table regarding potential management steps for this patient.

(5 marks)

Management	Indication	Dosing instructions
Decontamination		
Urinary Alkalinisation		
Haemodialysis		

Question 28 (10 marks)

A 72 year old man is brought to ED following an intentional ingestion of sodium nitrite tablets used for cleaning his dentures. He has no past medical history. On examination his airway is patent and his respiratory examination is normal.

The O₂ saturations are recorded at 85% regardless of the level of oxygen titration.

(i) List three (3) bedside investigations you would perform immediately for this patient (3 marks)

i)

ii)

iii)

(ii) State a single unifying diagnosis for this patient's presentation and one underlying condition associated with developing the condition and an increased risk of failing to respond to treatment (2 marks)

Unifying Diagnosis	
Underlying Condition	

(iii) State the treatment of choice for this presentation. (1 mark)

Treatment of Choice	
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(iv) State one (1) additional therapy used to treat this condition (1 mark)

(v) List three (3) toxic ingestions/exposures that can cause this condition (3 marks)

i)

ii)

iii)

Question 29 (14 marks)

A 23 year old woman is brought in to your emergency department following a deliberate overdose of amitriptyline approximately 1 hour ago.

Her estimated weight is 60 kg. She was prescribed 25 mg nocte 10 days ago. She is uncertain how many she took but her box of 50 is now empty.

She denies any co-- ingestion. She is presently voluntary and brought in by her parents.

Her vital signs are:

GCS 15/15

HR 110

BP 120/60

Temp 36.6

Sats 99% on RA

RR 16

BSL 6.6

1. What is your initial risk assessment? (3 marks)

2. Name and justify one (1) key investigation and two (2) other investigations you would perform? (6 marks)

Key Investigation	Reasoning

Other Investigations	Reasoning

3.

40 minutes after arriving in the emergency department, the patient has a generalised tonic-- clonic seizure.

Her vital signs are now:

GCS 3/15

HR 120/min

BP 90/50

O2 sats 98% NRBM

List your five (5) immediate management priorities, including endpoints of therapy. (5 marks)

Question 30 (20 marks)

A 32 year old male was brought in by Police and Ambulance after being found running in the streets naked. He has just finished sitting postgraduate exams and went out with his fellow candidates to celebrate. On examination, he is confused and agitated, febrile to 40°C, HR 140 bpm, BP 163/92. Patient has a history of recurrent Migraine and is taking Amitriptyline as prophylaxis.

Give 5 differentials for this patient's presentation. Each should be in a different category (5 marks)

List the Hunter Toxicity Criteria Decision Rule (5 marks)

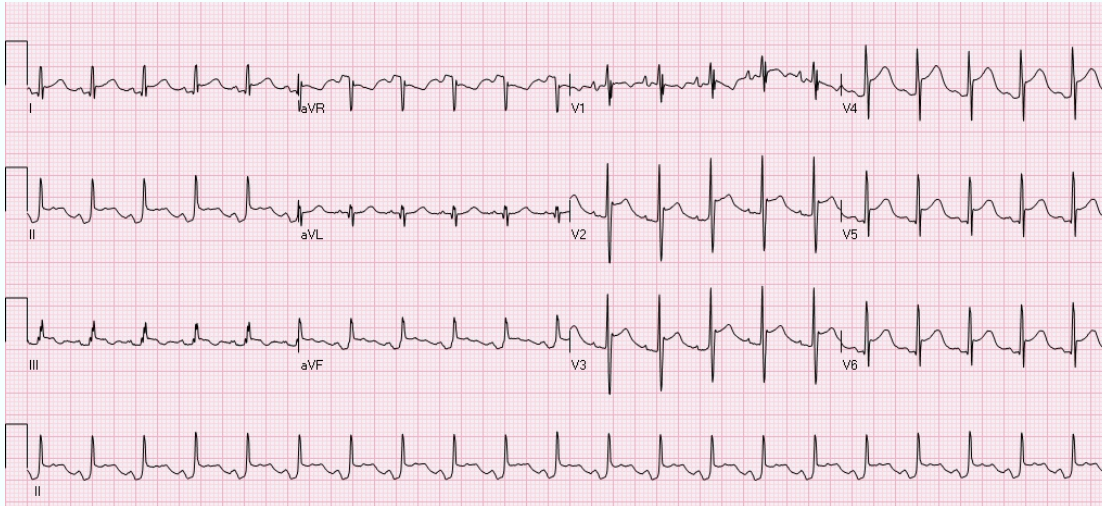
Fill in the table with respect to the different Toxidromes (10 marks)

Toxidrome	Mental status	Eyes	Lungs	Pulse rate	Bowel sounds	Bladder	Neurological
Sympathomimetic							
Cholinergic							
Anticholinergic							
Opioid withdrawal							
NMS							
Serotonin Syndrome							

Question 31 (Total 12 Marks)

A 22 year old male is brought to your emergency department following the ingestion of 'some pills' at a nightclub.

He is diaphoretetic, pale and complaining of chest pain.



1. Describe three (3) main features on his ECG

(3 Marks)

He remains GCS 15 but agitated, His vital signs are:

HR 120
BP 180/95
Sats 100% NRB.

2. List two (2) illicit drugs and their class are likely to be responsible for his presentation.
(4 Marks)

Drug class	Drug name

3. Outline your management of this patient specifically in regards to his cardiovascular status.
(5 Marks)

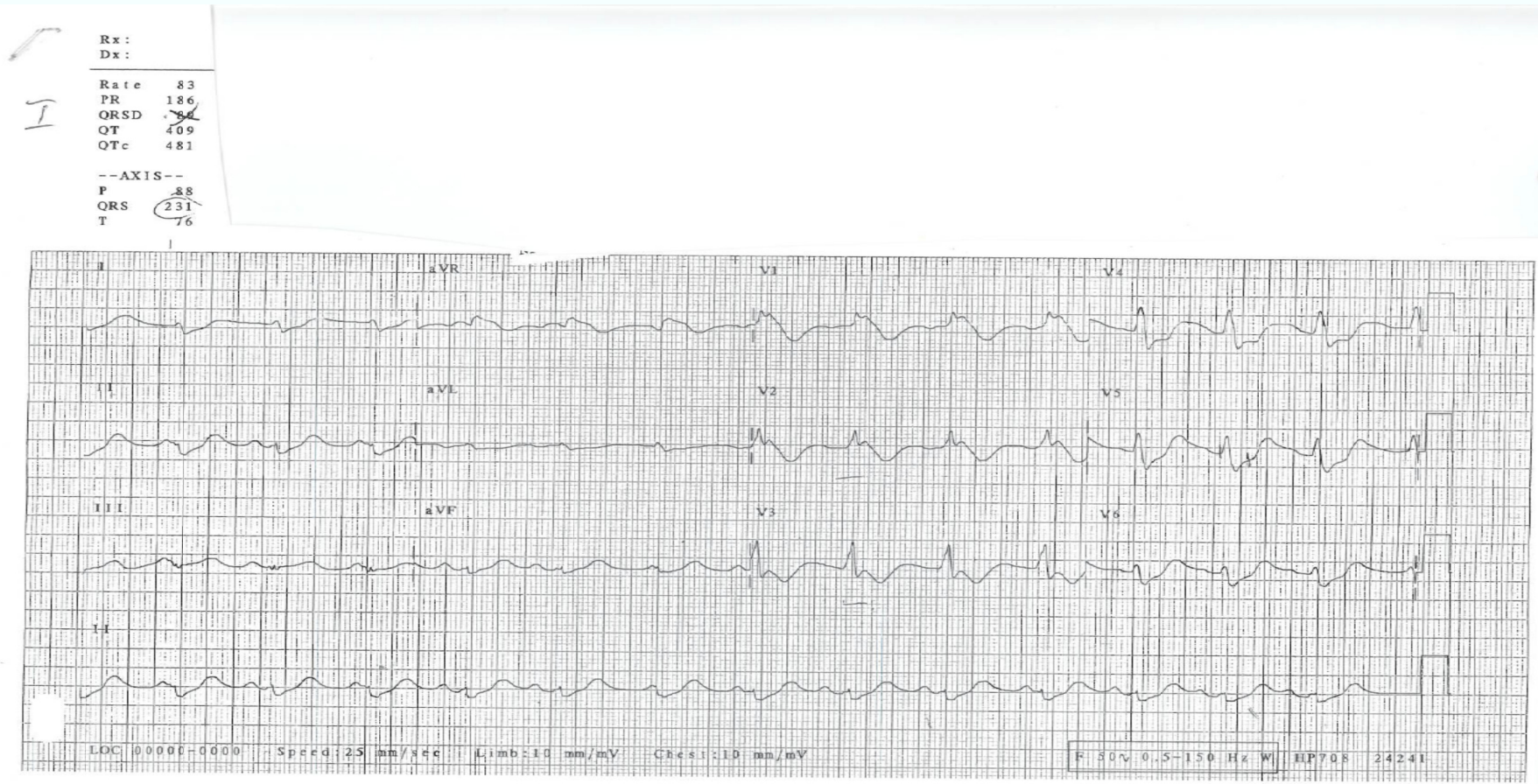
Question 32 (14 Marks)

A 35 year old woman has been brought to your hospital by ambulance. Her husband arrived home to find her unconscious on her bed. She had written a suicide note. An overdose is suspected, although no empty medication packets could be found.

Her vital signs are:

GCS	8	(E1 V2 M5)
BP	75/45	mmHg
O2 sats	99%	15L O2 via non-
Temp	36.0	rebreather degrees

An ECG is performed.



1. List the main abnormalities on the ECG (3 marks)

2. What group of drugs most commonly give this clinical picture? (1 mark)

After a brief period, the patient begins to have a generalised seizure.

3. List your initial management steps, including drugs, doses and end-points where appropriate. (10 marks)

Question 33 (22 marks)

A 23 year old male presents to a rural ED. His family are concerned that he has taken an overdose and is at risk of self harm. His blood sugar is in the normal range.

A point of care venous blood gas (VBG) sample is taken:

		(Reference ranges)
● pH	7.34	(7.35 - 7.45)
● Bicarbonate	16 mmol/L	(22 - 28)
● Base excess	-6	(-2 to 2)
● pO ₂	105 mmHg	(80 - 110)
● pCO ₂	31 mmHg	(36 - 45)
● lactate	9.6 mmol/L	(< 2)
● Na	136 mmol/L	(135 - 145)
● Cl	104 mmol/L	(95 - 110)
● K	4.2 mmol/L	(3.2 - 5.0)

- (i) State two (2) primary acid-base abnormalities on this blood gas (2 marks)
- (ii) State the calculation you would make for the 'expected' CO₂ (1 mark)
- (iii) State the three (3) MOST likely causes of the abnormal results (3 marks)

There is clinical concern about ethylene glycol ingestion.

(iv) List two (2) features on blood gases that are MOST specific when assessing for this toxic alcohol ingestion? (2 marks)

(v) List and justify four (4) investigations that are important in the assessment of a patient with ethylene glycol ingestion. (8 marks)

Investigation	Justification
(1)	(1)
(2)	(2)
(3)	(3)
(4)	(4)

It emerges that this patient has ingested a significant volume ethylene glycol.

(vi) List and justify three (3) immediate emergency department management priorities. For any medications/fluids include dose and route. (6 marks)

Management	Justification

Question 34 (17 marks)

A 33yo male is brought to ED following a suicide attempt with ingestion of an unknown substance 4hrs prior to presentation.

Vital signs:

HR 105

BP 142/79

RR 30

SaO2 94% 6L HMO2

GCS E2V3M4 = 9

An urgent ABG and bloods are collected with the following results:

pH 7.02

pCO₂ 20

p02 85

HCO3 8

Lactate	8.2
---------	-----

Glucose	8
---------	---

Urea	24
------	----

Creatinine 210

Osmolarity 299

Na 142

K	4.0
---	-----

Cl 106

Ca	1.9
----	-----

Mg	0.8
----	-----

- i. Describe the acid-base disturbances (2 marks)
- ii. What 3 other abnormalities are present on the ABG? What is the likely diagnosis and why? (5 marks)

iii. List 2 other investigations you would request and your rationale for each. (4 marks)

ii. The patient goes on to have a generalised tonic-clonic seizure lasting 5mins.
Describe 6 steps in your management of this patient. (6 marks)

Question 35 (10 Marks)

A 32 year old female presents 6 hours after ingesting 20 x 240mg SR verapamil tablets.

She is vomiting and listless.

GCS 14

HR 40

BP 75/40

1. What is your risk assessment of this patient? (1 mark).

2. What are the pathotoxicological mechanisms of this agent? (2 marks).

3. Her BSL is 12, what is the significance of this? (1 mark)

As you assess her, she deteriorates further, has a poorly palpable pulse. GCS drops to 9/15.

Repeat ECG shows a junctional rhythm at 30 bmp.

4. Outline your management steps. Give doses of any medications used. (6 marks).
