

Fellowship Practice Exam

June 2015

WRITTEN EXAMINATION SHORT ANSWER QUESTIONS

EXAMINATION TIME: 3 HOURS

Directions to Candidates

- 1. Answer each question in the space provided in this question paper.
- 2. Do not write your name on this question paper.
- 3. Write your candidate number on each page in the space provided.
- 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.

Candidate	number
Cariuldale	HUHIDEI

You are working in a level 1 trauma centre on a busy Sunday evening when you receive an ambulance notification about a 23 year old male involved in a high speed motorcycle accident. He was intubated at the scene, has IV access and has received 250ml of normal saline.

His observations in the ambulance are as follows:

GCS	3	(E1, M1, V1)
HR	140	beats/min
BP	76/58	mmHg
SaO ₂	92%	on 100% O ₂

They are 5 minutes away.

i. l	i. List the top five (5) priorities to prepare for the patient's arrival?			
1				
2				
3				
4				
5				

Candidate	number	
Calluluale	HUHBEL	

ii. What are the three (3) components of the "lethal triad of trauma" and how would you act to prevent these from contributing to the patient's morbidity and mortality?

	Component	Action
1		
2		
3		

The patient arrives in your Emergency Department. On examination he has decreased air entry to his left chest. He has a soft abdomen.

His observations are unchanged.

An eFAST ultrasound scan is performed that shows a large amount of left pleural fluid and evidence of a left sided pneumothorax. There is no evidence of abdominal or pericardial free fluid.

A chest drain has been inserted.

iii. Describe three (3) indications for immediate transfer to the operating theatre fo
nis chest injuries?

2_____

3 _____

Candidate	number	
Calluluale	HUHHDEL	

A 22 year old marathon runner is brought in to your Emergency Department. He has collapsed and has only had basic first aid.

On arrival is observations are as follows:

GCS	11	(E3, V4, M4)
Temp	41.5	°C
HR	140	bpm
BP	85/40	mmHg
SaO ₂	98%	on room air

i. List six (6) differential diagnoses.

1	
2	
_	
3	
4	
4	
5	
٠.	
6	
•	
:: <i>1</i>	Outline your four (4) initial treatment aims
II. (Outline your four (4) initial treatment aims.
1	
•	
2	
•	
3	

Some blood tests are performed and results given below:

Hb	180	g/L	(115 - 165)
WCC	23	x10^9/L	(3.5 - 11)
Plt	45	x10^9/L	(150 - 450)
Na	145	mmol/L	(135 - 145)
K	5.6	mmol/L	(3.5 - 5)
Urea	20	mmol/L	(2 - 7)
Creatinine	400	umol/L	(60 - 110)
CK	26,000	IU/L	(60 - 220)

iii. List three (3) abnormalities and explain their significance.

	Abnormalities	Significance
1		
2		
3		

1	

2_____

3 _____

A 50 year old man presents from home after an injury to his right knee with a circular saw whilst trimming a hedge. He is previously well with no medical problems, is on no medications and has an allergy to penicillin.

He has no other injuries, and has presented via private vehicle.

His knee injury is shown in the clinical photograph below:



Candidate	number	
Calluluale	HUHBEL	

i. Describe the clinical photograph giving	three (3) positive and	two (2) relevant
negative findings.		

1_	
2	
3	
4	
5	

Candidate	number	
Calluluale	HUHBEL	

ii. Describe six (6) features of assessment relevant to this presentation. Give a justification for each.

	Assessment finding	Justification
1		
2		
3		
3		
4		
5		
6		
iii. List three (3) structures that may be injured		

ii. I	List three (3) structures that may be injured.
1 _	
2	
3 _	

QUESTION 4 (same patient as question 3)

A 50 year old man presents from home after an injury to his right knee with a circular saw whilst trimming a hedge.

AP and lateral x-rays of his knee are performed:

AP knee x-ray



QUESTION 4 - Lateral knee x-ray



Candidate	number	
Calluluale	HUHBEL	

i. List two (2) major abnormalities on the x-rays.		
1		
2		

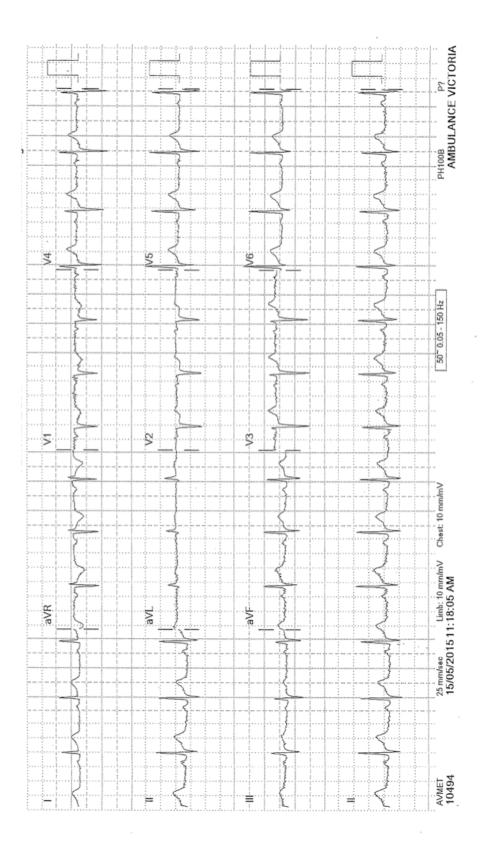
ii. List five (5) essential management steps you would institute in the Emergency Department. Provide details.

	Management	Details
1		
2		
3		
4		
5		

Candidate	number	
Carididate	HUHHDEL	

The orthopaedic registrar advises you to do a washout, suture and discharge the patient. He will see them in outpatient clinic next week.			
iii. Describe your response			

You are the consultant in charge of a tertiary emergency department. It is 9pm on a Saturday night. The ambulance service notifies you of a patient that is 20 minutes away with severe chest pain. He is a 53 year old man who has had pain for 3 hours unresponsive to simple analgesia, but is otherwise haemodynamically normal. The ambulance crew have faxed an ECG to you.



Candidate	number	
Calluluale	HUHHDEL	

	ve one (1) po ring diagnosi		o (2) negative findings on the ECG. Give a single
1 _			
2 _			
3 _			
Unif	ying diagno	sis:	
		tient presents are as follow	s acutely short of breath with crackles to his midzones.
	HR	60	beats/min
	BP	85/65	mmHg
	SaO ₂	85%	on 15L via Hudson mask
ii. Li			management steps.
2_			
3_			
4 _			
5_			
6 _			

Candidate	number	
Callulate	HUHHDEL	

iii. List four (4) drugs you would use to safely intubate this patient. Provide doses and intervals between each drug.

	Drug	Dose	Timing
1			
2			
3			
4			

Candidate	number	
Calluluale	HUHHDEL	

A 4 year old child is brought to the emergency department by their parents with fever and conjunctival injection.

i. What are the diagnostic criteria for Kawasaki disease?
1
2
3
4
5
6
7
ii. List four (4) major differential diagnoses for Kawasaki disease.
1
2
3
4

Candidate	number
Cariuldale	HUHIDEI

	ii. List the three (3) most important investigations you would perform in the emergency department to support the diagnosis of Kawasaki disease.				
1 _					
2 _					
3					

A 20 year old woman with a history of diabetes mellitus presents to your emergency department with fever, acute respiratory distress and chest pain. Her observations on arrival (pre treatment) are:

GCS	14	(E4, V4, M6)
HR	128	beats/min
BP	85/45	mmHg
SaO ₂	90%	on 10L O ₂ via Hudson mask

Arterial blood gases and serum biochemistry are taken after 20 minutes of supplemental oxygen therapy. Results are given below.

100%		
7.20	mmHg	(7.36 - 7.44)
28	mmHg	(35 - 45)
150	mmHg	(85 - 110)
15	mmol/L	(21 - 28)
140	mmol/L	(135 - 145)
6.0	mmol/L	(3.2 - 4.3)
95	mmol/L	(99 - 109)
	7.20 28 150 15 140 6.0	7.20 mmHg 28 mmHg 150 mmHg 15 mmOl/L 140 mmOl/L 6.0 mmOl/L

${f i.}$ Calculate this patients alveolar pO $_2$ (pAO $_2$), using the alveolar gas equation. Show your calculations and results.
ii. Using your answer from question 1, calculate this patients alveolar-arterial (A-a gradient for oxygen.

Candidate	number	
Calluluale	HUHBEL	

iii. List two (2) possible causes of your findings and justify your answer.

Causa	Lustification
Cause	Justification
1	
2	
iv. Calculate the anion gap from thes	se results.
v. List two (2) likely causes of the ani	ion gan finding
vi ziet two (z) interf caacee er trie arn	ion gap intaing.
1	
2	
	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no
vi. Calculate the predicted serum K+ other factors affect it.	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no
	if the patient's pH was corrected to 7.40, assuming no

An 83 year old female is transferred to your emergency department with severe abdominal pain.

An abdominal x-ray is organised by triage on arrival.



Candidate	number	
Callulate	HUHHDEL	

i. What is the diag	gnosis based on this	s X-ray? List three ((3) radiological	features that
support your diag	nosis.			

iagnosis:	
2	
3	
List four (4) possible complications of this condition.	
3	
L	
i. List three (3) initial treatment steps.	
<u> </u>	_
	_
	_

iv. List four (4) possible dispositions for this patient and one (1) factor for each that would make that disposition appropriate for this patient.

	Disposition	Patient factor
1		
2		
3		
4		

Candidate	number	
Calluluale	HUHHDEL	

You have just intubated a 24 year old man for airway protection, after his ingestion of a significant overdose of benzodiazepines. His vital signs are normal, and he has no significant past medical history or known allergies.

i. Li	st six (6) methods that may be used to confirm correct endotracheal tube position.
1 _	
2 _	
3_	
4 _	
5 _	
6	

Candidate	number	
Callulate	HUHHDEL	

The capnography trace suddenly falls to a flat line with a reading of zero.

ii. Outline four (4) possible explanations for this and the corrective action(s) you would take in response to each.

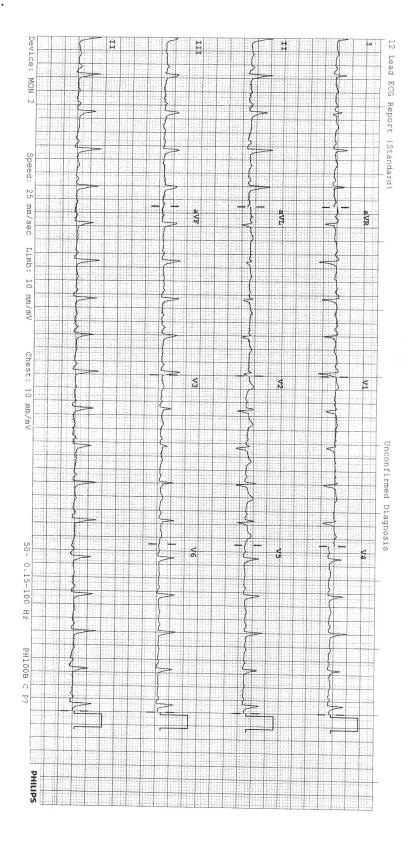
	Explanation	Corrective Action(s)
1		
2		
3		
4		

A 50 year old woman has presented after 2 weeks of lethargy, dyspnoea and pleuritic chest pain. She is now short of breath.

Her observations are as follows:

Temp 36.8 °C BP 80/60 mmHg

An ECG is taken.



Candidate	number	
Callulate	HUHHDEL	

i. Wł	nat is the cause of her hypotension?
	st four (4) positive ECG findings that support your diagnosis.
1 _	
2 _	
3	
4	
	rescribe five (5) abnormalities that you could expect to see on a focused ultrasound of her heart.
2	
3 _	
4	
5	

Candidate number	
------------------	--

iv. Outline four (4) interventions that would be likely to improve her cardiac output.			
1			
2			
3			
4			

A 24 year old male presents after slipping down a hill while playing football and being struck in the neck with a stick.

His injury is shown in the clinical photograph below:



Candidate	number	
Calluluale	HUHBEL	

i. C	Describe three (3) positive and one (1) negative finding in the clinical photograph.
1	
2	
3	
4	
	What zone of the neck is involved?
	List five (5) relevant structures that could potentially be injured.
1	
2	
3	
4	
5	

Candidate number	

iv. W	iv. What one (1) imaging investigation would you request.			
v. Oı	utline four (4) steps in management.			
1 _				
2 _				
3 _				
4				

A 30 year old male presents with sudden onset of right sided chest pain and shortness of breath. There is no history of trauma.

A CXR is ordered at triage.



Candidate	number	
Calluluale	HUHHUGI	

i. Describe one (1) relevant positive finding on the CXR in detail.			
. Describe two (2) relevant negative findir	ngs on the CXR.		
1			
2			
iii. List three (3) possible specific treatments for the condition shown on the CXR and provide two (2) pros and two (2) cons for each.			
Treatment 1:	T		
Pros	Cons		
Treatment 2:			
Pros	Cons		

	_		
Treatment 3:			
Pros	Cons		
iv. List three (3) different approaches to an for each	algesia with one (1) pro and one (1) con		
Approach to analgesia 1:			
Pro	Con		
Approach to analgesia 2:			
Pro	Con		
Approach to analgesia 3:			
Pro	Con		

Candidate	number	
Calluluale	HUHBEL	

 $\textbf{i.} \ \textbf{Complete the following table with regards to the clinical severity assessment of children presenting with bronchiolitis.}$

Clinical factor	MILD	MODERATE	SEVERE

Candidate number	
------------------	--

ii. List six (6) risk factors for severe complications related to bronchiolitis
1
2
3
4
5
6
iii. List two (2) indications for a CXR
1
2

Candidate	number	
Calluluale	HUHHDEL	

A 75 year old woman presents to the Emergency Department following a fall in her back yard. Her only injury is a distal radius fracture that requires reduction.

i. L	_ist	five	(5)	contraindications	to	а	Biers	block'	?
------	------	------	-----	-------------------	----	---	-------	--------	---

1 _	
2 _	
3 _	
4 _	
5	

ii. What drug and dose would you use for the block?

Drug	Dose

Candidate	number	
Calluluale	HUHHDEL	

iii.	Describe nine (9) steps in performing a Biers block.
1	
2	
3	
4	
5	
6	
7	
8	
•	
9	

Candidate	number	
Calluluale	HUHBEL	

You have been asked to identify areas in your hospital for improvement of patient flow through the Emergency Department.

i. Describe two (2) factors that impact on patient flow prior to arrival in the emergency department and how you may measure their impact.

	Factor	Measure
1		
2		

ii. Describe five (5) factors that impact on patient flow during a patient's stay in the Emergency Department and how you may measure their impact.

	Factor	Measure
1		
2		
3		
4		
5		

Candidate	number	
Callulate	HUHHDEL	

iii. Describe three (3) factors that impact on patient flow out of the emergency department and how you may measure their impact.

	Factor	Measure
1		
2		
3		

Candidate	number	
Calluluale	HUHBEL	

You are in a non-tertiary hospital Emergency Department with no paediatric service. You are called urgently to the resuscitation area. A 30 year old woman at 39 weeks gestation has just arrived in the department and is in advanced labour. A colleague with obstetric experience is managing the patient and delivery. Your role is to manage the infant post delivery.

i. List the five (5) key examination features in assessment of the infant and provide details of your examination.

	Examination Feature	Details
1		
2		
3		
4		
5		

Candidate	number	
Calluluale	HUHBEL	

	The infant is born and is cyanosed with no respiratory effort. List five (5) key steps in ur management in the first 2-3 minutes.
1	
2	
3	
4	
5	

Candidate	numbar	
Candidate	number	

QUESTION 17 (same patient as question 16)

i. There is no response to your initial measures. The infant is in a resuscitation bay and your resuscitation team is assembled. A nearby paediatric service is notified by your assistant. A nurse is caring for the father. List and outline your six (6) key management steps over the next 20 minutes.

	Key Management Step	Outline
1		
2		
3		
4		
5		
6		

Candidate	number	
Calluluale	HUHBEL	

You have successfully resuscitated the neonate. They are intubated and cardiovascularly stable. They are, however, persistently hypoxic at 85% on 100% FiO2.

ii. L	ist six (6) possible causes for this persistent hypoxia
1	
2	
3	
4	
5 _	
6	

A 55 year old man is brought to the Emergency Department following a fall from a ladder. The patient was approximately 3 metres high and landed on concrete.

On arrival he is awake and is complaining of severe abdominal pain. His observations are as follows:

HR	110	beats/min
BP	100/55	mmHg
RR	22	/min
SaO ₂	100%	on 6L O ₂ via Hudson mask
GCS	15	(E4, V5, M6)

A CT scan is performed.



i. What is the diagnosis? Provide 3 radiological	al features to support your diagnosis.
Diagnosis:	
1	
2	
3	
ii. The major management options are conserthree (3) pros and three (3) cons of each appr	
Conservative Management	
Pros	Cons

Operative Management	
Pros	Cons
ii. Your registrar asks you about the correcturrent ratio for massive transfusion and nadecision.	ct ratios for massive transfusion. Describe your ame one (1) recent study to support your

Candidate	number	
Calluluate	HUHHNEL	

A 38 year old man presents with pain and swelling to his right eye of 3 days duration.

His clinical photograph is shown below:



Candidate	number	
Callulate	HUHHDEL	

i. Describe four (4) relevant positive findings and provide a single unifying diagnosis.
1
2
3
Diagnosis:
Diagnosis
ii. List two (2) differential diagnoses.
1
2
iii. Outline your three (3) most important management priorities.
1
2
3

Candidate	number
Cariuldale	HUHIDEI

The patient was seen in your Emergency Department 2 days ago and discharged with topical chloramphenicol drops. The patient's wife is upset that this happened.

iv. Describe five (5) steps you would take in responding to this.

1	
2	
3	
4	
5	

Candidate	number	
Calluluale	HUHBEL	

A 13 year old boy presents with a painful right testis.

Wha Stic	at six (6) features on history and examination would raise your suspicion of a ular torsion?
l	
 2	
— 3	
 ļ	
— 5	
´—	
. Wh	nat are your four (4) other most likely diagnoses?
2	
3	
 ļ	
i. W	hat is the utility of ultrasound in the acute setting?

A 30 year old woman presents to the Emergency Department after being referred in by her
GP. Her last menstrual period was 7 weeks ago and she has a positive urine pregnancy
test today performed by the GP.

She has had 2 days of painless PV bleeding. Her vital signs are normal.

i. L	ist six (6) risk factors for complications of early pregnancy you seek in her history
1 _	
2	
3	
4 _	
5	
6	

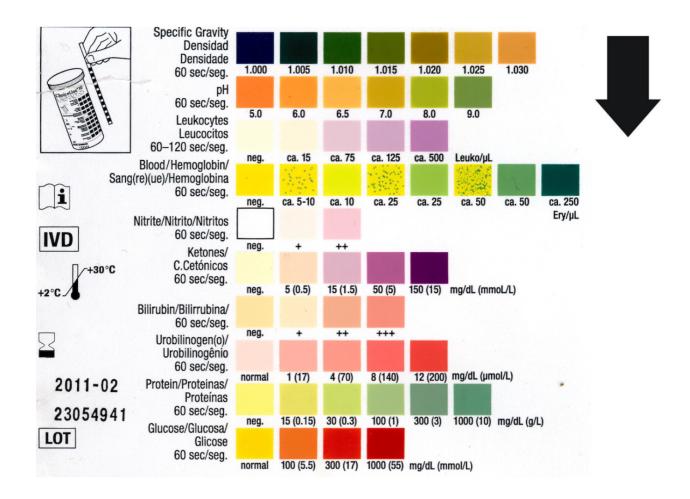
ii. List three (3) blood test you consider in this patient, and how the findings would influence your assessment or management.

	Blood test	Influence
1		
2		
3		

	What findings on transvaginal ultrasound would indicate ectopic pregnancy should be asidered.
1	
2 .	
3	
4	
-	

A 22 month old previously well boy presents to your tertiary Emergency Department. He has a one week history of periorbital oedema and bilateral leg swelling. He has had no fever and no recent illnesses.

On examination he has normal vital signs.



Urine Dip Stick result:



Candidate	number	
Calluluale	HUHBEL	

i. De findir	escribe the urine dipstick giving three (3) positive and three (3) relevant negative ngs.
1 _	
3 _	
4	
5	
	hat is the most likely diagnosis?
ii. Li	ist three (3) underlying causes for this condition?
1 _	
2 _	
3 _	

Candidate number	

iv. List four (4) complications of this conditions.		
1 _		
2 _		
3 _		
4		

Candidate	number	
Calluluale	HUHHDEL	

A 75 year old man presents to the Emergency Department with epistaxis from both nostrils for the last 2 hours. This has continued despite appropriate direct pressure to the nostrils. The man states he is swallowing blood, but is otherwise systemically well. His vital signs are within normal limits.

i. State eight (8) essential points on history that you would confirm with this patient	
1	
2	
3	
4	
5	
6	
7	
8	
ii. Describe five (5) steps in order that you would perform to gain haemostasis.	
1	
2	
3	
4	
5	

QUESTION 23
iii. The patient is on warfarin and his INR comes back at 8.0. Describe your approach to reversing his warfarin.

Candidate number _____

Candidate	number	
Calluluale	HUHHDEL	

You are doing the roster as a consultant in a tertiary hospital Emergency Department. Your director tells you that the ED staff take 25% more sick leave than any other department in the hospital.

He asks that you look into ways of reducing the level and impact of sick leave in your department.

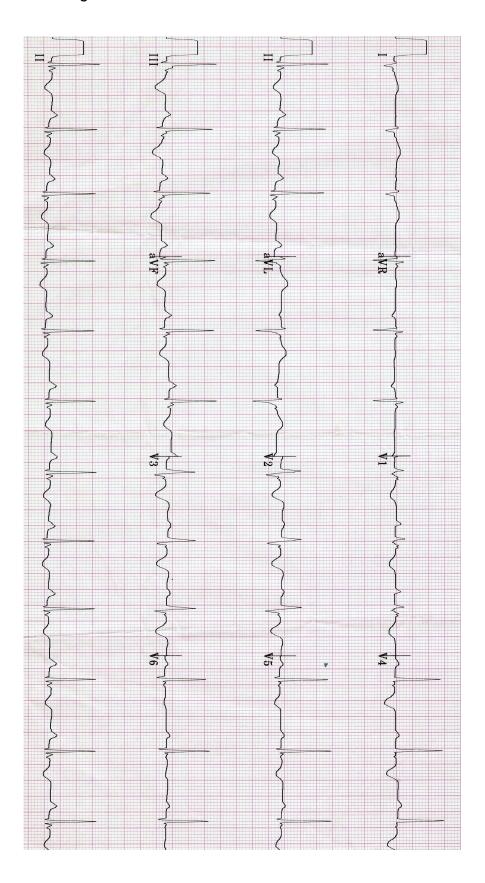
List fo	our (4) pieces of data or information that would help you in this task?
,	
List fo	our (4) factors that might increase sick leave amongst Emergency Department I staff?
List fo	our (4) factors that might increase sick leave amongst Emergency Department I staff?
edical	our (4) factors that might increase sick leave amongst Emergency Department I staff?

Candidate number	
------------------	--

iii.	What four (4) strategies might minimise the impact (not the level) of sick leave?
1	
2	
3	
4	

A 23 year old man presents to the Emergency Department after feeling palpitations at home. He has had similar symptoms previously but has never been investigated. He is now feeling completely well.

His BP is 120/70 mmHg and all other observations are normal. An ECG is taken:



Candidate number

i. Interpret his ECG giving three (3) positive and two (2) relevant negative findings.
1
2
3
4
5
ii. List three (3) differential diagnoses
2
3

Candidate	number	
Calluluale	HUHBEL	

iii. List five (5) relevant investigations and provide a justification for each

	Investigation	Justification
1		
2		
3		
4		
5		

QUESTION 26 (this is the same patient as question 25)

Shortly after presentation	to the Emergency	Department the	patient complain	s of
palpitations.				

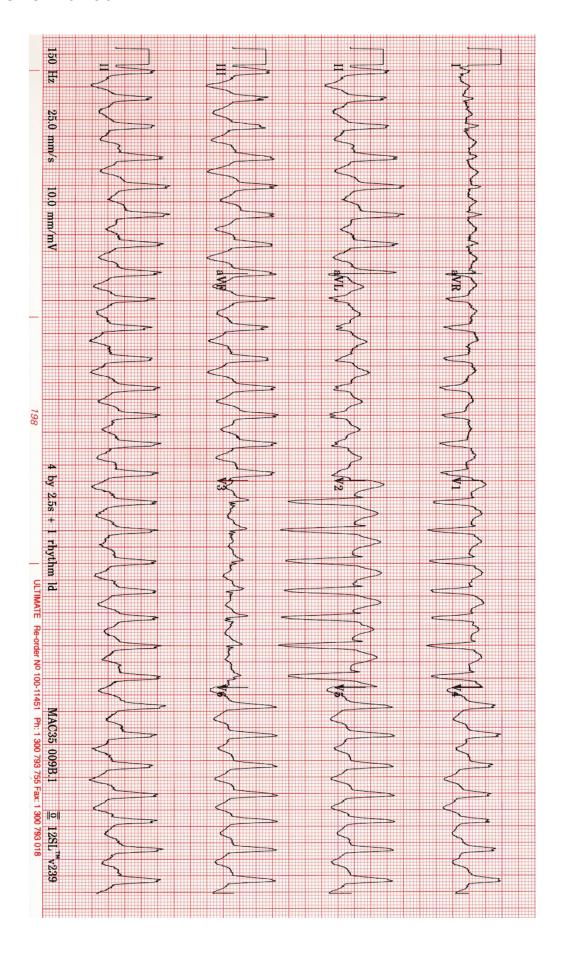
His observations are as follows:

BP	90/50	mmHg
O2 sats	96%	on room air
GCS	15	(E4, V5, M6)

His ECG is shown on the following page.

i. Provide five (5) relevant findings on the ECG and one unifying diagnosis		
1		
2		
3		
4		
5		
Unifying diagnosis:		

QUESTION 26 ECG



Candidate	number	
Calluluale	HUHBEL	

	Describe six (6) steps that you would perform to cardiovert this patient. List them in the er which you would perform them. Give drugs and doses where appropriate.
1_	
2 _	
3	
4 _	
5	
6	

Candidate	number	
Calluluale	HUHBEL	

A 16 year old boy presents to the emergency department with confusion, agitation and blurred vision. His mother suspects that he has taken an overdose of promethazine.

i. What is the likely diagnosis?	
ii. List four (4) other precipitants of this syndrome.	
1	
2	
3	
4	
iii. List three (3) other clinical signs you would assess for.	
1	
2	
3	

Candidate	number	
Calluluale	HUHHDEL	

Shortly after arrival he becomes more restless and agitated. He appears to be hallucinating and is trying to climb out of bed.

iv. Outline four (4) key treatment steps including two (2) medication options with doses for sedation.

1	
2	
3	
4	

A 24 year old man is brought in by ambulance with a 1 day history of rash and fever. He has received 2 litres of IV normal saline prescribed by the junior registrar who has been treating him. The nurse comes to you concerned that he has been deteriorating and his rash has been getting progressively worse while in the department.

His vital signs are as follows:

Temp	39.5	°C
HR	130	beats/min
BP	80/40	mmHg
SaO ₂	95%	on room air

A clinical photograph is shown below:



Candidate number	
------------------	--

i. What is the most likely diagnosis?			
ii. What are your three (3) treatment priorities?			
1			
2			
3			
iii. List four (4) steps in managing his hypotension, giving drugs and doses where appropriate.			
1			
2			
3			
4			
5			

	Candidate number
QUESTION 28	

iv. [Describe five (5) variables that you use to assess his response to treatment.
1_	
2 _	
3 _	
4 _	
5 _	
vi. ſ	Name one recent landmark trial in the treatment of sepsis.

Candidate	number	
Carididate	HUHHDEL	

You have been called to assist a junior doctor dealing with an upset family. The family is unhappy with the proposal of a "Not For Resuscitation" (NFR) order for their elderly mother.

i. Complete the table listing five (5) factors which would support the proposal of a NFR order. Justify your answers

	Factor	Justification
1		
2		
3		
4		
5		

ii. List four (4) legal entities with	decision making rights at	head of family members	, for NFR
orders			

1 _		
2		
3		
4		

Candidate	number	
Calluluale	HUHHDEL	

iii. You deem the elderly mother to be competent and that she has capacity to make decisions. She does not wish to be resuscitated. She has a cardiopulmonary arrest whilst the family are in her ED cubicle with her and they tell you to resuscitate her. Will you resuscitate? Justify your answer

Will you resuscitate?	Justification

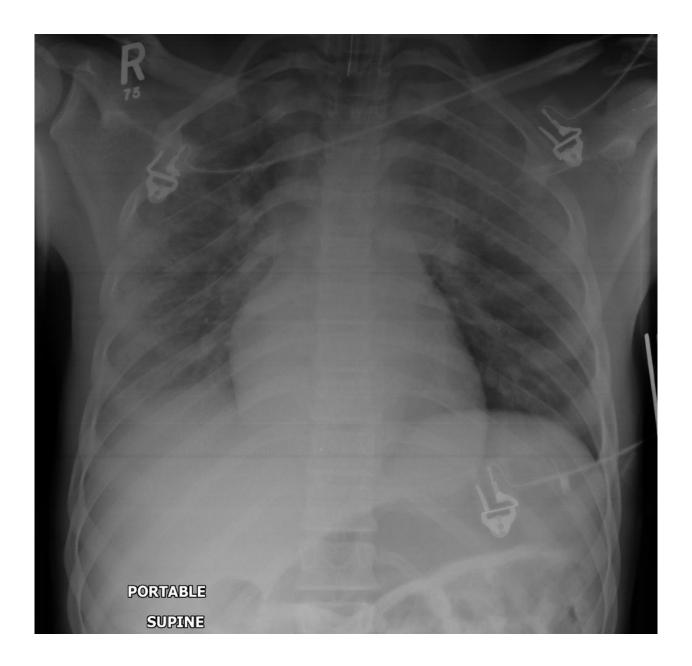
iv. Assuming a NFR order was written up and a decision was made to palliate a patient, list four (4) medications you would chart on the patient's drug chart to assist this goal

1 _	
2	
3	
4	

A 38 year old man is involved in a motor vehicle accident. He is complaining of chest pain. A chest x-ray is obtained on arrival as part of the trauma series and is reproduced below. His vital signs on arrival to your Emergency Department are:

Temp	36.2	°C
BP	135/82	mmHg
HR	105	beats/min normal sinus rhythm
RR	28	/min
SaO ₂	93%	on room air
GCS	15	

His CXR is shown below:



Candidate number	
------------------	--

i. List two (2) positive findings and two (2) negative findings on this x-ray
1
2
3
4
ii. What is the likely diagnosis of the lung findings on x-ray?
iii. List three (3) alternative differential diagnoses for the positive x-ray findings
1
2
3
iv. List four (4) complications associated with this diagnosis
2
3
4