

"List" = 1-3 words

"State" = short statement/ phrase/ clause

UNIVERSITY HOSPITAL, GEELONG  
FELLOWSHIP WRITTEN EXAMINATION

WEEK 17– TRIAL SHORT ANSWER QUESTIONS Suggested answers

PLEASE LET TOM KNOW OF ANY ERRORS/ OTHER OPTIONS FOR ANSWERS

Please do not simply change this document - it is not the master copy !

Question 1 (18 marks)

- a. Complete the table, demonstrating the ECG features that assist in distinguishing between supraventricular tachycardia with aberrancy and ventricular tachycardia. (8 marks)
- Remember it is ECG features and only those that "distinguish" (no point mentioning those that do not help distinguish at all ie rhythm is no help both can be irregular and regular)
  - AV dissociation is the only required (max 3 if not included)

ECG feature	SVT	VT
AV dissociation (More QRS than p waves)	Rules out	Rules in
Captured beats	Rules out	Rules in
Fusion beats	Rules out	Rules in
QRS duration	< 140 msec supports	> 140 msec strongly supports
QRS Axis	Usually normal	Leftward supports NW axis strongly supports
Concordance	Usually discordant	+ve or -ve supports
RS complex	May be present	Absence in the precordial leads supports
R-R intervals	Usually regular	Often slightly irregular
R-S width > 100msec in $\geq 1$ precordial leads	Against	Supports
RBBB pattern	Triphasic rSR in V1 or V6 R>S in V6	Monophasic R or biphasic qR, QR or RS in V1 S>R or QS in V6
LBBB pattern	No R in V1 Small narrow R in V2 No slurring of S-wave downstroke Monophasic R in V6 Presence of septal Q in I & V6	Broad R wave or wide R-S length (> 30msec) in V1 or V2 Notched downstroke of S-wave in V1 or V2 > 60msec to nadir of S in V1 or V2 qR or QS pattern in V6

- b. List four (4) indications for the insertion of an Automated Implantable defibrillator. (4 marks)
- Primary prevention:**
    - Those on optimal medical therapy &
    - MI (> 40 days ago) & EF < 30%
    - Cardiomyopathy & EF < 35%
    - HOCM
    - Brugada syndrome
    - Long QT & recurrent symptoms
  - Secondary prevention:**
    - Sustained VT not in the setting of peri-MI
    - Sustained VF not in the setting of peri-MI
    - Resuscitated cardiac death, thought to be due to VT/VF
    - Syncope with structural heart disease and inducible VT/VF
- c. State six (6) indications for Percutaneous Coronary Intervention in a patient with chest pain and a ventricular paced rhythm. (6 marks)
- $\geq 1$  Sgarbossa criteria
    - STE  $\geq 5$  mm in a negative QRS complex
    - STE  $\geq 1$  in the presence of a positive QRS complex
    - STD  $\geq 1$  mm in any of leads V1-3
  - Strong clinical features of prolonged ischaemic chest pain
  - Dynamic ECG changes suggestive of ischaemia
  - Positive troponin
  - ECHO evidence of new regional hypokinesis in an appropriate area
  - +ve Hot MIBI scan

NB: there are no good journal review articles for PPM and ? STEMI (that I am aware of)- LITFL has a good summary. [CLICK HERE](#)

## Question 2 (13 marks)

A 30 year old man has had his left leg run over by a car. He has isolated left lower limb injuries. There are open wounds at his left ankle and his left foot is pale.



- a. List four (4) features of the abnormalities shown in this X-ray that suggest that this is a significant injury. (4 marks)
- **# dislocated ankle**
  - **Multiple fracture fragments**
  - **Subcutaneous gas**
  - **Marked ST swelling**

There are open wounds over the medial border of foot his left ankle and his left foot is pale.

- b. What is the significance/implication of these findings? List five (5) and three (3) points respectively. (8 marks)

Findings	Significance/ implication
<b>Open wound</b> <b>(5 marks)</b>	<ul style="list-style-type: none"> <li>• <b>Infection risk- risk of non- union / osteomyelitis</b></li> <li>• <b>Irrigate if dirty +/- betadine</b></li> <li>• <b>Requires dressing coverage</b></li> <li>• <b>Early IV abs</b></li> <li>• <b>Requires early definitive washout and closure</b></li> <li>• <b>Increased risk if vasculopath/ diabetic</b></li> </ul>
<b>Foot is pale</b> <b>(3 marks)</b>	<ul style="list-style-type: none"> <li>• <b>Vascular compromise</b></li> <li>• <b>Potential vascular injury vs reversible kinking</b></li> <li>• <b>Needs urgent reduction</b></li> </ul>

### Question 3 (12 marks)

A 25 year old presents 9 weeks pregnant, by dates, with left iliac fossa pain.

- a. List four (4) risk factors for the development of ectopic pregnancy. (4 marks)
- **Previous ectopic**
  - **IVF**
  - **PID**
  - **Tubal Sx/ manipulation**
  - **OCP**
  - **IUD**
  - **↑ Age**
- b. List four (4) examination findings that would support the diagnosis of ectopic pregnancy. (4 marks)
- **Pregnant & Shock/ haemodynamic**
  - **Pregnant & PV adnexal tenderness**
  - **Pregnant & IF tenderness**
  - **Pregnant & Cx excitation**
  - **Pregnant & signs of peritonism**
- c. List four (4) ultrasound findings that would support the diagnosis of ectopic pregnancy. (4 marks)
- **Gestational sac identified extrauterine**
  - **Absence of IUP for TVUS if BHCG > 1500 or TA > 5000**
  - **Free fluid in POD**
  - **Free fluid surrounding fallopian tube**
  - **Haemosalpinx**
  - **Extrauterine mass**
  - **Adnexal mass**

## Question 4 (13 marks)

A 70 year old man presents to the emergency department complaining of painful feet.



- a. List four (4) abnormal findings shown in this image. For each finding, list one (1) likely underlying cause. Underlying causes should not be repeated for different findings. (8 marks)

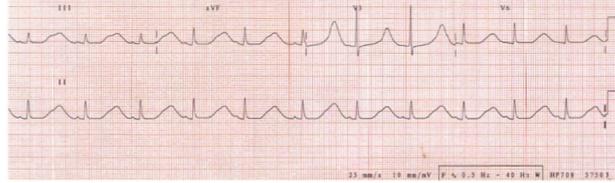
Abnormal finding (4 marks)	Likely underlying cause (4 marks)
R great toe amputation	<ul style="list-style-type: none"> <li>• DM</li> <li>• PVD</li> </ul>
Cellulitis	<ul style="list-style-type: none"> <li>• 2<sup>nd</sup> toe infection</li> <li>• 2. Poor foot care</li> </ul>
R 2 <sup>nd</sup> toe infection	<ul style="list-style-type: none"> <li>• DM</li> <li>• PVD</li> <li>• Ingrowing toenail</li> </ul>
Petechiae/ purpura	<ul style="list-style-type: none"> <li>• Poorly fitting shoes</li> <li>• Vasculitis</li> <li>• ↓ Plt</li> <li>• Embolic focus</li> <li>• Systemic sepsis</li> <li>• Snake bite</li> <li>• Blood dyscrasia</li> </ul>
thin skin	<ul style="list-style-type: none"> <li>• Steroids</li> <li>• PVD</li> <li>• DM</li> </ul>

Further history and examination is not useful in the diagnostic process.

- b. List five (5) investigations that would of key importance in **confirming a diagnosis/ses** (5 marks)
- FBE- plt
  - Coags
  - Blood cultures
  - Toe swab mc+s
  - ECG- For AF
  - Lower limb Doppler arterial US
  - ECHO

## Question 5 (11 marks)

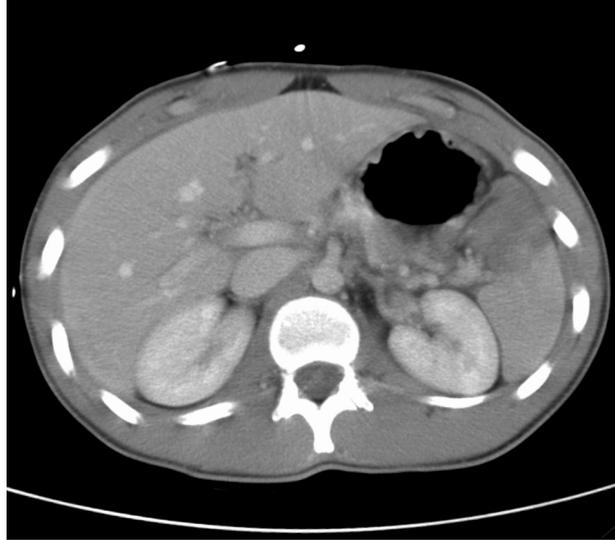
A 32 year woman is brought to your emergency department by her friend who believes her to have taken a deliberate overdose earlier that morning. The patient denies taking any tablets. His observations are: BP 130/60 mmHg RR 16/min O<sub>2</sub> saturation 100% 10 L/min O<sub>2</sub> via Hudson mask. GCS 15



- a. What is the major abnormality shown in this ECG? (1 mark)
- **Prolonged QT**
- b. List four (4) drugs that may account for these changes. (Each drug to be from a different drug class) (4 marks)
- **antiarrhythmic**
    - Class 1A → prolong AP (quinidine, procainamide, disopyramide)
    - Drugs with 1A “quinidine like” effects → TCA, Phenothiazines
    - Class 1C → no change to AP duration (flecainide, amiodarone)
    - Class 3 → prolong AP duration and refractory period (sotalol, amiodarone)
  - **Erythromycin/anti histamines (terfenadine)/cissapride**
  - **Organophosphates**
  - **Antipsychotics:**
    - Chlorpromazine
    - Droperidol
    - Haloperidol
    - Thioridazine
    - Quetiapine
    - Olanzapine
    - Amisulpride
  - **TAD:**
  - Amitriptylline
  - Desipramine
  - Doxepin
  - Imipramine
  - Nortioptylline
  - **Antidepressants:**
    - Mianserin
    - Citalopram
    - Escitalopram
    - Venlafaxine
    - Bupropion
    - Moclobemide
  - **Antihistamines:**
    - Diphenhydramine
    - Astemizole
    - Loratadine
    - Terfenadine
  - **Chloroquine**
  - **Hydroxychloroquine**
  - **Quinine**
- c. List six (6) non-medication causes that may account for these changes. (6 marks)
- **Congenital**
    - **Romano Ward** (*autosomal dominant, no deafness*)
    - **Jervell- Lange- Nielsen** (*autosomal recessive, associated with nerve deafness*)
  - **Acquired**
    - **Electrolytes**
      - ↓ K<sup>+</sup>
      - ↓ Ca<sup>++</sup>
      - ↓ Mg<sup>++</sup>
    - **Cardiac**
      - **IHD AMI, LVF, bradycardia, CHB**
      - **Acute rheumatic carditis, MV prolapse, myocarditis**
    - **Stroke, ICH (esp SAH) as part of the bradycardia that may occur**
    - **Hypothermia**
    - **Extreme bradycardia any cause (eg CHB with slow escape )**

## Question 6 (12 marks)

A 19 year old male football player presents to the emergency department complaining of abdominal pain following a tackle during a match 5 days previously.



- a. List four (4) key positive or relevant negative findings in this CT scan. (4 marks).
- **Hypodense anterior ½ spleen cw ↓ perfusion laceration**
  - **No free fluid**
  - **Liver intact**
  - **Kidneys intact**
- b. List three (3) **likely** underlying conditions that may predispose to this injury for this patient. (3 marks)  
**NB: Likely causes of splenomegaly in a 19 year old playing sport**
- **IM**
  - **CMV**
  - **Acute hepatitis**
  - **SLE**
  - **Acromegaly**
  - **(Lymphoma)**
- Other causes unlikely in someone able to play sport*
- c. What is meant by “hybrid resuscitation”? State five (5) points of explanation. (5 marks)
- **Form of hypotensive resuscitation**
  - **Theory- allow more stable clots to form to allow haemorrhage sites to be more resistant to breakdown with more aggressive resuscitation**
  - **Utilised when time to definitive care is too long to allow permissive hypotension**
  - **Indications as for hypotensive resuscitation (eg. uncontrolled penetrating or blunt trauma with no evidence of serious end organ perfusion & if intervention to control bleeding is possible)**
  - **Initial permissive hypotension resus for ~ 1/24 (exact duration depends on time to definitive Rx)**
  - **Emphasis on restoring normal coagulation of normotension**
  - **Gentle reestablishment of circulating BV after hypotensive phase**

## Question 7 (12 marks)

A 29 year old woman who is 30 weeks pregnant presents to the emergency department with a two day history of nausea and RUQ discomfort. His observations are: BP 150/100 mmHg HR 95/min Temperature 36.5°C GCS 15 Oxygen saturation 97% on room air

Laboratory results				Reference Range			
				Total protein	60	g/L	(60-80)
				Albumin	35	g/L	(35-50)
				Bilirubin	33	micromol/L	(5-17)
				ALP	225	IU/L	(40-120)
				AST	5418	IU/L	(10-36)
Sodium	139	mmol/L	(135-145)	Hb	11.4	g/dL	(11.5-14.5)
Potassium	4.1	mmol/L	(3.5-5.1)	WCC	6.7	10 <sup>9</sup> /L	(3.6-10.5)
Chloride	105	mmol/L	(99-109)	Platelets	72	10 <sup>12</sup> /L	(150-400)
Bicarbonate	21	mmol/L	(21-32)	INR	1.4		(1.0-1.2)
Urea	8.0	mmol/L	(2.5-6.7)	APTT	28	secs	(24-35)
Creatinine	48	micromol/L	(30-120)				
Glucose	4.3	mmol/L	(3.0-6.0)				

a. What is the diagnosis for her clinical state and blood results? (2 marks).

- **HELLP syndrome (Haemolysis, elevated liver enzymes, low platelet count)**
- **Variant of preeclampsia**

b. List three (3) key treatment steps in the first 1 hour of your care. (3 marks).

- **L lateral position**
- **BP control- IV labetalol**
- **Dexamethasone** (*specific Rx for HELLP and will help with lung maturation*)- *controversial- was routine practice, but recently showed to be of no benefit in RCT*
- **Urgent obstetric referral**

c. List three (3) examination findings that would suggest imminent deterioration for this patient. (3 marks)

- **Clonus**
- **Brisk reflexes**
- **Decreased VA**
- **Severe RUQ pain- suggesting hepatic rupture**
- **Sudden BP drop/ Signs of shock**

d. List four (4) key treatment steps that may be required if this condition was to deteriorate. (4 marks)

- **Urgent delivery**
- **Platelet transfusion**
- **Blood transfusion**
- **Radiological embolization** (*in the setting of hepatic rupture*)

Click on the image below to view the entire PDF (& print/save if necessary)



## Question 8 (11 marks)

A 25 year old man presents with a four day history of increasing left eye pain, photophobia and decreased vision.

- a. State the most important finding demonstrated in this image. (1 mark).
  - **Hypopyon**
  
- b. List six (6) historical factors that are important in this case. (6 marks)
  - **Trauma**
  - **Fevers**
  - **Contact lens use**
  - **Steroid use**
  - **PHx**
    - **Similar**
    - **STI**
    - **Immunosuppression DM etc**
  - **Allergies**
  
- c. List four (4) key management steps for this patient in the emergency department. (4 marks)
  - **Analgesia- topical and systemic**
  - **Urgent Ophthalmology review**
  - **Antibiotics- guided by ophthalmology IV and likely to need intraocular by ophthalmology**
  - **Antiemetic**



This resource is produced for the use of University Hospital, Geelong Emergency staff for preparation for the Emergency Medicine Fellowship written exam. All care has been taken to ensure accurate and up to date content. Please contact me with any suggestions, concerns or questions.

**Dr Tom Reade** (Staff Specialist, University Hospital, Geelong Emergency Department)

Email: [tomre@barwonhealth.org.au](mailto:tomre@barwonhealth.org.au)

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## Question 9 (18 marks)

You are in a regional ED. An 11 year old boy sustains an isolated closed head injury after falling from a skateboard 10 hours ago. He has a GCS of 4 with decerebrate posturing.



- a. State five (5) abnormal findings shown in this CT brain. (5 mark)
- **EDH- 2.5x 8.5 cm L parietal**
  - **Midline shift ~ 1 cm**
  - **Sulcul effacement**
  - **Lat ventricular effacement**
  - **Loss of grey white matter differentiation**
- b. List five (5) management steps, that may be performed in the ED, that may be utilised to optimise his Intracerebral pressure.(5 mark)
- **Intubate- Ventilation control**
    - **Hyperventilation**
  - **Sedation**
  - **Paralysis**
  - **30° head up**
  - **BP control**
    - **Discuss aims with NSx- NB age appropriate target BP**
  - **IV mannitol**
  - **Seizure prophylaxis**
  - **Normoxia**
  - **Normothermia**
  - **Normoglycaemia**
  - **Avoid neck vein occlusion**
- c. List your initial settings for his ventilation. (4 mark)

<b>Tidal volume</b>	<b>5-8 ml/kg</b>
<b>Respiratory rate</b>	<b>15-20</b>
<b>I:E</b>	<b>1:2</b>
<b>PEEP</b>	<b>&lt;5 (zero)</b>

- d. List four (4) key pieces of information to give to the patient's parent. (4 marks )
- **Critically unwell**
  - **Description of injury and current condition**
  - **Treatment already given**
  - **Treatment required**
  - **Transfer to neurosurgical centre**
  - **Guarded prognosis given time frame and transfer required**