

South East Queensland Fellowship Written Mock Exam

2019.2

3rd October 2019

Book Three

SAQ 19 to 27

With thanks to the FACEMs and the Emergency departments of

Sunshine Coast University Hospital

Caboolture Hospital

Redcliffe Hospital

The Prince Charles Hospital

Royal Brisbane & Women's Hospital

SAQ 19

Long question 18 Marks

You are in charge at the emergency department of a tertiary centre when the ambulance service notifies you of the imminent arrival of a 28yr old female who is 30 weeks pregnant who has been involved in a motor vehicle collision.

You are informed that her vital signs are:

GCS 15 (E4,V5,M6)

HR 120

BP 100/80

O2 sats 95% RA

RR 24

Temp 37.

BSL 5.6.

You prepare for her arrival with your trauma team.

1. Complete the table, listing 3 changes to her cardiovascular and 3 changes to her respiratory system in pregnancy and their implication that make interpretation of her vital signs or management challenging (6 marks)

| Cardiovascular | Change in pregnancy | Implication |
|----------------|---------------------|-------------|
| | | |
| | | |
| | | |
| Respiratory | Change in pregnancy | Implication |
| | | |
| | | |
| | | |

2. List the relevant specific maternal obstetric history to obtain: (4 marks)

| |
|--|
| |
| |
| |
| |

On your primary survey you confirm her vital signs are

HR 120
BP 100/80
RR 24
O2 sats 95%
Afebrile
GCS 15.

She has equal breath sounds, no evidence of a chest injury and her airway is patent with no cervical tenderness. She is warm and well perfused with dual heart sounds. She has a seatbelt mark across her abdomen with tenderness in the left upper quadrant.

3. List 3 diagnostic imaging options of her abdomen and their justification for use: (3 marks)

| Imaging modality | Justification |
|------------------|---------------|
| | |
| | |
| | |

SAQ 20

12 Marks

A 55yo woman presents to the emergency department complaining of headache and visual abnormalities.

1. List three causes of headache that may be associated with visual symptoms.(3 marks)

2. For each of your differentials listed above, provide a differentiating feature, an investigation, and a treatment. (9 marks)

| Cause | Differentiating features | Investigations | Treatment |
|-------|--------------------------|----------------|-----------|
| | | | |
| | | | |
| | | | |

SAQ 21

12 Marks

A 32-year-old man is brought by ambulance to your ED after failing to complete an ultra-marathon race. It is the middle of summer, and he has been running for most of the day, but collapsed during the race. He is confused and drowsy.

His observations are:

GCS 12: E3V4M5
Temp: 41 °C
HR: 140 bpm, sinus rhythm
BP: 95/45
RR: 30 breaths/min
Sats 95% on room air

1. Complete the following table by listing 3 differential diagnoses for his presentation. For each diagnosis, list 2 examination findings you would search for that would support that diagnosis. (6 marks)

| Differential Diagnosis | Examination finding | |
|------------------------|---------------------|--|
| | | |
| | | |
| | | |

2. List 3 methods of cooling, and for each method list one advantage and one disadvantage. (6 marks)

| Cooling method | Advantage | Disadvantage |
|----------------|-----------|--------------|
| | | |
| | | |
| | | |

SAQ 22

12 Marks

A 25 year old female has been brought to your department by ambulance and police escort. She is agitated and violent, with contusions over her face and head.

The handover indicates her neighbours called the police for a domestic disturbance. Ambulance and police found evidence of drug paraphernalia around the house as well, as multiple empty alcohol containers. Medications in the patient's name include thyroxine, venlafaxine and pregabalin.

1. Other than alcohol/drug intoxication and psychosis, list 4 likely causes for this patient's presentation (4 Marks)

| |
|--|
| |
| |
| |
| |

2. List 4 potential complications of emergency sedation (4 Marks)

| |
|--|
| |
| |
| |
| |

3. List 4 departmental design features that can help mitigate negative psychosocial states and violence in Emergency Departments (2 Marks)

| |
|--|
| |
| |
| |
| |

4. List 4 system-wide approaches to mitigation of violence in Emergency Departments in general (2 Marks)

| |
|--|
| |
| |
| |
| |

SAQ 23

12 Marks

A 77yr old man presents 7 days after being discharged following a total colectomy for a newly diagnosed obstructing bowel cancer. He describes non-specific symptoms of malaise, lethargy and nausea.

His blood results are;

| | | |
|------------------|------|--------------------|
| Na | 127 | (135-145 mmol/L) |
| K | 6.1 | (3.5 – 5.2 mmol/L) |
| Ur | 37.1 | (2.9 – 8.2 mmol/L) |
| Cr | 700 | (64 – 108 mmol/L) |
| eGFR | 6 | (>60 mL/min) |
| HCO ₃ | 12 | (22-32 mmol/L) |
| Cl | 95 | (95-110 mmol/L) |

1. State THREE abnormalities, including any equations used, on these blood results (3 marks)

2. List FOUR potential causes for this gentleman's presentation and blood results (4 marks)

3. List FIVE investigations you might perform. Include a clinical indication for each investigation. (5 marks)

| Investigation | Justification |
|---------------|---------------|
| | |
| | |
| | |
| | |
| | |

SAQ 24

12 Marks

A 13 year old boy with severe cerebral palsy (wheelchair for all mobility, non verbal, unable to use head or trunk against gravity), presents with parents who are concerned about worsening respiratory distress. They are specifically concerned about aspiration. His weight is 31 kg.

His vital signs are

| | |
|---------|---------------|
| GCC | 7 E 4 V1 M2 |
| Pulse | 110beats/min |
| CRT | 2seconds |
| BP | 98/62mmHg |
| O2 sats | 96% FiO2 0.21 |
| Temp | 36.4 |
| BSL | 4.2mmol/L |

1. STATE 4 (four) features on history relevant to his background condition of Cerebral Palsy (4 Marks)

2. List 3 differences between Aspiration Pneumonitis and Aspiration Pneumonia (3 Marks)

| Aspiration Pneumonitis | Aspiration Pneumonia |
|------------------------|----------------------|
| | |
| | |
| | |

3. Interpret his VBG taken on arrival (2 marks)

pH 7.23
pO₂ 238mmHg
pCO₂ 48mmHg
HCO₃ 21mEq/L

4. His respiratory distress worsens and his saturation are now persistently 81% with FiO₂ 0.21. Discuss the rationale for three different ways of managing his hypoxia. (3 marks)

SAQ 26

12 Marks

A 27-year-old woman presents to your suburban emergency department following a seizure. This is a first seizure and is described as tonic-clonic. The seizure self-resolved after 5 minutes.

Observations:

| | |
|------|---------------|
| HR | 105bpm |
| SpO2 | 99% RA |
| BP | 123/84 |
| GCS | 12 (E3 V4 M5) |

1. List eight (8) causes for a first seizure.(4 marks)

The patient has recurrent seizures whilst in the department.

The junior medical officer has given a loading dose of phenytoin as an IV bolus.

2. Describe the possible adverse effects of an IV bolus dose of IV phenytoin, and management of these effects(4 marks)

3. List two (2) IV anticonvulsants and their doses, other than phenytoin, that may be used in status epilepticus.(4 marks)

SAQ 27

10 Marks

You are working in a regional hospital. Ambulance have arrived with a 23yr farmhand who has an isolated head injury after being kicked in the head by a horse. She had a seizure en route. You decide to intubate her.

1. In the table below outline 5 different measures to prevent secondary brain injury:

Principle: Specific intervention:

| <i>Intervention</i> | <i>Therapeutic aim</i> |
|---------------------|------------------------|
| | |
| | |
| | |
| | |
| | |

The following arterial blood gas is taken at 30mins post intubation.

Her corresponding end-tidal CO₂ is also listed below.

| | |
|--|---|
| PaCO ₂ : 49mmHg PaO ₂ : 290mmHg EtCO ₂ : 36mmHg | Ventilator Settings: FiO ₂ 60% RR 16 TV 560 PEEP 16 PS 10 |
|--|---|

2. List 2 likely causes for the possible discrepancy between her EtCO₂ and PaCO₂ readings and suggest 3 changes in her ventilation settings:

| |
|---|
| <i>Causes for her discrepancy in EtCO₂ and PaCO₂:</i> |
| |
| |
| <i>Changes to ventilation settings:</i> |
| |
| |
| |

End of the SAQ Paper

Well done