



# Fellowship Practice Exam

**December 2015 - Book 1**

## **WRITTEN EXAMINATION SHORT ANSWER QUESTIONS**

EXAMINATION TIME: 3 HOURS - 1 hour per booklet

### **Directions to Candidates**

This booklet is one of three. It contains 9 questions. Allow 9 minutes for 3 page questions (1 and 9), and 6 minutes for 2 page questions (2 - 8). The entire booklet should take you 1 hour to complete.

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.
7. Props are provided in a separate booklet.

Candidate number \_\_\_\_\_

**QUESTION 1 (25 marks) 9 minutes**

An 18 year old man is transferred by ambulance to your rural emergency department after a self inflicted burn injury. Two hours ago the patient set himself alight with petrol after a fight with his girlfriend. He was intubated at the scene by the intensive care paramedic.

**A clinical photograph is shown in the prop booklet, page 3.**

i. Describe the burn giving four (4) relevant findings. (4 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

ii. List five (5) important complications of this injury. (5 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

**Question 1 continued**

After a thorough examination, you calculate his percentage of body surface area involved to be 80%. During the two hours since the injury the patient has received 2 litres of normal saline. His current blood pressure is 100/60 mmHg and pulse rate is 80 bpm.

- iii. Assuming the patient weights 70kg, calculate the patient's fluid requirements for the first 24 hours. Show your calculation. (2 marks)

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- iv. Prescribe your fluid treatment for your patient. (2 marks)

**INTRAVENOUS FLUID PRESCRIPTION chart**

| Fluid | Additives | Rate ml/hr |
|-------|-----------|------------|
|       |           |            |
|       |           |            |
|       |           |            |
|       |           |            |

**Question 1 continued**

v. List four (4) measures for monitoring adequate of fluid resuscitation. (4 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

vi. List five (5) indications for transfer of any patient to a burns unit. (5 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

iv. The patient's mother has arrived. List three (3) facts you need to convey to the family. (3 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

Candidate number \_\_\_\_\_

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**QUESTION 2 (19 marks) 6 minutes**

A 35 year old man presents with 2 weeks of worsening headache and confusion.  
On examination his observations are as follows:

Temp            38.2            °C  
HR                60                bpm  
BP                150/80          mmHg

**A CT brain is shown in the prop booklet, page 4.**

i. List three (3) abnormal findings on the images provided. (3 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

ii. List and justify six (6) further investigations.

|   | Investigation (6 marks) | Justification (6 marks) |
|---|-------------------------|-------------------------|
| 1 |                         |                         |
| 2 |                         |                         |
| 3 |                         |                         |
| 4 |                         |                         |
| 5 |                         |                         |
| 6 |                         |                         |

**Question 2 continued**

iii. Outline four (4) treatment priorities for this patient. (4 marks)

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**QUESTION 3 (20 marks) 6 minutes**

You receive a phone call from the coroner that a patient who was seen in your Emergency Department subsequently died at home from a myocardial infarction. He was a 35 year old man who presented with epigastric pain. He was seen and discharged by one of your junior registrars.

i. List three (3) hospital personnel that you would notify of this event. (3 marks)

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_

You review the emergency department notes.

ii. List five (5) important aspects of the case that you wish to investigate. (5 marks)

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_
- 5 \_\_\_\_\_

You plan to inform the registrar involved.

iii. List four (4) points that you need to cover during that conversation. (4 marks)

- 1 \_\_\_\_\_
- 2 \_\_\_\_\_
- 3 \_\_\_\_\_
- 4 \_\_\_\_\_

**Question 3 continued**

You decide your department needs to develop a protocol for the assessment of patients presenting to your emergency department with epigastric and chest pain.

iv. List eight (8) steps involved in protocol development. (8 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

6 \_\_\_\_\_

7 \_\_\_\_\_

8 \_\_\_\_\_

**Question 4 (16 marks) 6 minutes**

A 32 year-old male smoker is BIBA to the Emergency Department of a tertiary hospital following a fire at his metal cleaning and reclaiming shop. He has a fluctuating level of consciousness. His current examination shows :

|               |       |  |
|---------------|-------|--|
| GCS           | 13    | (E4 M5 V4)                                 |
| Temperature   | 36.5  | degrees Celsius                            |
| RR            | 10    | /min                                       |
| BP            | 88/55 | mmHg                                       |
| HR            | 130   | /min                                       |
| O2 Saturation | 96%   | on O <sub>2</sub> 6 L/minute via face mask |

He has no evidence of airway compromise, burns or other significant injury.

**The venous blood gas is taken and is available in the props booklet on page 5**

- i. List three (3) important abnormalities. State the significance of each abnormality (6 marks)

|   | Abnormality (3 marks) | Significance (3 marks) |
|---|-----------------------|------------------------|
| 1 |                       |                        |
| 2 |                       |                        |
| 3 |                       |                        |

**Question 4 continued**

- ii. Provide two (2) calculations that will assist your diagnostic process. State how each calculation will contribute to the diagnosis (4 marks)

| Calculation (2 marks) | Contribution to diagnosis (2 marks) |
|-----------------------|-------------------------------------|
|                       |                                     |
|                       |                                     |

- iii. List the two (2) most clinically important differential diagnoses. (2 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

- iv. List two (2) specific treatments that you would commence. Provide details for each treatment including doses and routes where applicable. (4 marks)

|   | Specific treatment (2 marks) | Details (2 marks) |
|---|------------------------------|-------------------|
| 1 |                              |                   |
| 2 |                              |                   |

**Question 5 (20 marks) 6 minutes**

An 84 year old man has a simple mechanical fall and is brought to your ED with a painful right knee. This is the only injury resulting from his fall.

He is normally well, on no medication, and lives alone independently.

**A AP and lateral X-rays of his right knee are performed and are shown in the props booklet pages 6 and 7**

i. List four (4) descriptive features of the injury shown. (4 marks)

1

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2

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3

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4

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ii. List three (3) neurovascular structures that may be compromised in this injury. For each structure state a clinical finding that would support compromise of the structure. (6 marks)

|   | Structure (3 marks) | Supportive clinical finding (3 marks) |
|---|---------------------|---------------------------------------|
| 1 |                     |                                       |
| 2 |                     |                                       |
| 3 |                     |                                       |

**Question 5 continued**

- iii. List five (5) methods of providing analgesia for this injury. Provide details including drugs doses and routes where appropriate. (10 marks)

|   | Analgesia method (5 marks) | Details (5 marks) |
|---|----------------------------|-------------------|
| 1 |                            |                   |
| 2 |                            |                   |
| 3 |                            |                   |
| 4 |                            |                   |
| 5 |                            |                   |

**Question 6 (16 marks) 6 minutes**

A 4 week old child is brought to your emergency department with a distended abdomen.

i. What six (6) questions would you ask to aide you with your diagnosis? (6 marks)

1

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2

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3

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4

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5

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6

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**An AXR is taken and is shown on page 8 of the props booklet.**

ii. State two (2) positive and two (2) relevant negative findings on the AXR. (4 marks)

|   | Positive findings (2 marks) | Relevant negative findings (2 marks) |
|---|-----------------------------|--------------------------------------|
| 1 |                             |                                      |
| 2 |                             |                                      |

**Question 6 continued**

iii. What is the most likely diagnosis? (1 mark)

\_\_\_\_\_

iv. Name two (2) differential diagnosis. (2 marks)

1

\_\_\_\_\_

2

\_\_\_\_\_

v. State three management steps. (3 marks)

1

\_\_\_\_\_

2

\_\_\_\_\_

3

\_\_\_\_\_



**Question 7 (22 marks) 6 minutes**

An 80 year old woman from home presents with fever, cough and collapse. She has a history of chronic renal failure, hypertension and congestive cardiac failure.

On arrival her observations are as follows:

|                  |       |                                      |
|------------------|-------|--------------------------------------|
| Temp             | 39    | oC                                   |
| HR               | 80    | /min                                 |
| BP               | 80/70 | mmHg                                 |
| SaO <sub>2</sub> | 89%   | on 6L O <sub>2</sub> via Hudson mask |
| GCS              | 14    | (E4, M6, V4)                         |

- i. Complete the following table listing three (3) alternative methods for assessing the fluid status of this patient. For each method state two (2) pros and two (2) cons. (9 marks)

|   | Method (3 marks) | Pros (3 marks) | Cons (3 marks) |
|---|------------------|----------------|----------------|
| 1 |                  |                |                |
|   |                  |                |                |
| 2 |                  |                |                |
|   |                  |                |                |
| 3 |                  |                |                |
|   |                  |                |                |

**Question 7 continued**

- ii. Complete the following table listing three (3) alternative methods for improving oxygenation in this patient. For each method state two (2) pros and two (2) cons.

|   | Method (3 marks) | Pros (3 marks) | Cons (3 marks) |
|---|------------------|----------------|----------------|
| 1 |                  |                |                |
|   |                  |                |                |
| 2 |                  |                |                |
|   |                  |                |                |
| 3 |                  |                |                |
|   |                  |                |                |

- iii. List four (4) steps in establishing limitations of care for this patient. (4 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

**Question 8 (14 marks) 6 minutes**

A 4 week old baby, born at term with no neonatal problems, presents with poor feeding and lethargy.

**An ECG is performed and is shown in the props booklet on page 9**

i. What is the ECG diagnosis? (1 mark)

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ii. List three (3) ECG features that support this diagnosis. (3 marks)

1

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2

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3

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iii. List four (4) possible underlying causes. (4 marks)

1

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2

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3

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4

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**Question 8 continued**

- iv. State five (5) steps of management in the order that you would perform them. (5 marks)

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

4 \_\_\_\_\_

5 \_\_\_\_\_

- v. Prescribe your drug of choice. (1 mark)

| Medication | Route | Dose |
|------------|-------|------|
|            |       |      |

**Question 9 (36 marks) 9 minutes**

A 52 year old woman presents to your emergency department with breathlessness for the last 24 hours. She is known to have Chronic Obstructive Airways disease in association with alpha-1 antitrypsin deficiency

i. Complete this table, describing the utility of venous blood gas variables for this patient.

| Variable  | Utility of variable (8 marks) |
|---|-------------------------------|
| <b>pH</b><br>(2 marks)                          |                               |
| <b>pCO<sub>2</sub></b><br>(2 marks)             |                               |
| <b>pO<sub>2</sub></b><br>(2 marks)              |                               |
| <b>HCO<sub>3</sub><sup>-</sup></b><br>(2 marks) |                               |

ii. List four (4) indications for Bi-level Positive Airway Pressure for this patient. (4 marks)

1

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3

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4

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**Question 9 continued**

- iii. Complete the table demonstrating your regime for Bi-level Positive Airway Pressure for this patient. (5 marks)

| <b>Variable</b>                                      | <b>Settings (5 marks)</b> |
|--|---------------------------|
| <b>Initial IPAP</b>                                  |                           |
| <b>Maximum IPAP</b>                                  |                           |
| <b>Initial EPAP</b>                                  |                           |
| <b>Maximum EPAP</b>                                  |                           |
| <b>Time period to increase from initial settings</b> |                           |

- iv. List five (5) indications for intubation in this patient. (5 marks)

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4

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5

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**Question 9 continued**

You decide to progress to intubation soon after arrival to the emergency department. The patient has received 10mg Salbutamol via nebuliser only. She weighs 70 kg. Her observations prior to arrival are:

|      |        |      |
|------|--------|------|
| BP   | 100/60 | mmHg |
| HR   | 130    | /min |
| RR   | 30     | /min |
| Temp | 37     | °C   |
| GCS  | 15     |      |

v. Complete the table provided with regards to intubating this patient. (7 marks)

|  |  |
|--|--|
| <b>ETT size</b><br>(1 mark)                  |  |
| <b>Pretreatment</b><br>(2 marks)             |  |
| <b>Induction agent and dose</b><br>(2 marks) |  |
| <b>Relaxant agent and dose</b><br>(2 marks)  |  |

vi. List your initial ventilator settings for this patient. (7 marks)

|                                     |  |
|-------------------------------------|--|
| <b>Ventilator mode</b><br>(1 mark)  |  |
| <b>Tidal volume</b><br>(1 mark)     |  |
| <b>Respiratory rate</b><br>(1 mark) |  |
| <b>P(insp) - if PCV</b><br>(1 mark) |  |
| <b>PEEP</b><br>(1 mark)             |  |
| <b>FiO<sub>2</sub></b><br>(1 mark)  |  |
| <b>I:E ratio</b><br>(1 mark)        |  |