



# The Hong Kong College of Anaesthesiologists

## Final Fellowship Examination

### Paper II – Investigation (1-6)

10 September 2018 (Monday)

12:55 – 13:05 hours

#### Instructions:

- This is a question-answer book. Please write your answers in the space provided.
- Write your candidate number on the cover of the answer book.
- Use ink or ball-point pen.
- There are 6 questions in this paper, each with multiple parts.
- Answer **ALL** questions. They are worth equal marks.
- For questions with multiple parts, allocation of marks is indicated in the brackets.

#### Question 1

A 60-year-old man presents for lumbar decompression in prone position. He is hypertensive, a heavy smoker and has a chronic cough. He reports increasing shortness of breath and productive sputum recently. He is on enalapril 5 mg daily only and his blood pressure on admission is 165/105 mmHg.

The following is the results of his pulmonary function test:

Parameters	Patient Values	Post-salbutamol	Predicted Values
FEV <sub>1</sub>	1.5 L	2.0 L	2.6 L
FVC	2.3 L	2.7 L	3.5 L
FEV <sub>1</sub> /FVC	65 %	74 %	74 %

- a. Name two (2) features/abnormalities in this pulmonary function test? (2 marks).

1. \_\_\_\_\_
2. \_\_\_\_\_

- b. Name two (2) possible causes that might contribute to his chronic cough. (1 mark).

1. \_\_\_\_\_
2. \_\_\_\_\_

c. How would you manage his chest condition preoperatively? (2 marks).

---



---

### Question 2

You are called to Emergency department to assist resuscitation of a 25-year-old man who sustained multiple injuries in a road traffic accident. His blood pressure is 70/55 mmHg and pulse is 130 bpm and regular.

#### Complete blood picture

Parameters	Patient Values	Reference ranges
Haemoglobin, blood	11.0 g/dL	13.5 – 17.2 g/dL
Haematocrit	0.31	0.39 – 0.51
Platelet count	$220 \times 10^9/\text{L}$	$175 - 420 \times 10^9/\text{L}$
White cell count	$14.2 \times 10^9/\text{L}$	$4.5 - 10.0 \times 10^9/\text{L}$

#### Arterial blood gas

pH	7.20	7.35 – 7.45
Arterial oxygen tension	9.0 kPa	10.0 -13.0 kPa
Arterial carbon dioxide tension	7.2 kPa	4.7 -6.0 kPa
Base Excess	-11	-2 - +3
Bicarbonate	19 mmol/L	22-26 mmol/L

a. Name three (3) abnormalities in the complete blood picture. (1.5 marks)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

b. What is (are) the likely cause(s) of the leukocytosis? (1 mark)

---



---

c. Describe three (3) abnormalities in the arterial blood gases. (1.5 marks)

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

d. What is the estimated amount of blood loss if the patient is hypotensive and tachycardic? (1 mark)

---



---

### **Question 3**

A 55 year-old man presents for elective ankle arthrodesis. He is agitated in the recovery room. Below are the preoperative investigations.

#### **Complete blood picture**

Parameters	Patient Values	Reference ranges
Haemoglobin, blood	8.2	13.4 – 17.2 g/dL
Platelet count	155	152 – 368 x 10 <sup>9</sup> /L
White cell count	3.0	3.9 - 10.7 x 10 <sup>9</sup> /L
MCV	104	53 – 98 fL
MCH	39	27 – 34 pg

#### **Renal and liver function test**

Sodium	141	136 – 145 mmol/L
Potassium	3.7	3.5 – 4.5 mmol/L
Urea	6.7	3.0 – 9.2 mmol/L
Creatinine	107	64 – 111 umol/L
Adjusted calcium	2.36	2.10 – 2.65 mmol/L
Phosphate	1.17	0.74 – 1.52 mmol/L
Albumin / Globulin	40 / 35	32 – 46 g/L
Alanine aminotransferase	72	< 61 U/L
Alkaline Phosphatase, Total	64	56 – 119 U/L
Gamma-glutamyl transferase (GGT)	112	12 – 64 U/L

Candidate no. \_\_\_\_\_

**a. Describe two (2) abnormalities in the complete blood picture. (2 marks)**

1. \_\_\_\_\_

2. \_\_\_\_\_

**b. What is the likely cause of the liver dysfunction? Give evidence. (2 marks)**

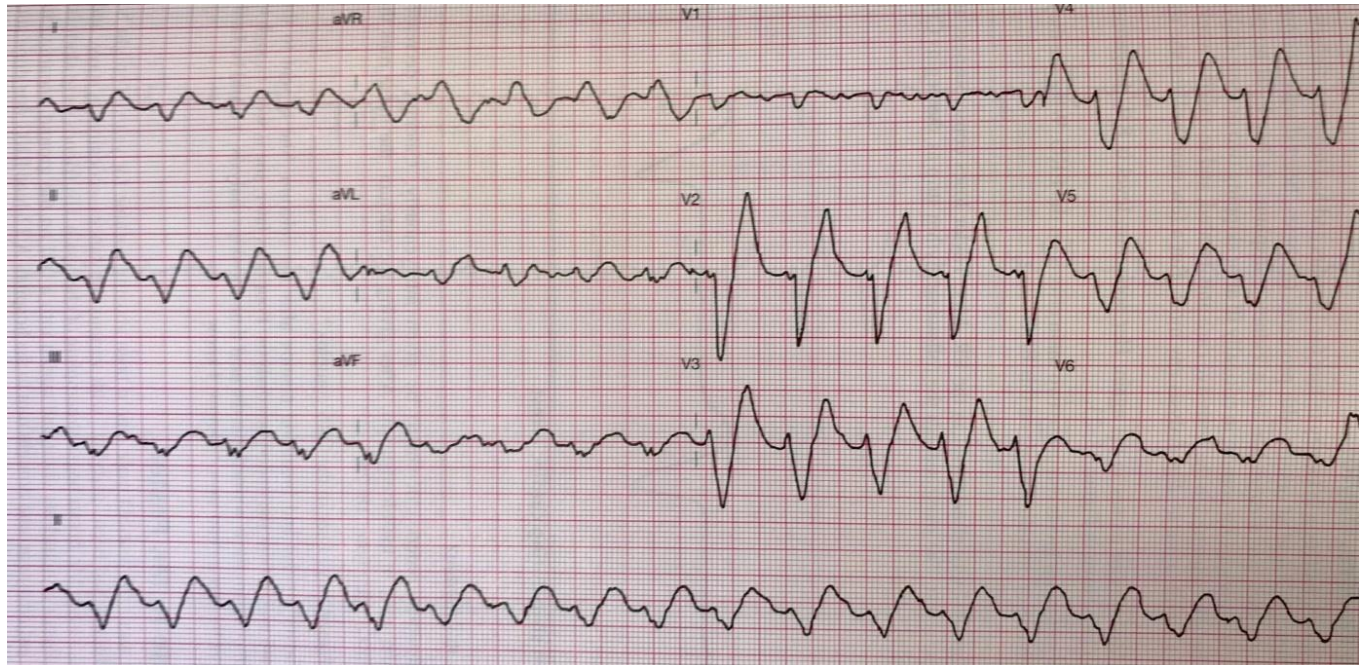
\_\_\_\_\_  
\_\_\_\_\_

**c. Give one (1) cause for his postoperative agitation with the available data? (1 mark)**

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**Question 4**

A 65 year-old man requires massive transfusion for gastrointestinal bleeding. Past medical history includes diabetes and hypertension. Below ECG pattern is found two hours after received 10 units of packed cells.



a. What is the diagnosis? (1 mark)

---

b. List two (2) ECG features that support your diagnosis? (2 marks)

1. 

---

2. 

---

c. What immediate measure(s) would you provide? (2 marks)

---



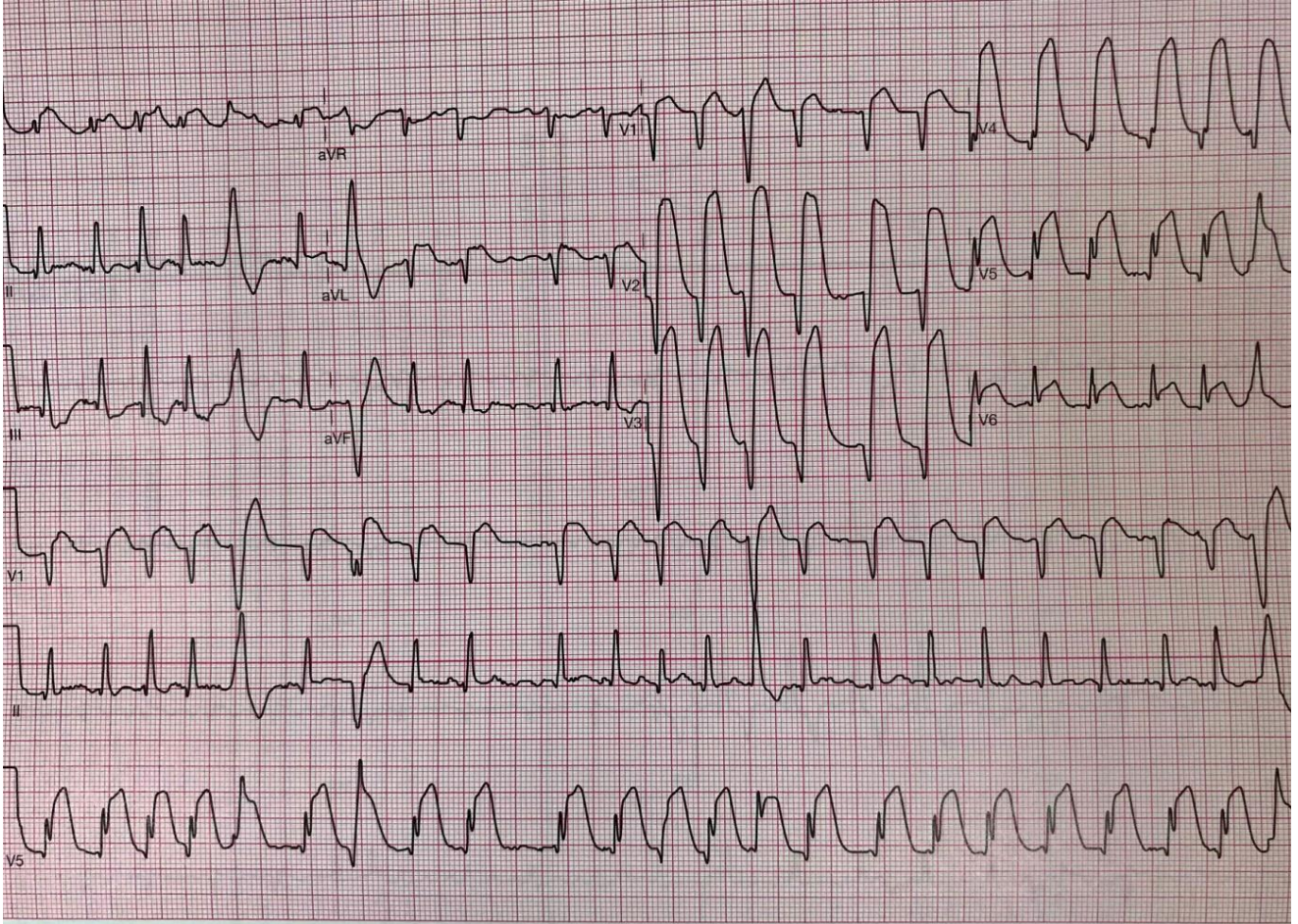
---



---

**Question 5**

The following ECG is found in a 70 year-old patient who presents for emergency laparoscopic colectomy for suspected bowel ischaemia. His previous ECGs are normal. He has history of ischaemic heart disease on treatment. His blood pressure is 65/35mmHg, SpO<sub>2</sub> 95%.



a. Describe the rhythm and abnormalities. (2 marks)

---

---

---

a. What is the diagnosis? (1 mark)

---

---

**b. What are the immediate treatments? (2 marks)**

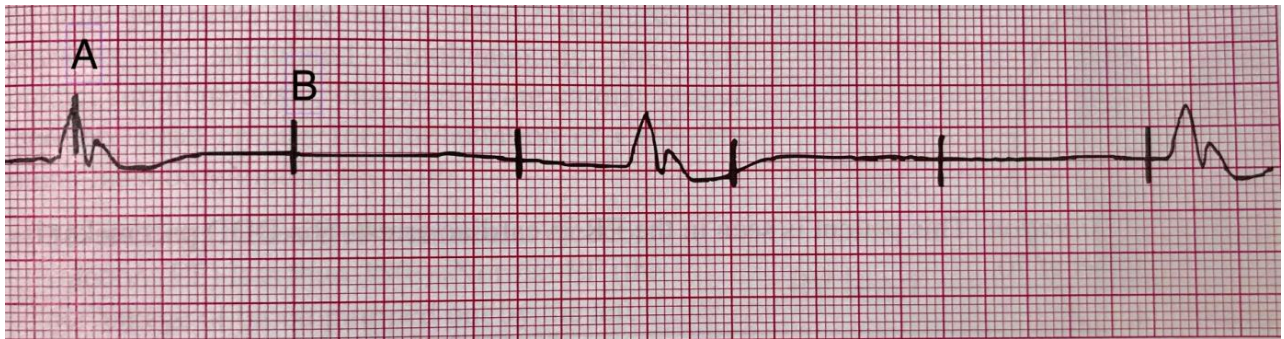
---



---

**Question 6**

**A patient with a permanent pacemaker passed out in the recovery room. The nurse found him barely responsive to verbal stimuli and have a very low pulse rate. The Lead 2 ECG showed the following pattern.**



**a. What are two common types of pacemaker malfunctions? (3 marks)**

1. \_\_\_\_\_

2. \_\_\_\_\_

**b. Which pacemaker mode is shown in the diagram? (1 mark)**

---



---

**c. What types of problems are shown in A and B? (1 mark)**

A. \_\_\_\_\_

B. \_\_\_\_\_