

Candidate No: _____



The Hong Kong College of Anaesthesiologists

Final Fellowship Examinations

Paper II – Investigations (1-5)

4 September 2023 (Monday)

12:20 – 12:30 hours

Instructions:

- a. This is a question-answer book. Please write your answers in the space provided.
- b. Write your candidate number on the first page of the answer book.
- c. Use ink or ball-point pen.
- d. There are 5 questions in this paper, each with multiple parts.
- e. Answer **ALL** questions. They are worth equal marks.
- f. For questions with multiple parts, allocation of marks is indicated in the brackets.

Question 1 (8 marks)

A 56-year-old woman presents to the Accident and Emergency department with 2-days symptoms of gastroenteritis. She is lethargic, and her blood pressure is 80/40.

The following is her ECG:



i) What is the ECG diagnosis? **(2 marks)**

ii) Name 3 potential causes of this occurrence. **(3 marks)**

iii) What are the treatments? **(3 marks)**

Question 2 (4 marks)

You are asked to do a pre-operative assessment on a 75-year-old female admitted to hospital with gastric outlet obstruction, scheduled for an emergency laparotomy. She is tachypneic with a provisional diagnosis of aspiration pneumonia and her Arterial Blood Gas results is shown:

Parameter	Patient Value	Normal Adult Range
FiO ₂	0.3	
pH	7.53	7.35-7.45
pO ₂	11 kPa (82.5 mmHg)	10.5-13.5
pCO ₂	4 kPa (30 mmHg)	4.6-6
SpO ₂	95%	
Bicarbonate	25 mmol/L	22 -28
Standard Base Excess	3.3 mmol/L	-2 - +2

i) Comment on the acid-base status. **(2 marks)**

ii) Give an explanation for these results. **(2 marks)**

Question 3 (4 marks)

A 75-year-old woman (bodyweight 60Kg) is booked for an emergency fixation of her right trochanteric fracture. She sustained a fall at home with preceding symptoms of confusion, dizziness and vomiting. She was recently diagnosed to have a depressive disorder and started on Fluoxetine two months ago. His tongue mucosa is wet with normal skin turgor.

Parameters	Values	Normal range
Serum Sodium	110	134-143 mmol/L
Serum Potassium	3.8	3.5-5.0 mmol/L
Serum Urea	5.7	3.1-8.1 mmol/L
Serum Creatinine	36	50-90 mmol/L
Serum Osmolality	237	274-289 mmol/Kg
Urine Sodium	43	10-20 mmol/L
Urine Osmolality	543	40-1200 mmol/Kg

i) What is the likely cause of hyponatraemia? **(1 mark)**

ii) What is the pathophysiological mechanism of the above diagnosis? **(2 marks)**

iii) What is the maximum rate of correction of hyponatraemia? **(1 mark)**

Question 4 (3 marks)

A 62-year-old male is admitted for an elective vascular surgical procedure. His pre-operative full blood count (FBC) is displayed below:

Parameter	Patient Value	Normal Adult Range
Haemoglobin	12.5 g/dl*	13 – 18
White Cell Count	$7.4 \times 10^9/L$	4.5 – 11.0
Platelets	$255 \times 10^9/L$	150 – 400
Mean Cell Volume	110 fL*	80 – 98
Mean Cell Haemoglobin	30 pg/cell	27 – 33
Mean Cell Haemoglobin Concentration	320 p/L	310 – 360

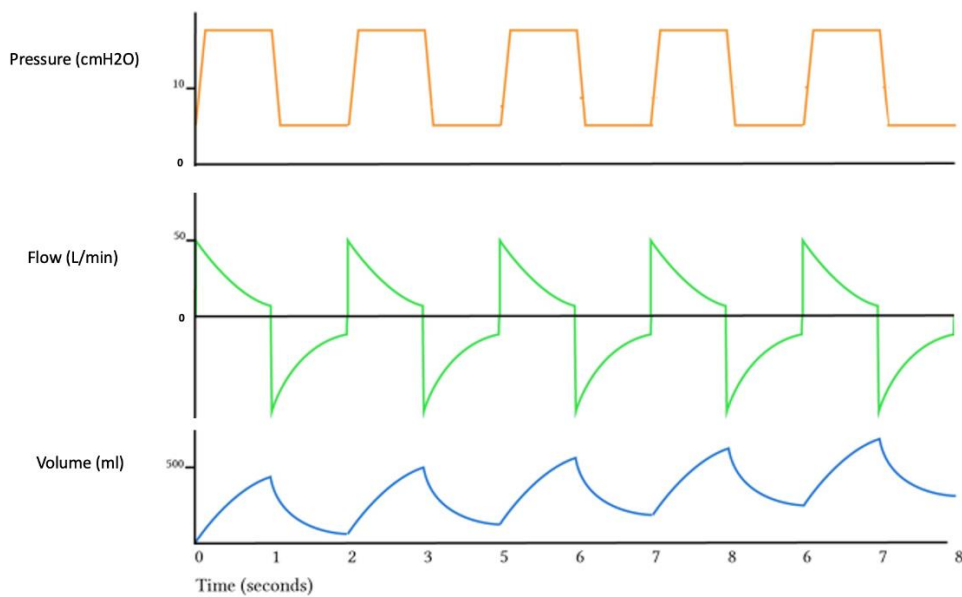
Give three possible causes for the findings on his FBC. **(3 marks)**

Question 5 (5 marks)

A 72-year-old man with a medical history of Diabetes Mellitus, hypertension and chronic obstructive airway disease on bronchodilators underwent an elective laparoscopic cholecystectomy. He was on Volume Control Mode with TV 500 ml, RR 15 bpm, FiO₂ 0.4, I:E ratio of 1:2.

20 minutes after inducing pneumoperitoneum, his blood pressure was noted to drop gradually from his baseline of 145/83 mmHg to 90/60 mmHg despite 500mls of intravenous Gelofusine.

The following were the parameters on the ventilator.



i) What is this phenomenon? **(1 mark)**

ii) Name 2 physiological adverse effects of this phenomenon. **(2 marks)**

iii) Name 2 interventions to minimize this phenomenon. **(2 marks)**

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