

Candidate No: _____



The Hong Kong College of Anaesthesiologists

Final Fellowship Examinations

Paper II – Investigations

10 August 2026 (Monday)

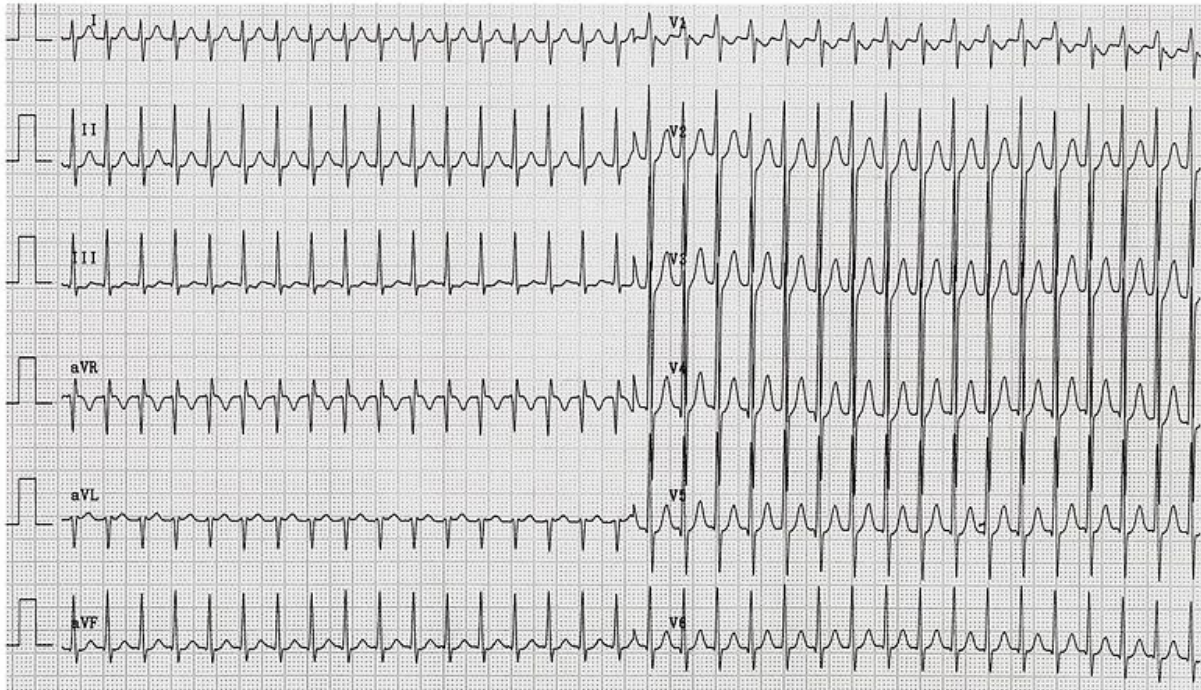
12:20 – 12:30 hours

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 4 questions in this paper, each with multiple parts.
- e. Answer **ALL** questions.
- f. For questions with multiple parts, allocation of marks is indicated in the brackets.

Question 1

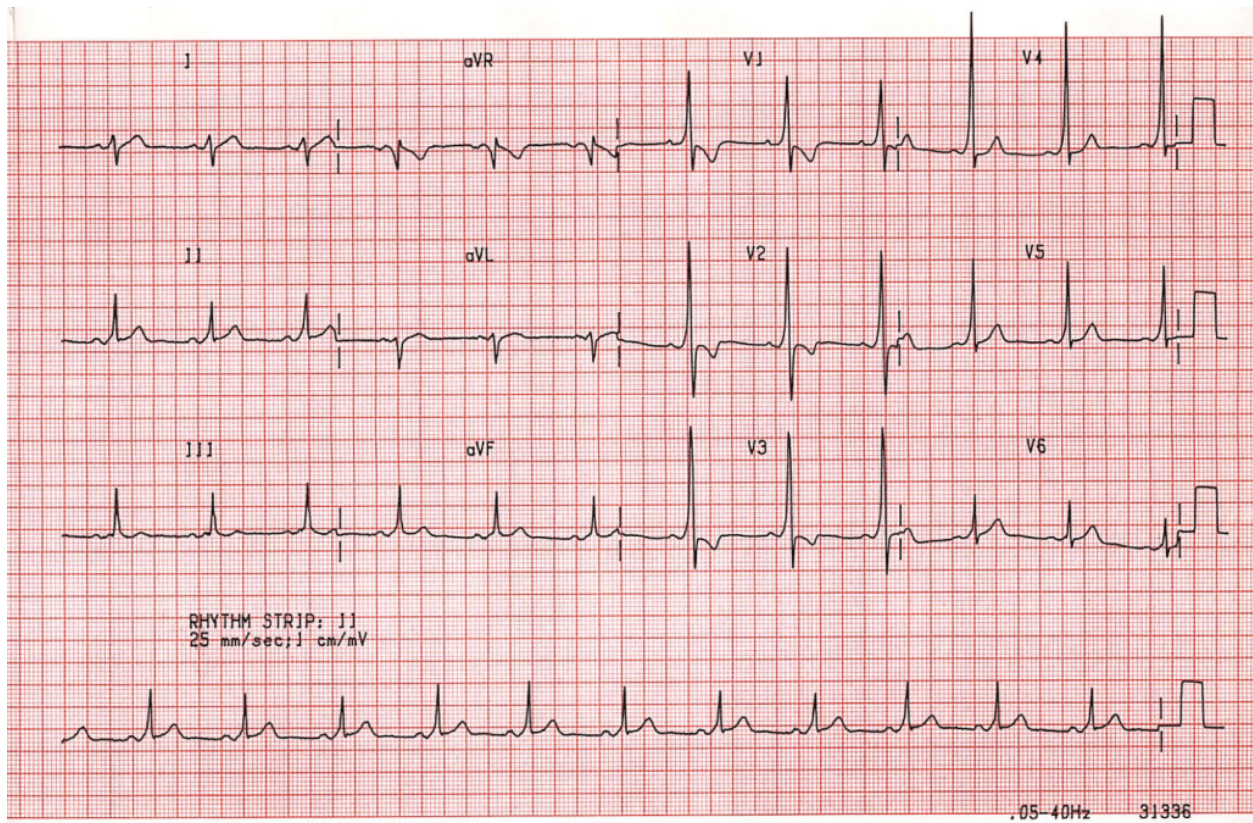
You are the consultant at the preanaesthetic assessment clinic. A 44-year-old female who scheduled for wide local excision of left breast cancer complaints of palpitation in the patient waiting area. Below is her ECG done by the nursing staff:



a. What is your diagnosis? (1 mark)

b. Her blood pressure is 130/75mmHg and she has no other discomfort. Name a non-pharmacological treatment that can be conducted in the setting of clinic. Describe how you do it. (1.5 marks)

Below is her ECG after your treatment.



c. What is your diagnosis? Explain your answer. (2 marks)

d. The operation is scheduled 5 days later. Briefly describe your preoperative management. (1.5 marks)

Question 2

A 55-year-old man complains of worsening shortness of breath on exertion. Below is his transthoracic Echo report.

2D measurements			Doppler measurements		
	Values	Normal		Values	Normal
IVSd	0.94 cm	0.7-1.0 cm	Tricuspid valve		
LVIDd	4.0 cm	3.6-5.4 cm	TR Vmax	5.7 m/s	<2.8m/s
LVIDs	3.0 cm	2.3-3.8 cm	TR Max PG	131 mmHg	
LVPWd	0.82 cm	0.7-1.1 cm	RVSP	141 mmHg	
FS (%)	25		Pulmonary valve		
LVOT Diam	2.01 cm	1.8-2.4 cm	PV Vmax	2.5 m/s	<1.0 m/s
Ao Root Diam	3.19 cm	2.1-3.5 cm	PV Max PG	25.8 mmHg	
			PVR	17.8 WU	0.3-1.6 WU
LA Vol	28 ml/m2	16-35 ml/m2	Mitral valve		
RA Vol	72 ml/m2	< 30 ml/m2	MV Max PG	2.98mmHg	
			MVA by PHT	5.3cm	
			E/E'	7.3	
RVID (basal)	5.9 cm	2.6-3.2 cm	Aortic valve		
RV wall	0.7 cm	< 0.5cm	AV Max PG	4.2mmHg	
TAPSE	0.8 cm	> 1.7cm	AVA	3.3 cm2	

Based on the 2D measurements,

a. Comment on his left ventricular systolic function. (0.5 mark)

b. Summarize the Echo findings of his right heart. (2 marks)

c. Interpret the Doppler findings of the tricuspid valve. (1.5 marks)

d. List two possible causes for his complaints. (2 marks)

Question 3

A 35-year-old woman known to have gestational diabetes managed by diet control, presented to emergency department at 32 weeks' gestation complaining of fever, diarrhoea and shortness of breath. Below is her blood result.

Arterial blood gases		Blood count	
pH	7.26	WBC	14.1 x10 ⁹ /L
pO ₂	91 mmHg	Hb	10.1 g/dL
PaCO ₂	22 mmHg	Platelets	150 x10 ⁹ /L
BE	-11.8		
HCO ₃	10.0 mmol/l		
Na	137 mmol/l	Urinalysis	
K	4.3 mmol/l	pH	5.5
Cl	107 mmol/l	Ketones	4+
Lactate	0.5 mmol/l	WBC	neg
Glucose	4.7 mmol/l	Nitrites	neg

a. Calculate the anion gap and describe the acid base abnormalities. (3 marks)

b. What are the causes for the metabolic derangement? Explain your answer. (2 marks)

c. What will be your management? (1 mark)

Question 4

A 46-year-old woman is seen at the preanaesthetic assessment clinic for total hysterectomy. She has no known medical problem, but complaints of increasing exertional dyspnea for past 6 months. Below is her pulmonary function test.

	Predicted	Pre-ventolin	% Pred	Post-ventolin
Spirometry				
FVC (L)	3.19	2.36	74	2.40
FEV1 (L)	2.61	1.97	75	1.95
FEV1/FVC (%)	81.9	82.9	101	81.2
Lung volumes				
RV (L)	1.78	1.21	68	
TLC (L)	4.86	3.2	65	

a. What is the diagnosis? Explain your answer. (2 marks)

b. Below are the diffusing capacity measurements. Interpret the results and list two potential differential diagnosis for her symptoms. (2 marks)

	Predicted	Actual	% Pred
D _{LCO} mmol/min/KPa	7.43	5.22	70
K _{CO} mmol/min/KPa/L	1.62	1.49	92

c. Below is her arterial blood gas. What are the abnormalities? (1 mark)

pH	7.39
pCO ₂	56 mmHg
pO ₂	101 mmHg
HCO ₃	30 mmol/l

d. What are the two specialist referral you will make for further investigation and optimization? (1 mark)

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