Intermediate End of Block Exam

INTRODUCTION

You have 1hour to complete this test. Each multiple choice question has only one correct answer. The short answer questions (SAQ's) will dictate how many marks each question is worth in brackets.
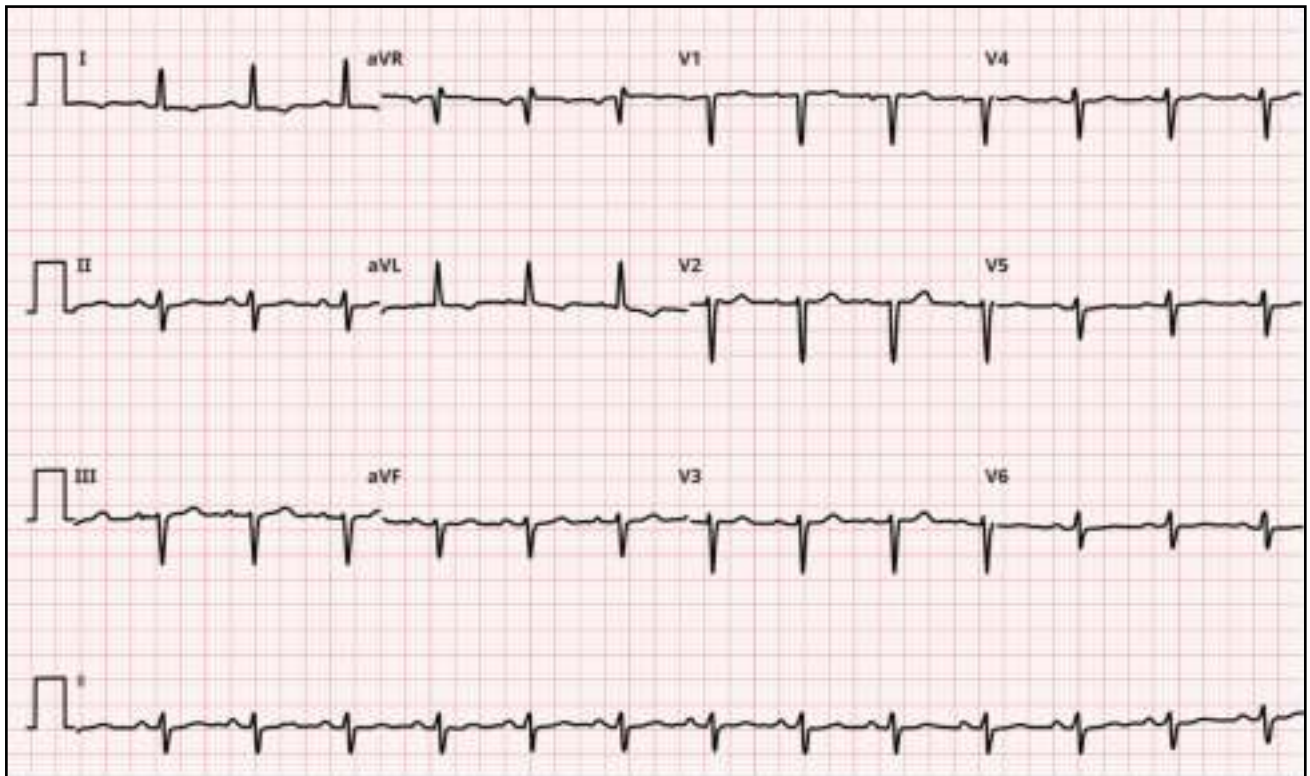
Q1

Describe the cardiac axis for a patient whose ECG shows a positive QRS in lead I, a negative deflection in aVF and a positive QRS in lead II

A. Normal axis

B. Left axis deviation

C. Right axis deviation

D. Extreme axis deviation

E. Can't determine axis without more information

Calculate the cardiac axis in degrees for the following ECG?

A. 0 degrees

B. -30 degrees

C. +60 degrees

D. +150 degrees

E. -90 degrees

A previously fit and well 65 year old gentleman presents to the emergency department in a large hospital with central crushing chest pain that started 1 hour ago and has been unrelieved by GTN. He has been given aspirin and ticagrelor in the ambulance. His ECG is shown below. Which of the following is the most appropriate definitive management option.
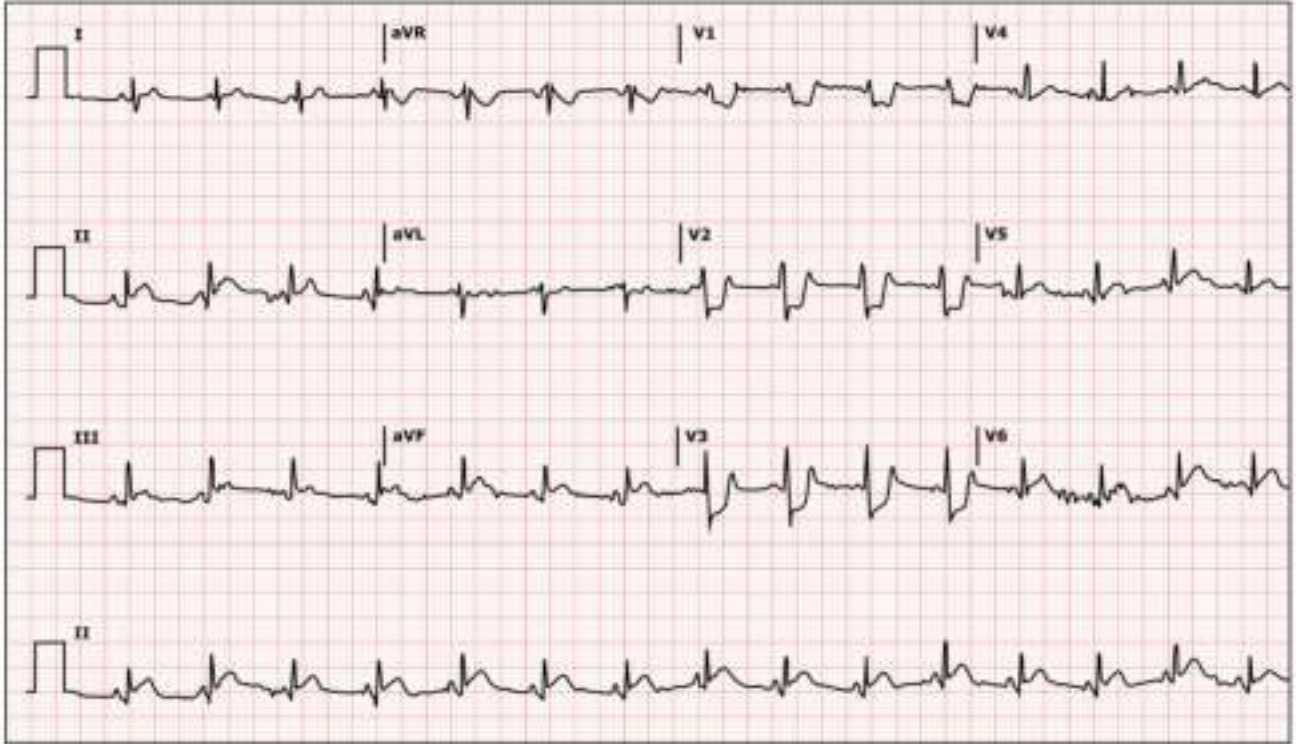
A. Urgent cardiology opinion regarding percutaneous coronary intervention

B. Perform an ECHO to assess LV function and treat if evidence of heart failure present

C. Continue on dual anti-platelet therapy, add in fondaparinux, beta blocker, ramipril, morphine PRN, metaclopramide and statin. Admit to the acute medicine ward with telemetry

D. Start an intravenous nitrate infusion for ongoing chest pain and admit to CCU

E. Measure troponin levels before deciding on further management

A 77 year old female with a background of ischaemic heart disease, diabetes, TIAs and Parkinson's disease presents to the acute medical receiving unit because of complaints of cardiac sounding chest pain that has been ongoing for the last 6 hours. She takes 75mg of aspirin daily, 2.5mg bisoprolol and 20mg of atorvastatin. She has had multiple sprays of GTN with no relief and is getting concerned. Her BP is 110/70 and temp is 36.5. O2 sats are 97% on air. Her ECG is shown below and her troponin result at 6 hours was <0.04. What is the best management option?
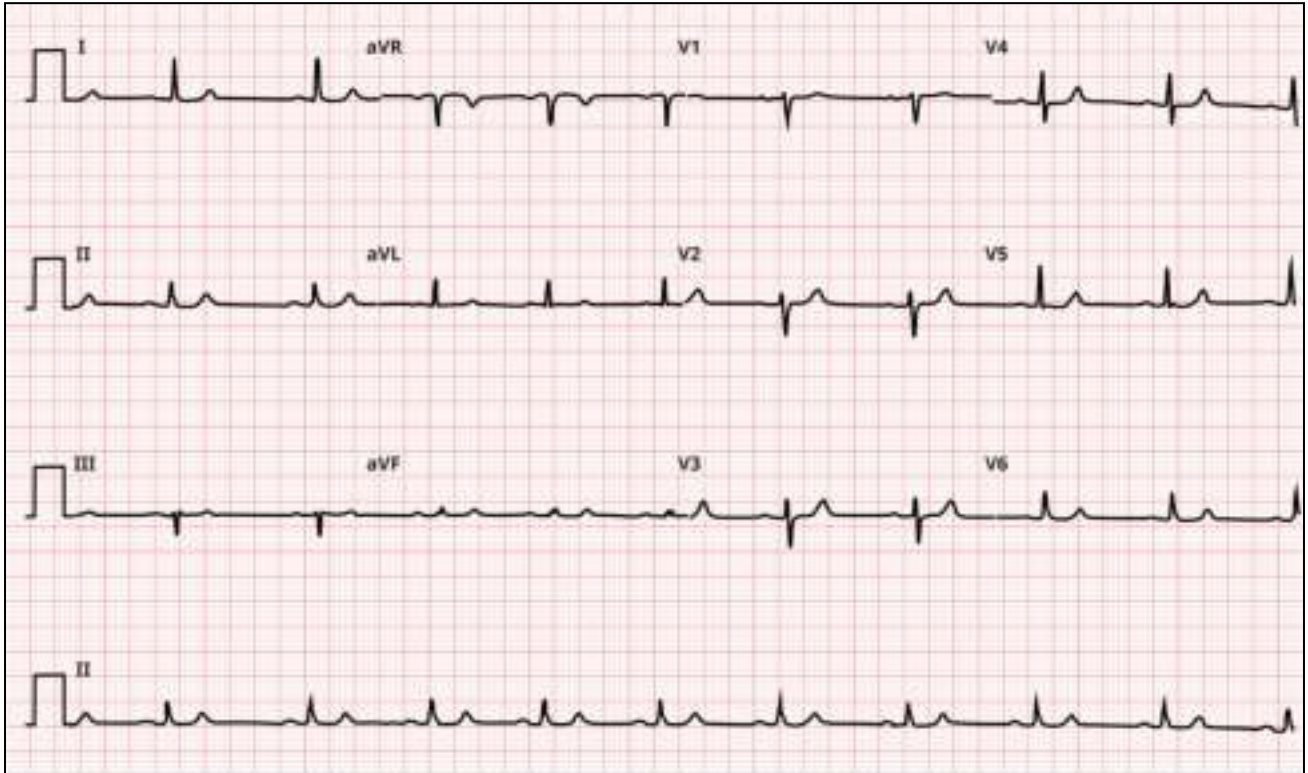
A. Urgent cardiology opinion regarding percutaneous coronary intervention

B. Perform an ECHO to assess LV function and treat if evidence of heart failure present

C. Give an extra 225mg of aspirin +180mg of ticagrelor + 2.5mg s/c fondaparinux. Admit to the acute medicine ward with telemetry and urgent cardiology assessment.

D. Repeat troponin at 12 hours and admit for observation

E. Discharge home

A 62 year old gentleman suffers from an acute cardiac event. His ECG is shown below. Which coronary artery has most likely been compromised?
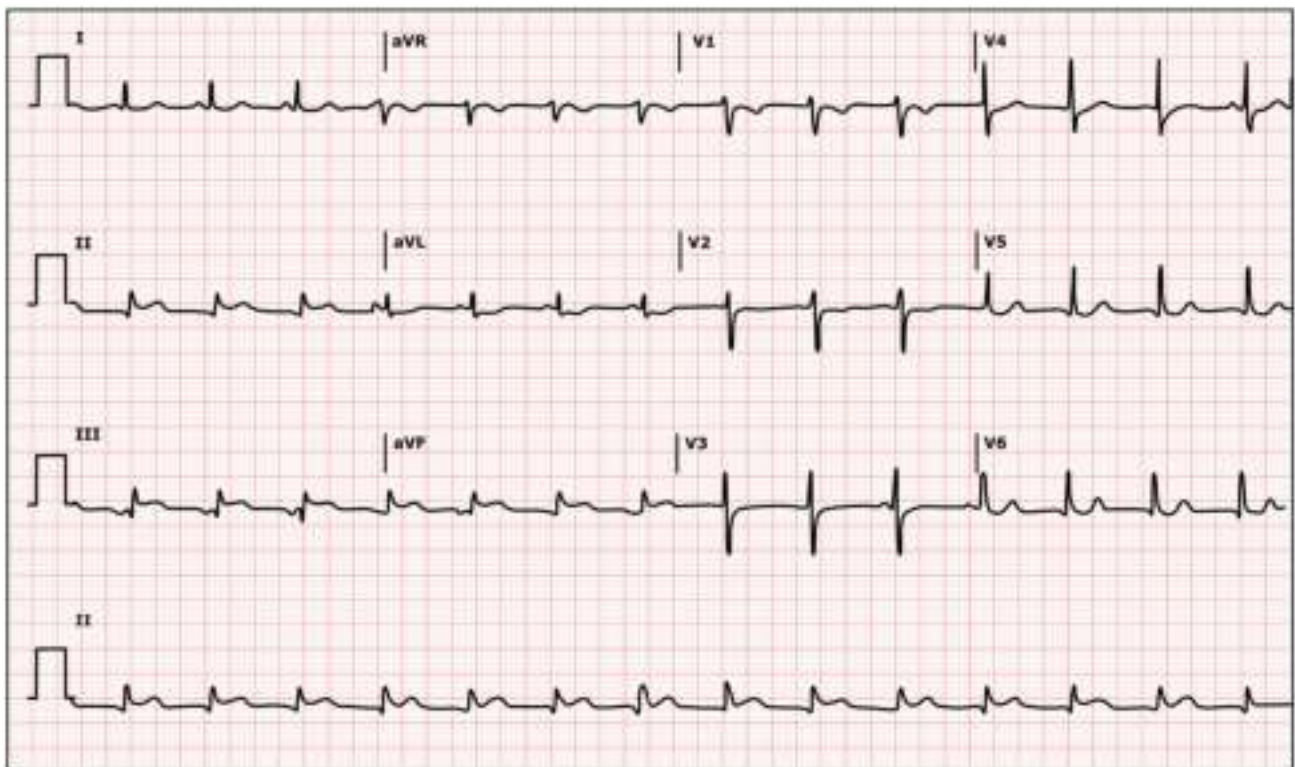
A. Left mainstem artery

B. Circumflex artery

C. Posterior descending artery

D. Left anterior descending artery

E. Right coronary artery

A 25 year old gentleman presents to the cardiology clinic with complaints of reduced exercise tolerance and pre syncope. He has no other medical problems of note and doesn't take any medicines other than antihistamines. His ECG is shown below. What is the most likely diagnosis?
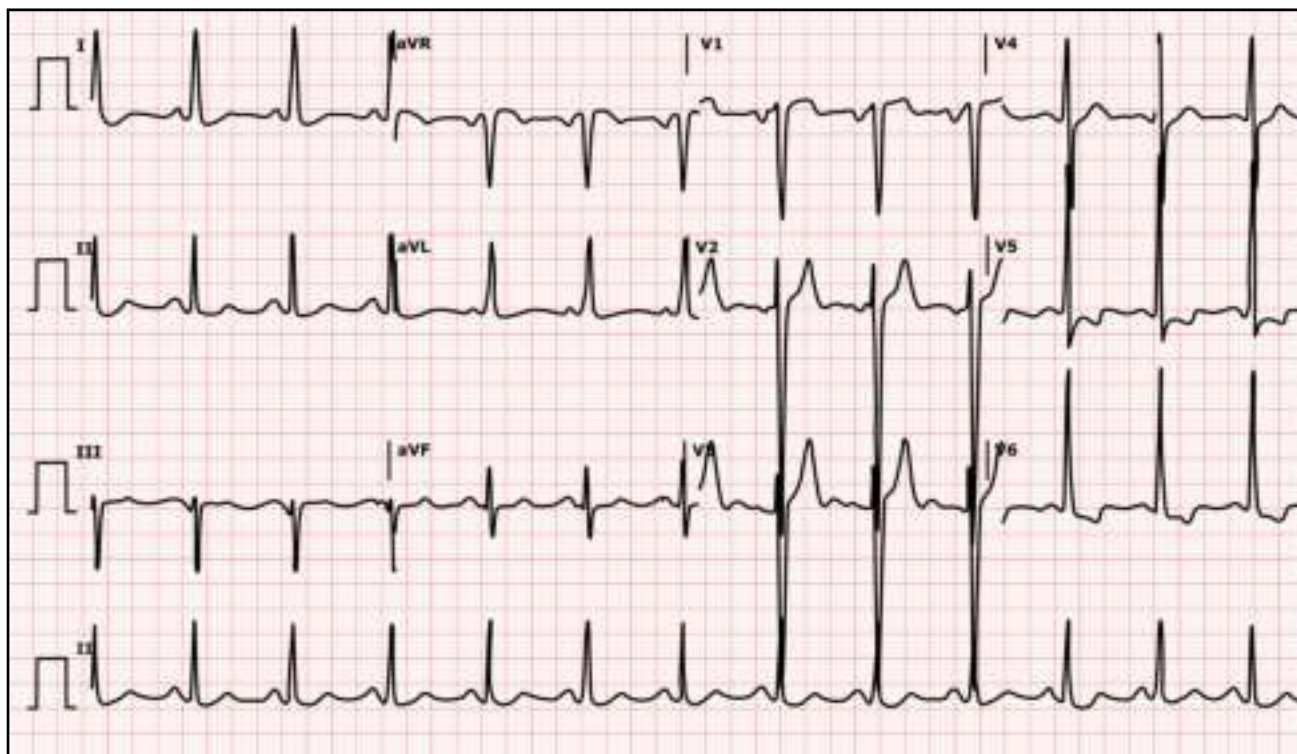
A. Antero-septal STEMI

B. Pulmonary embolism

C. Hypertrophic cardiomyopathy

D. Paroxysmal AF

E. Normal ECG for age and body habitus

Which of the following would classify as a bifascicular block

A. Right axis deviation and left bundle branch block

B. 1st degree AV block with right axis deviation

C. 1st degree AV block with normal axis

D. Left axis deviation and Right bundle branch block

E. Left axis deviation and Left bundle branch block

An ECG is taken from an asymptomatic patient at a routine cardiology clinic appointment. Which of the following is the correct description of this ECG.
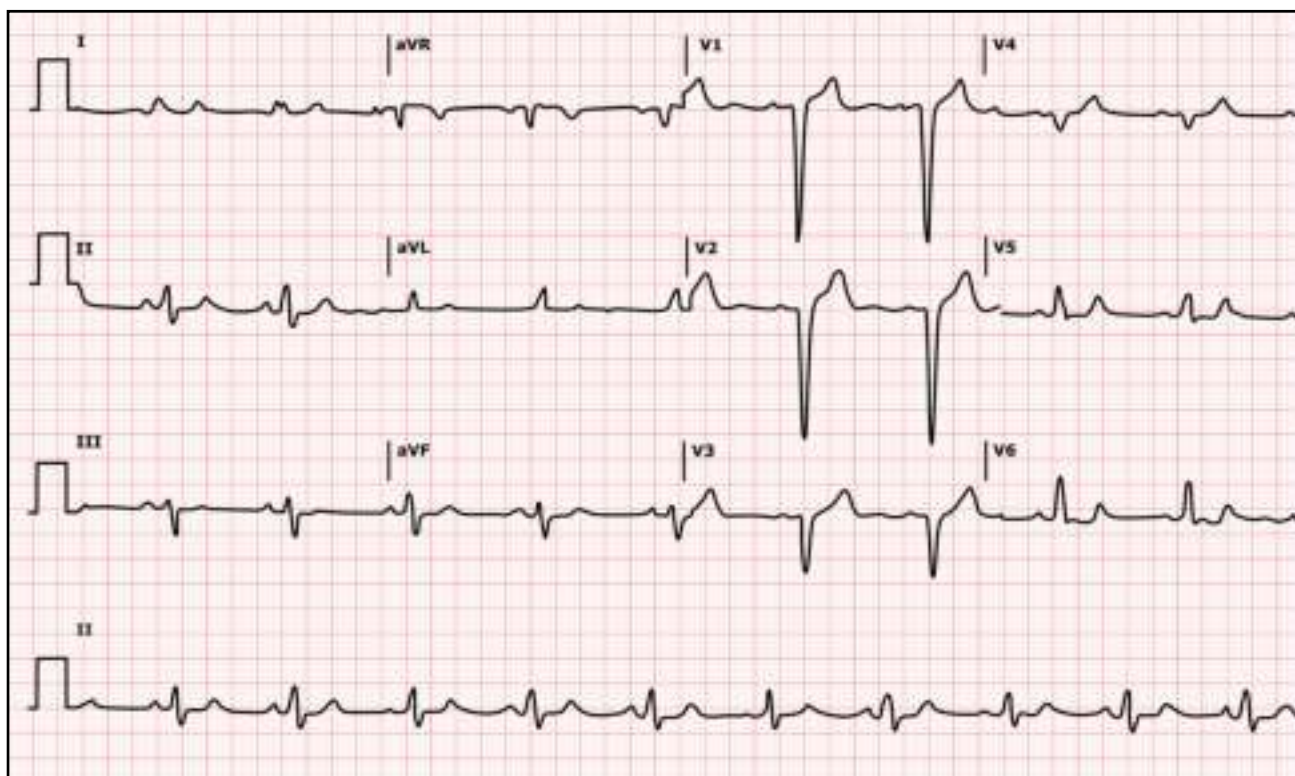

A. Right bundle branch block

B. Left bundle branch block

C. Incomplete left bundle branch block

D. Left anterior fascicular block

E. Left posterior fascicular block

A 25 year old male patient with known lupus presents to the emergency department with new onset chest pain and general decline. He has been feeling unwell for the past couple of days and routine bloods were sent on admission. The results of these were as follows - Na+ 143mmol/L (135-155), K+ 3.4mmol/L (3.5-5.5), Creatinine 345mmol/L (60- 120), eGFR 12ml/min (>60). Troponin 7.0ng/L (normal <5)

His ECG is shown below. What is the most likely diagnosis
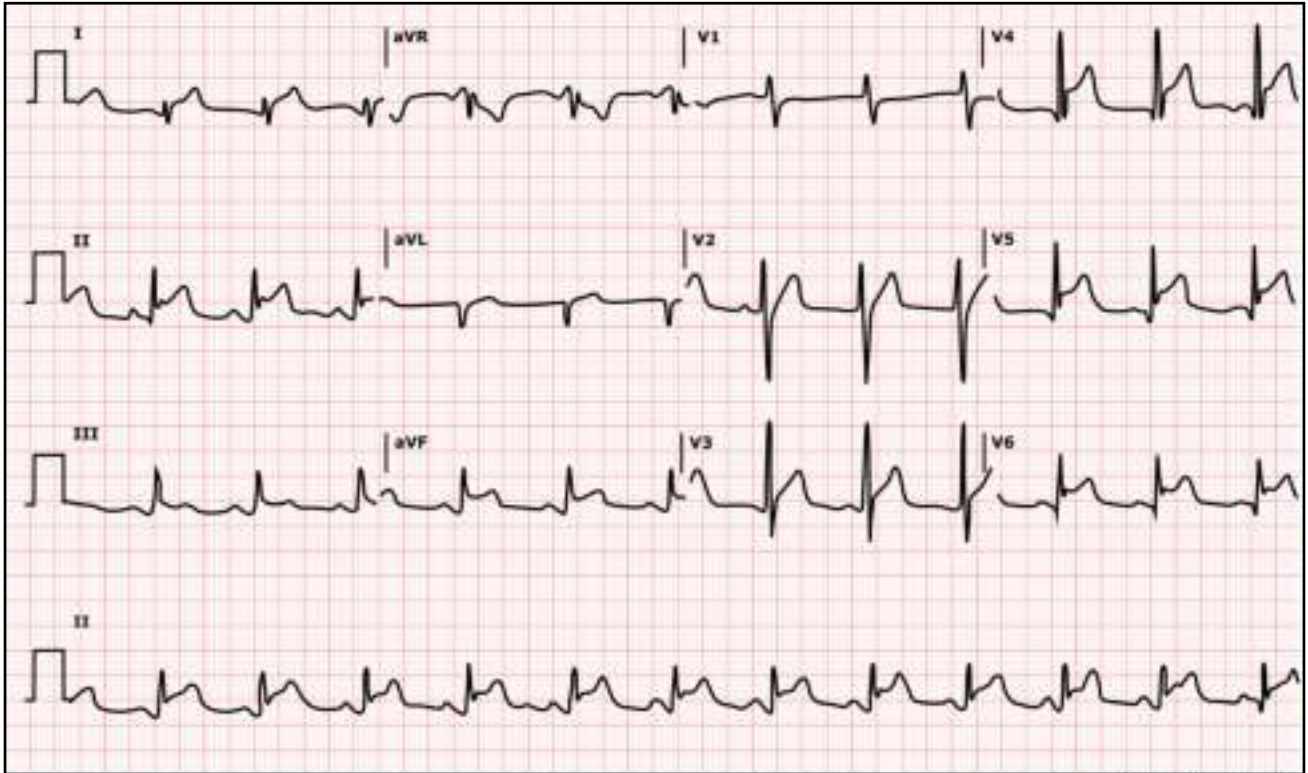
A. Antero-lateral STEMI

B. Lupus related cardiomyopathy

C. Lupus related cardiac conduction block

D. Pericarditis

E. Non-cardiac chest pain

The following ECG is taken from a patient who presented with a myocardial infarction. Given the ECG findings below, what age is the myocardial infarction?

A. Hyperacute (seconds old)

B. Minutes to 1 hr

C. 1 hr to 2 hrs

D. 2 hours to 6 hours

E. Greater than one day old

A 56 year old male patient on the cardiothoracic ward presents with worsening shortness of breath following a mitral valve repair. His ECG is shown below. Please interpret the ECG.
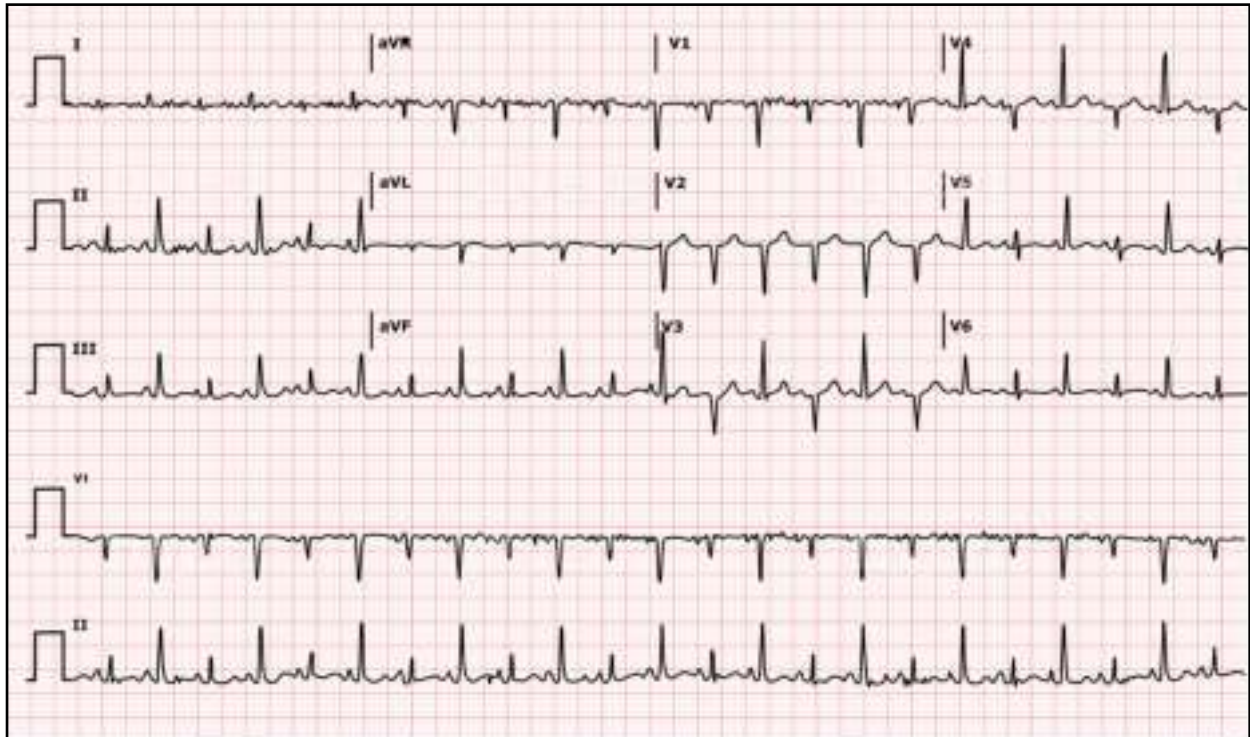
PR interval (1 mark) -

Electrical activity present in all leads? (1 mark) -

What's the heart rate? (1 mark) -

Is the rhythm irregular? (1 mark) -

Is the QRS complex broad? (1 mark) -

Are there any p-waves? (1 mark) -

What's the relationship between p-waves and QRS complexes? (1 mark) -

Is the electrical activity coming from the sino-atrial node? (1 mark)

What is the diagnosis (1 mark) -

SAQ 1

A short section of lead aVF is shown above. Is there any evidence of ventricular ectopic beats (1 mark). Justify your answer (2 marks)

What name is given to the pattern of QRS complexes shown in the above ECG (1 mark)

What is the cause of the QRS pattern above (1 mark)

Name 2 potential serious complications of this patient's condition (2 marks)

A 77 year old female patient on the orthopaedic ward is reviewed by the on call medical team due to sudden onset difficulty breathing. Her PMH includes pulmonary stenosis from childhood which was repaired successfully. Her ECG on admission was normal. Currently her observations shows sats of 78% on 10L of O2 and a BP of 77/40. Her CXR was clear. A repeat 12 lead ECG is taken and is shown below.
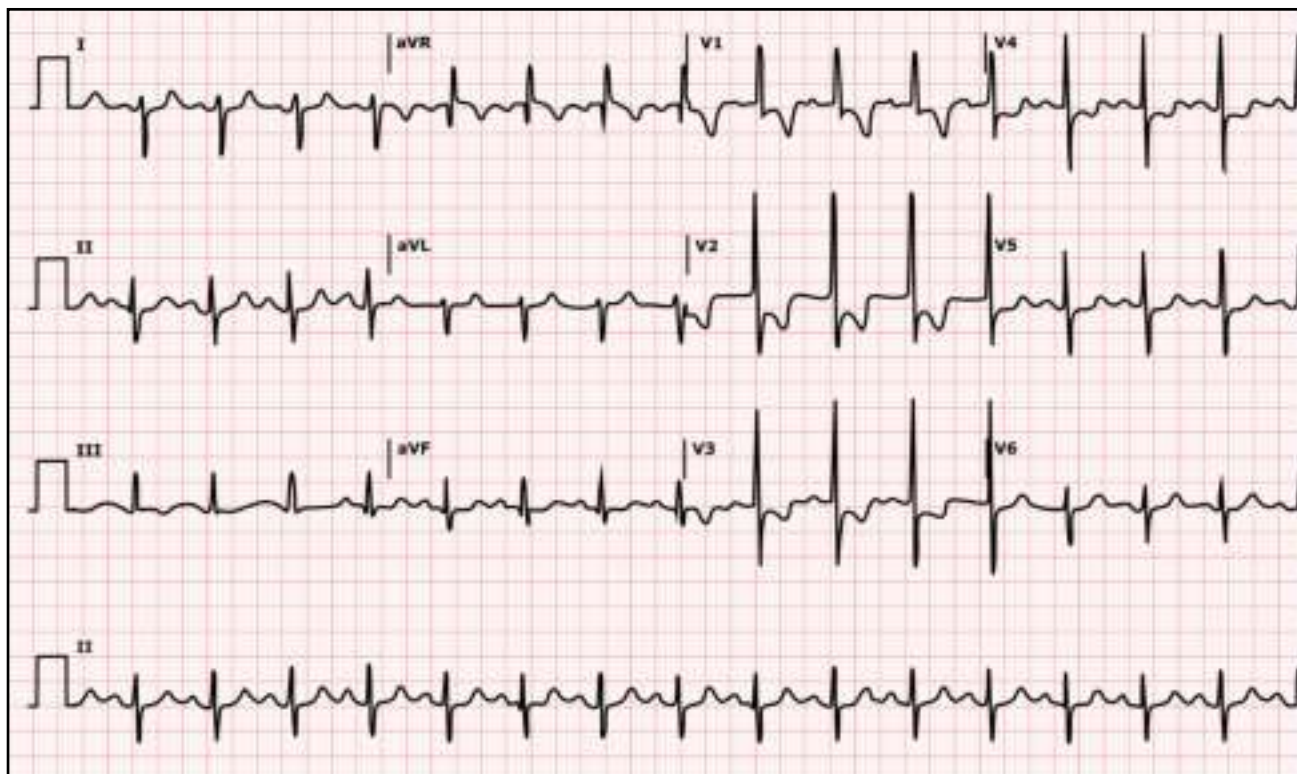
Describe 2 abnormalities in the **morphology** of the ECG trace (2 marks)

Give 2 likely explanations for the ECG changes (2 marks)

What imaging modality would be most useful in the management of this patient (1 mark)

Total. /30

Pass mark 21/30