

FExNet 2026

Collated SAQs: Cardiology

QUESTION BOOKLET

74 short-answer questions covering the ACEM Fellowship cardiology curriculum, written to ACEM SAQ standards. Sub-questions labelled a) b) c) state the required number of responses. Click in any answer field and type your answer.

74 questions • 979 marks

ACEM-aligned format. Sub-questions labelled a) b) c). Mark allocations indicative; references cited in the Answer Booklet. Question and answer indexes are clickable.

Question Index

Click any entry to jump to its question. Marks shown right.

Q1. AF — Cardioversion	19	Q38. AF — Rate vs Rhythm + Anticoagulation	16
Q2. AF — Rate vs Rhythm Control	12	Q39. AF — Rate Control & Risk Stratification	10
Q3. Anorexia Nervosa — Long QT	14	Q40. Out-of-Hospital Cardiac Arrest — Post-ROSC	14
Q4. Acute Pulmonary Oedema	12	Q41. Post-OHCA — SAH on Imaging	18
Q5. Severe APO with Hypotension	12	Q42. DDD Pacemaker Dysfunction	10
Q6. APO — Radiological Features	14	Q43. Pacemaker Failure — Slow AF	12
Q7. Broad Complex Tachycardia — Unstable	16	Q44. Complete Heart Block — Diabetic with CKD	12
Q8. Broad Complex Tachycardia — ECG Analysis	11	Q45. Paediatric SVT	10
Q9. VT — Cause Identification	13	Q46. Paediatric Syncope	12
Q10. Torsades de Pointes	12	Q47. AF — Pharmacological Management	12
Q11. Brugada Algorithm — VT vs SVT	12	Q48. Acute Rheumatic Fever — System Factors	11
Q12. Broad Complex Tachycardia — Treatment	12	Q49. STEMI Differential — LVH/AS	17
Q13. VT — Electrical Cardioversion	14	Q50. Pericarditis vs Myocarditis	8
Q14. Wide Complex Tachycardia — Management	10	Q51. Inferior STEMI + Complete Heart Block	16
Q15. BCT — Differential Diagnosis	17	Q52. STEMI — Fibrinolysis Decision	14
Q16. Bradycardia — AV Block & Pacing	16	Q53. STEMI — Pharmaco-invasive Strategy	17
Q17. Pre-excited AF (WPW)	13	Q54. Inferior STEMI with Cardiogenic Shock	12
Q18. VT — Hypotensive Patient	14	Q55. Rural STEMI with LBBB	14
Q19. WPW — Haemodynamic Instability	11	Q56. NSTEMI / Unstable Angina	12
Q20. ACS — ECG Interpretation	10	Q57. Inferior STEMI + RV Infarction	16
Q21. Anterior STEMI	14	Q58. Failed Fibrinolysis + Heart Block	16
Q22. STEMI with Cardiogenic Shock	12	Q59. Anterior STEMI — RSI Modifications	11
Q23. Pleuritic Chest Pain — Pericarditis vs PE	14	Q60. SVT — Prep & Refractory Management	18
Q24. Posterior STEMI / RV Infarct	12	Q61. Syncope — Brugada Pattern	14
Q25. Chest Pain — High-Risk ECG Patterns	10	Q62. Syncope — Non-arrhythmic Cardiogenic Shock	13
Q26. ACS Risk Stratification & Troponin	12	Q63. Syncope — Complete AV Block / Collapse	15
Q27. Pericardial Effusion / Tamponade — Part 1	16	Q64. Syncope — VT / Haemodynamic Compromise	13
Q28. Infective Endocarditis — IVDU	10	Q65. Syncope — High-Degree AV Block	14

Q29. Pericarditis — ECG and Diagnosis	16	Q66. Syncope — Complete AV Block Management	12
Q30. Post-CABG Chest Pain	13	Q67. Syncope — ECG-Guided Admission	16
Q31. CHF — LVH / Aortic Stenosis	11	Q68. Young Athlete with Syncope — HCM	16
Q32. VF / Polymorphic VT	16	Q69. Young Female — Syncope + Abdominal Pain	12
Q33. Dizziness — AV Block	13	Q70. Syncope — Systematic Approach	10
Q34. ECHO — Tamponade & Pericardiocentesis	13	Q71. Syncope — SFSR & ECG	15
Q35. Hypertensive Emergency	11	Q72. Syncope — WPW Diagnosis	13
Q36. Hypertensive Encephalopathy	12	Q73. Syncope Causes — Neurally Mediated, Orthostatic, Arrhythmogenic	11
Q37. Murmur — Trainee in Difficulty	14	Q74. Syncope — Long QT and Torsades	14

Question 1 | AF — Cardioversion (19 marks)

A 65-year-old woman presents to ED with palpitations of 4 hours' duration. She is haemodynamically stable. Her ECG shows atrial fibrillation at 140 bpm with no ST changes. She has no significant past medical history.

a) List 4 criteria for cardioversion in atrial fibrillation. (4 marks)

b) Name 3 drugs used for chemical cardioversion of AF, with dose and 1 contraindication for each. (9 marks)

c) State the scoring system used to assess thromboembolic risk and the threshold for anticoagulation. (6 marks)

Question 2 | AF — Rate vs Rhythm Control (12 marks)

A 70-year-old man with hypertension and obstructive sleep apnoea presents with new-onset atrial fibrillation. Symptoms began 6 hours ago. He is haemodynamically stable with a ventricular rate of 130 bpm.

a) List 4 potential precipitants of AF in this patient. (4 marks)

b) List 4 factors that favour rate control over rhythm control. (4 marks)

c) List 4 factors influencing the decision to anticoagulate. (4 marks)

Question 3 | Anorexia Nervosa — Long QT (14 marks)

An 18-year-old female is brought to ED after a brief syncopal collapse. She has a 3-year history of anorexia nervosa with a current BMI of 14. Her ECG shows sinus rhythm at 50 bpm with QTc 540 ms. She is medically stable on arrival but cachectic.

- a)** State the MOST important ECG abnormality. (1 mark)

- b)** List 3 other ECG features associated with this condition. (3 marks)

- c)** List 4 key investigations and state the rationale for each. (8 marks)

- d)** List 2 statutory criteria for involuntary detention and treatment. (2 marks)

Question 4 | Acute Pulmonary Oedema (12 marks)

A 78-year-old man with known ischaemic cardiomyopathy presents with acute breathlessness, orthopnoea and pink frothy sputum. RR 32, SpO₂ 90% on 6 L O₂, BP 160/95, HR 120. You suspect acute pulmonary oedema.

a) List 4 clinical findings that support a diagnosis of acute pulmonary oedema. (4 marks)

b) List 4 potential precipitants of acute pulmonary oedema. (4 marks)

c) Name 2 specific ED treatments. For each state the initial dose and a clinical end-point. (4 marks)

Question 5 | Severe APO with Hypotension (12 marks)

A 72-year-old man is brought to ED with severe acute pulmonary oedema. BP 95/60, RR 32, SpO₂ 88% on 15 L NRB, GCS 14. He is diaphoretic, distressed and speaks only single words.

a) List 4 precipitants you would actively seek on initial assessment. (4 marks)

b) Name 2 key treatments. For each state the initial prescription, mechanism and end-point. (8 marks)

Question 6 | APO — Radiological Features (14 marks)

A 68-year-old woman with known ischaemic cardiomyopathy presents with severe breathlessness over 6 hours. SpO₂ 85% on RA, RR 32, BP 170/100. Her chest X-ray is shown.

[CXR] AP erect mobile chest X-ray (insert image)

a) State the MOST likely diagnosis. (1 mark)

b) List 4 chest X-ray features supporting this diagnosis. (4 marks)

c) List 5 potential causes of this presentation. (5 marks)

d) Name 2 main pharmacological treatments. For each state the dose and 1 contraindication. (4 marks)

Question 7 | Broad Complex Tachycardia — Unstable (16 marks)

A 64-year-old man with an AICD presents with palpitations. He is unstable: BP 80/50, K^+ 6.1 mmol/L, pCO_2 57 mmHg. His ECG shows a broad-complex tachycardia at 180 bpm.

[ECG] 12-lead ECG (insert image)

a) State the rhythm. (1 mark)

b) List 2 immediate treatments to institute while DC cardioversion is being prepared. (2 marks)

c) Name 4 sedation agents used for emergency DC cardioversion. For each state the dose, 1 advantage and 1 disadvantage. (8 marks)

d) State the defibrillator settings and pad position. (2 marks)

e) Name the post-cardioversion rhythm in the second ECG. (1 mark)

f) List 2 differential diagnoses for ongoing hypotension despite rhythm conversion. (2 marks)

Question 8 | Broad Complex Tachycardia — ECG Analysis (11 marks)

A 58-year-old man presents with palpitations and lightheadedness. BP 110/70, GCS 15. The 12-lead ECG is shown.

[ECG] 12-lead ECG

a) Analyse the ECG, listing 5 features that support your rhythm diagnosis. (5 marks)

b) State the anatomical origin. (1 mark)

c) List 5 components of the initial treatment of haemodynamically stable VT. (5 marks)

Question 9 | VT — Cause Identification (13 marks)

A 60-year-old man with prior anterior MI 2 years ago presents with palpitations and chest discomfort. Vital signs stable. The 12-lead ECG shows a regular broad-complex tachycardia at 170 bpm.

[ECG] 12-lead ECG

a) State the rhythm interpretation. (1 mark)

b) List 4 ECG features supporting this interpretation. (4 marks)

c) List 3 underlying causes. For each name 1 supporting assessment feature. (6 marks)

d) Name 2 medications used to treat haemodynamically stable VT, with dose. (2 marks)

Question 10 | Torsades de Pointes (12 marks)

A 35-year-old woman is brought in after a witnessed collapse at work. She has a history of depression and is taking citalopram. The rhythm strip shows polymorphic wide-complex tachycardia with a twisting axis.

[RHYTHM STRIP] Lead II rhythm strip

a) Name the rhythm. (1 mark)

b) List 5 drugs that may precipitate this rhythm. (5 marks)

c) List 3 non-pharmacological risk factors for TdP. (3 marks)

d) List 3 treatment options for TdP. (3 marks)

Question 11 | Brugada Algorithm — VT vs SVT (12 marks)

A 55-year-old patient presents with a regular broad-complex tachycardia at 160 bpm. BP 100/65, GCS 15. You are deciding whether the rhythm is VT or SVT with aberrancy.

a) List the 4 sequential steps of the Brugada algorithm. (4 marks)

b) List 8 other ECG features that favour VT over SVT with aberrancy. (8 marks)

Question 12 | Broad Complex Tachycardia — Treatment (12 marks)

A 67-year-old man with prior CABG presents with a broad complex tachycardia at 180 bpm. BP 90/60. The 12-lead ECG is provided.

[ECG] 12-lead ECG

a) List 3 relevant ECG abnormalities. (3 marks)

b) List 3 possible causes. (3 marks)

c) Name 3 treatments. For each state the dose and an end-point. (6 marks)

Question 13 | VT — Electrical Cardioversion (14 marks)

A 70-year-old man with prior MI presents with palpitations and chest pain. ECG shows monomorphic broad-complex tachycardia at 180 bpm. BP 105/65.

a) List 6 ECG findings supporting a diagnosis of VT. (6 marks)

b) List 4 history features supporting VT over SVT with aberrancy. (4 marks)

c) List the 4 key steps for synchronised electrical cardioversion in stable VT. (4 marks)

Question 14 | Wide Complex Tachycardia — Management (10 marks)

A 60-year-old man presents with a regular wide complex tachycardia at 170 bpm. BP 100/60, GCS 15. He has a background of hypertension.

a) List 4 ECG features that favour VT. (2 marks)

b) List 2 alternative diagnoses to VT. (2 marks)

c) Name 3 treatment options. For each state 1 advantage and 1 disadvantage. (6 marks)

Question 15 | BCT — Differential Diagnosis (17 marks)

A 55-year-old woman presents with palpitations. ECG shows a regular broad complex tachycardia. BP 110/70, GCS 15.

a) List 4 causes of broad complex tachycardia. (4 marks)

b) List 4 clinical features that favour VT. (4 marks)

c) List 6 ECG features that favour VT. (6 marks)

d) Name 3 medications used for haemodynamically stable VT. (3 marks)

Question 16 | Bradycardia — AV Block & Pacing (16 marks)

An 80-year-old man presents with syncope. He was recently started on donepezil for early dementia and clarithromycin for a chest infection. The pre-hospital ECG shows complete AV block.

a) List 3 relevant 12-lead ECG findings. (3 marks)

b) List 3 likely contributing causes in this patient. (3 marks)

c) List 4 management priorities in the ED. (4 marks)

d) State the likely diagnosis. (1 mark)

e) List 5 steps for successful transcutaneous pacing. (5 marks)

Question 17 | Pre-excited AF (WPW) (13 marks)

A 28-year-old man presents with palpitations of sudden onset. The ECG shows an irregular broad-complex tachycardia at 220 bpm with variable QRS morphology and visible delta waves between rapid QRS complexes.

[ECG] 12-lead ECG

a) State the diagnosis and list 4 ECG features supporting it. (5 marks)

b) List the 8 key components of management. (8 marks)

Question 18 | VT — Hypotensive Patient (14 marks)

A 62-year-old man presents with palpitations and presyncope. BP 80/45, GCS 14. The ECG shows a regular broad-complex tachycardia at 200 bpm.

[ECG] 12-lead ECG

a) State the rhythm diagnosis. (1 mark)

b) List 3 supportive ECG features. (3 marks)

c) List 4 likely causes. (4 marks)

d) List 3 management steps with details. (6 marks)

Question 19 | WPW — Haemodynamic Instability (11 marks)

A 32-year-old man presents with sudden palpitations and near-syncope. BP 75/45, GCS 14. The ECG shows an irregular broad-complex tachycardia at 250 bpm.

[ECG] 12-lead ECG

a) List 6 ECG abnormalities and the supporting evidence. (6 marks)

b) List the 5 key management steps. (5 marks)

Question 20 | ACS — ECG Interpretation (10 marks)

A 58-year-old man presents with central chest pain radiating to the left arm, lasting 1 hour. He is sweaty and pale. BP 140/85, HR 90. The ECG is provided.

[ECG] 12-lead ECG

a) List 4 ECG abnormalities you would look for in suspected STEMI. (4 marks)

b) Name the coronary artery territories for ECG findings. (2 marks)

c) List 4 management priorities for confirmed STEMI. (4 marks)

Question 21 | Anterior STEMI (14 marks)

A 56-year-old man presents with crushing central chest pain for 90 minutes. He is diaphoretic. BP 130/80, HR 95. The 12-lead ECG shows ST elevation in V_1-V_4 .

[ECG] 12-lead ECG

a) List 5 ECG abnormalities with supporting evidence. (5 marks)

b) State the clinical significance. (2 marks)

c) List 3 life-threatening complications. (3 marks)

d) List 4 factors determining disposition. (4 marks)

Question 22 | STEMI with Cardiogenic Shock (12 marks)

A 70-year-old woman presents with chest pain for 2 hours. BP 75/45, HR 110, SpO₂ 92% RA. The ECG shows anterolateral ST elevation. Bedside echo demonstrates anterior wall akinesis.

[ECG] 12-lead ECG

a) List 4 ECG abnormalities. (4 marks)

b) State the diagnosis. (2 marks)

c) List 6 management steps. (6 marks)

Question 23 | Pleuritic Chest Pain — Pericarditis vs PE (14 marks)

A 32-year-old woman recently returned from a long-haul flight presents with sharp pleuritic chest pain and dyspnoea. BP 120/75, HR 110, SpO₂ 95% RA. The 12-lead ECG is shown.

[ECG] 12-lead ECG

a) List 3 ECG abnormalities. (3 marks)

b) State the most likely diagnosis with 2 supporting features. (3 marks)

c) List 3 additional investigations. (3 marks)

d) List 5 aetiological categories of pericarditis with 1 example each. (5 marks)

Question 24 | Posterior STEMI / RV Infarct (12 marks)

A 55-year-old man presents with severe chest pain. BP 100/60. The ECG shows ST depression in V_1-V_3 with tall R waves, and ST elevation in II, III, aVF.

[ECG] 12-lead ECG

a) List 2 significant ECG findings and state your interpretation. (3 marks)

b) State the criteria for posterior STEMI. (3 marks)

c) List 6 management priorities. (6 marks)

Question 25 | Chest Pain — High-Risk ECG Patterns (10 marks)

A 60-year-old man presents with intermittent chest pain. Pain has resolved on arrival but his ECG shows biphasic T waves in V_2-V_3 .

[ECG] 12-lead ECG

a) Analyse the ECG, listing 3 positive findings and the most likely diagnosis. (3 marks)

b) List 4 differential diagnoses for these ECG changes. (4 marks)

c) List 3 features determining disposition. (3 marks)

Question 26 | ACS Risk Stratification & Troponin (12 marks)

A 65-year-old man presents with intermittent chest pain over 24 hours. His ECG is unremarkable. You are working him up for ACS in line with NHF/CSANZ pathways.

- a)** List 4 NHF/CSANZ high-risk features for ACS, excluding ST elevation and elevated troponin. (4 marks)

- b)** List 4 components of low-risk criteria suitable for early discharge. (4 marks)

- c)** List 8 causes of elevated troponin other than type 1 MI. (4 marks)

Question 27 | Pericardial Effusion / Tamponade — Part 1 (16 marks)

A 45-year-old woman 6 weeks post-cardiac surgery presents with pleuritic chest pain, dyspnoea and presyncope. JVP is elevated, BP 95/70 with a 15 mmHg pulsus paradoxus, HR 120.

a) List 5 differential diagnoses for this presentation. (5 marks)

b) List 3 immediate investigations and the rationale for each. (6 marks)

c) List 5 echocardiographic features supporting cardiac tamponade. (5 marks)

Question 28 | Infective Endocarditis — IVDU (10 marks)

A 28-year-old IVDU presents with fever, bibasal crackles, and a new tricuspid regurgitation murmur. He has multiple track marks. Vital signs: T 39.0, HR 120, BP 105/65.

a) State the most likely diagnosis. (1 mark)

b) List 4 components of the modified Duke criteria. (4 marks)

c) Name the 2 most common causative organisms in IVDU. (2 marks)

d) Name the empiric antibiotic regimen with dose. (3 marks)

Question 29 | Pericarditis — ECG and Diagnosis (16 marks)

A 25-year-old man presents with sharp central chest pain worse on inspiration and lying flat. He had a viral URTI 1 week ago. The ECG shows widespread ST elevation.

[ECG] 12-lead ECG

a) List 3 ECG abnormalities. (3 marks)

b) List 2 features that favour benign early repolarisation over pericarditis. (2 marks)

c) List 5 causes of pericarditis. (5 marks)

d) List 3 investigations for pericardial effusion. For each name a positive finding. (6 marks)

Question 30 | Post-CABG Chest Pain (13 marks)

A 70-year-old man presents with chest pain 5 days post-CABG. BP 90/60, HR 110, JVP elevated, muffled heart sounds. He has completed enoxaparin prophylaxis.

a) List 5 differential diagnoses. (5 marks)

b) List 3 bedside investigations with justification. (6 marks)

c) List 2 end-points of haemodynamic resuscitation. (2 marks)

Question 31 | CHF — LVH / Aortic Stenosis (11 marks)

A 78-year-old man presents with exertional syncope, breathlessness and a slow-rising carotid pulse. The ECG shows voltage criteria for LVH with strain pattern. A harsh ejection systolic murmur radiates to the carotids.

a) List 2 ECG abnormalities. (2 marks)

b) State the clinical significance. (2 marks)

c) List 4 differential diagnoses for the ECG findings. (4 marks)

d) Name 3 cardiac investigations with justification. (3 marks)

Question 32 | VF / Polymorphic VT (16 marks)

A 60-year-old man collapses in the waiting room. CPR is underway. The defibrillator monitor shows a chaotic, irregular wide-complex rhythm with no organised QRS.

[RHYTHM STRIP] Lead II rhythm strip

a) State the diagnosis. (1 mark)

b) List 3 ECG features. (3 marks)

c) List 5 potential causes. (5 marks)

d) List the 3 immediate management priorities. (3 marks)

e) List 2 subsequent management options post-ROSC, with rationale. (4 marks)

Question 33 | Dizziness — AV Block (13 marks)

A 65-year-old man presents with exertional dizziness. The 12-lead ECG shows AV dissociation with regular P waves at 85 bpm and an independent ventricular escape rhythm at 38 bpm.

[ECG] 12-lead ECG

a) State the diagnosis with 3 supporting ECG findings. (4 marks)

b) List 4 possible causes. (4 marks)

c) List 3 clinical indications for urgent pacing. (3 marks)

d) Name 2 chemical pacing agents with dose. (2 marks)

Question 34 | ECHO — Tamponade & Pericardiocentesis (13 marks)

A 70-year-old woman with metastatic breast cancer presents with severe dyspnoea. JVP elevated, BP 95/70, pulsus paradoxus 18 mmHg. Bedside echo is performed.

[ECHO IMAGE] Subcostal 4-chamber view

a) Name the cardiac window shown. (1 mark)

b) List 3 echocardiographic findings of tamponade. (3 marks)

c) List 5 causes of pericardial effusion. (5 marks)

d) List 4 key technical steps for pericardiocentesis. (4 marks)

Question 35 | Hypertensive Emergency (11 marks)

A 55-year-old man presents with acute symptoms and BP 220/130. He has a chronic background of poorly controlled hypertension.

a) Define hypertensive emergency. (1 mark)

b) Name 6 end organs. For each state a manifestation, investigation and drug of choice. (6 marks)

c) Name 4 drug classes with example, dose and route. (4 marks)

Question 36 | Hypertensive Encephalopathy (12 marks)

A 60-year-old man presents with BP 240/140, severe headache, vomiting, and reduced GCS (E3 V4 M6 = 13). He has no focal neurology.

a) State the most likely diagnosis. (1 mark)

b) List 3 investigations. For each state the justification. (6 marks)

c) List 5 management priorities. (5 marks)

Question 37 | Murmur — Trainee in Difficulty (14 marks)

A junior registrar presents a 78-year-old man with exertional syncope, breathlessness, and a mid-systolic murmur radiating to the carotids. The registrar wants to discharge the patient. You are also concerned that this registrar has been struggling for several weeks.

- a)** List 3 differential diagnoses for the murmur. For each state 1 auscultation feature and the clinical significance. (6 marks)

- b)** State the disposition advice. (2 marks)

- c)** List 4 early warning signs of a trainee in difficulty. (2 marks)

- d)** List 4 components of a structured performance plan. (4 marks)

Question 38 | AF — Rate vs Rhythm + Anticoagulation (16 marks)

A 76-year-old woman with hypertension on irbesartan presents with palpitations. The ECG shows AF with ventricular rate 120 bpm. She is haemodynamically stable. Symptom onset is uncertain.

[ECG] 12-lead ECG

a) State the main ECG finding. (2 marks)

b) List 4 factors favouring rate control AND 4 factors favouring rhythm control. (8 marks)

c) List 6 factors that influence the anticoagulation decision in this patient. (6 marks)

Question 39 | AF — Rate Control & Risk Stratification (10 marks)

A 65-year-old man presents with palpitations and 3 days of exertional dyspnoea. ECG shows AF with rate 130 bpm. He has controlled hypertension on perindopril.

[ECG] 12-lead ECG

a) State your ECG interpretation. (2 marks)

b) List 4 possible underlying causes. (4 marks)

c) Name 2 rate-control medications with dose. (2 marks)

d) State the risk stratification approach. (2 marks)

Question 40 | Out-of-Hospital Cardiac Arrest — Post-ROSC (14 marks)

A 70-year-old woman has ROSC after a witnessed VF arrest with bystander CPR. She remains intubated. Her medication list includes warfarin, digoxin, frusemide and spironolactone. She requires aeromedical transfer to a PCI-capable centre 200 km away.

[ECG] Post-ROSC 12-lead ECG

a) List 3 main ECG findings to look for post-ROSC. (3 marks)

b) List 3 likely contributors to dysrhythmia in this patient. (3 marks)

c) List 4 minimum monitoring parameters required for aeromedical transfer. (4 marks)

d) List 2 transport-related hazards in helicopter transfer and an effect on management for each. (4 marks)

Question 41 | Post-OHCA — SAH on Imaging (18 marks)

A 55-year-old woman has ROSC after a witnessed VF arrest. Her post-ROSC ECG shows widespread T-wave inversion and QTc 520 ms. CT head shows extensive subarachnoid haemorrhage.

[ECG AND CT HEAD] 12-lead ECG + non-contrast CT head

a) List 3 ANZCOR indications for emergent cardiac catheterisation post-OHCA. (3 marks)

b) List 2 key ECG abnormalities in this case. (2 marks)

c) State the clinical significance. (2 marks)

d) State the CT diagnosis. (1 mark)

e) List 4 CT findings portending poor prognosis in SAH. (4 marks)

f) List 3 differential causes for cardiac arrest with intracranial pathology, with assessment finding and key intervention for each. (6 marks)

Question 42 | DDD Pacemaker Dysfunction (10 marks)

A 75-year-old man with a DDD pacemaker presents with palpitations. The ECG shows a regular wide-complex tachycardia at 130 bpm with pacemaker spikes preceding each QRS.

[ECG] 12-lead ECG

a) State the function of a DDD pacemaker. (2 marks)

b) Analyse the ECG: list 2 features. (2 marks)

c) List 2 differential diagnoses. (2 marks)

d) List 4 management steps. (4 marks)

Question 43 | Pacemaker Failure — Slow AF (12 marks)

A 78-year-old pacemaker-dependent patient presents with lightheadedness. ECG shows pacing spikes without capture and an underlying slow AF at 35 bpm. BP 90/60.

[ECG] 12-lead ECG

a) List 4 ECG findings with their clinical relevance. (4 marks)

b) List 6 immediate management priorities. (6 marks)

c) State the role of a magnet in pacemaker dysfunction. (2 marks)

Question 44 | Complete Heart Block — Diabetic with CKD (12 marks)

A 72-year-old diabetic with chronic kidney disease (eGFR 28) presents with bradycardia and pre-syncope. ECG shows complete heart block with a wide ventricular escape at 32 bpm. K^+ on VBG is 6.5 mmol/L.

[ECG] 12-lead ECG

a) List 5 ECG abnormalities and state your interpretation. (5 marks)

b) List 7 ED treatment steps in order. (7 marks)

Question 45 | Paediatric SVT (10 marks)

A 5-year-old child presents with palpitations following salbutamol nebulisers for an asthma exacerbation. HR 240, narrow complex, regular. BP 90/50, alert.

[ECG] Paediatric 12-lead ECG

a) List 4 ECG features. (4 marks)

b) State the most likely diagnosis. (1 mark)

c) List 5 components of escalating management. (5 marks)

Question 46 | Paediatric Syncope (12 marks)

A 12-year-old presents with a syncopal episode. He is well on arrival with normal vital signs. Family history reveals an uncle who died suddenly at age 30.

a) List 4 history features concerning for cardiac cause. (4 marks)

b) List 4 history features consistent with vasovagal syncope. (4 marks)

c) List 4 investigations with clinical indication. (4 marks)

Question 47 | AF — Pharmacological Management (12 marks)

A 60-year-old man presents with palpitations and 8 hours of AF. He has known mild LV dysfunction (LVEF 45%). BP 130/80, HR 130, no chest pain.

[ECG] 12-lead ECG

a) List 2 most important ECG features. (2 marks)

b) Name 5 drugs used in this patient. For each state the dose and clinical circumstance. (10 marks)

Question 48 | Acute Rheumatic Fever — System Factors (11 marks)

An 11-year-old Aboriginal child presents with a 2-week history of migratory polyarthritis, fever, and a new apical pansystolic murmur. ESR 80, CRP 110, ASO titre elevated.

a) List the 5 major Jones criteria. (5 marks)

b) List 2 contributing factors at each of System, Process and Individual / Patient levels. (6 marks)

Question 49 | STEMI Differential — LVH/AS (17 marks)

A 75-year-old man presents with chest pain and a harsh ejection systolic murmur radiating to the carotids. The ECG shows ST elevation and high QRS voltages.

[ECG] 12-lead ECG

a) List 4 ECG abnormalities. (4 marks)

b) List 5 causes of ST elevation other than acute MI. (5 marks)

c) List 4 differential diagnoses for a systolic murmur. (4 marks)

d) List 2 physical signs of severe aortic stenosis. (2 marks)

e) State the concern with nitrates in this patient. (2 marks)

Question 50 | Pericarditis vs Myocarditis (8 marks)

A 30-year-old man presents with chest pain and ST elevation post viral URTI. Troponin is elevated.

[ECG] 12-lead ECG

a) Name the 2 leading differential diagnoses. For each list 2 ECG features and 2 echocardiographic features. (8 marks)

Question 51 | Inferior STEMI + Complete Heart Block (16 marks)

A 65-year-old man presents with chest pain and bradycardia. BP 95/65. The ECG shows ST elevation in II, III, aVF with AV dissociation and a slow ventricular escape at 38 bpm.

[ECG] 12-lead ECG

a) State the primary pathology and list 3 supporting ECG findings. (4 marks)

b) Name the most important complication and list 4 ECG findings. (5 marks)

c) List 5 treatments for this inferior STEMI. (5 marks)

d) Name 2 pharmacological options for the heart block. (2 marks)

Question 52 | STEMI — Fibrinolysis Decision (14 marks)

A 60-year-old man presents to a rural ED with chest pain. ECG confirms anterior STEMI. The nearest PCI centre is 3 hours away by road. Symptom onset 90 minutes ago.

[ECG] 12-lead ECG

a) List 4 critical ECG abnormalities to confirm STEMI. (4 marks)

b) List 4 components of pre-hospital advice for paramedics. (4 marks)

c) Name 2 fibrinolytic agents with full dosing. (4 marks)

d) State the peri-fibrinolysis anticoagulation regimen. (2 marks)

Question 53 | STEMI — Pharmacologic Strategy (17 marks)

A 55-year-old man presents with epigastric pain. ECG shows inferior STEMI. The nearest PCI centre is 90 minutes by road; symptom onset 60 minutes ago.

[ECG] 12-lead ECG

a) Analyse the ECG and state your interpretation. (4 marks)

b) List 4 immediate pharmacological treatments with justification. (4 marks)

c) State your reperfusion plan. (3 marks)

d) List 5 absolute contraindications to fibrinolysis. (5 marks)

e) State 1 criterion for failure of fibrinolysis. (1 mark)

Question 54 | Inferior STEMI with Cardiogenic Shock (12 marks)

A 68-year-old man presents hypotensive (BP 80/40) with chest pain. ECG shows inferior ST elevation. He has cool peripheries, raised JVP and clear lungs.

[ECG] 12-lead ECG

a) State the rate, rhythm and axis (interpret the ECG). (3 marks)

b) State the main pathology and 2 supporting features. (3 marks)

c) List 6 treatment steps with drugs and doses. (6 marks)

Question 55 | Rural STEMI with LBBB (14 marks)

A patient in a rural ED presents with chest pain. The 12-lead ECG shows LBBB which is not present on a previous ECG 2 months ago. Tertiary PCI centre is 3 hours away.

[ECG] 12-lead ECG

a) List 4 pathological possibilities. For each describe the key ECG features. (8 marks)

b) List 6 key treatment steps in this rural setting. (6 marks)

Question 56 | NSTEMI / Unstable Angina (12 marks)

A 65-year-old man presents with intermittent retrosternal chest pain. ECG shows ST depression and T-wave inversion in V_4-V_6 . Initial troponin is mildly elevated.

[ECG] 12-lead ECG

a) Analyse the ECG and state your interpretation. (4 marks)

b) List 4 investigations that clarify extent of disease. (4 marks)

c) Name 4 medications with dose and route. (4 marks)

Question 57 | Inferior STEMI + RV Infarction (16 marks)

A 70-year-old man presents with chest pain. He develops hypotension after sublingual GTN. The ECG shows inferior ST elevation.

[ECG] 12-lead ECG

a) List 4 ECG abnormalities and state the significance of each. (8 marks)

b) List 8 ED management measures. (8 marks)

Question 58 | Failed Fibrinolysis + Heart Block (16 marks)

A patient given tenecteplase 105 minutes ago has ongoing chest pain, BP 80/40, and complete heart block. ECG shows persistent ST elevation in II, III, aVF.

[ECG] 12-lead ECG

a) State the main pathology. (1 mark)

b) List 4 ECG features of failed reperfusion. (4 marks)

c) List 3 management steps with justification. (6 marks)

d) List 5 steps for successful transcutaneous pacing. (5 marks)

Question 59 | Anterior STEMI — RSI Modifications (11 marks)

A type-2 diabetic presents with anterior STEMI: BP 75/40, GCS 13, SpO₂ 88% on NRB with widespread bibasal crackles. You plan to intubate prior to transfer for PCI.

[ECG] 12-lead ECG

a) List 4 key ECG findings. (4 marks)

b) State the clinical interpretation. (2 marks)

c) List 5 modifications to RSI in cardiogenic shock. (5 marks)

Question 60 | SVT — Prep & Refractory Management (18 marks)

Paramedics call ahead with a 35-year-old in stable SVT. Vagal manoeuvres and 2 doses of adenosine have failed. ETA 5 minutes.

[ECG] Pre-hospital rhythm strip

a) List 6 preparations for the patient's arrival. (6 marks)

b) List 6 important ECG features of SVT. (6 marks)

c) List 3 differentials for the rhythm. (3 marks)

d) Name the alternative drug after failed vagal + adenosine, with dose. (3 marks)

Question 61 | Syncope — Brugada Pattern (14 marks)

A 25-year-old man presents with syncope at rest. ECG shows coved ST elevation ≥ 2 mm in V_1 – V_2 with T-wave inversion.

[ECG] 12-lead ECG

- a)** State the most significant ECG finding and the diagnosis of MOST CONCERN. (2 marks)

- b)** List 4 differential diagnoses for this ECG pattern. (4 marks)

- c)** List 4 history questions you would ask. (4 marks)

- d)** List 4 components of disposition and ongoing management. (4 marks)

Question 62 | Syncope — Non-arrhythmic Cardiogenic Shock (13 marks)

A 60-year-old man presents with syncope and shock. ECG is non-diagnostic. BP 80/45, HR 110, JVP elevated, lungs clear.

[ECG] 12-lead ECG

a) List 5 ECG features that would suggest arrhythmia as the cause of syncope. (5 marks)

b) Name 4 causes of non-arrhythmic cardiogenic shock. For each name a specific management. (8 marks)

Question 63 | Syncope — Complete AV Block / Collapse (15 marks)

A 75-year-old presents with recurrent syncope and bradycardia. BP 80/50, GCS 12. ECG shows complete AV block with a wide ventricular escape at 30 bpm.

[ECG] 12-lead ECG

a) State the diagnosis with 4 supporting ECG findings. (5 marks)

b) List 10 sequential management steps. (10 marks)

Question 64 | Syncope — VT / Haemodynamic Compromise (13 marks)

A 65-year-old presents with syncope, BP 82/55, SpO₂ 84% on RA. The 12-lead ECG shows a regular broad-complex tachycardia at 180 bpm.

[ECG] 12-lead ECG

a) List 4 ECG findings of importance. (4 marks)

b) State the likely diagnosis. (1 mark)

c) List 3 reversible precipitants. (3 marks)

d) List 5 management steps. (5 marks)

Question 65 | Syncope — High-Degree AV Block (14 marks)

A 70-year-old presents with syncope. BP 70/40, GCS 13. 12-lead ECG shows a high-degree AV block with a slow escape rhythm.

[ECG] 12-lead ECG

a) State the ECG interpretation. (2 marks)

b) List 3 ECG features supporting your interpretation. (3 marks)

c) List 4 possible causes. (4 marks)

d) List 5 steps for successful transcutaneous pacing. (5 marks)

Question 66 | Syncope — Complete AV Block Management (12 marks)

A 78-year-old on metoprolol presents with syncope. ECG shows complete AV block with junctional escape at 45 bpm.

[ECG] 12-lead ECG

a) List 4 ECG abnormalities. (4 marks)

b) List 2 reversible causes of bradycardia. (2 marks)

c) List 6 management steps. (6 marks)

Question 67 | Syncope — ECG-Guided Admission (16 marks)

A 65-year-old presents with syncope. You are deciding on disposition based on ECG findings.

- a)** Name 6 ECG findings warranting telemetry admission. For each state the clinical significance. (12 marks)

- b)** List 4 investigations with clinical indication. (4 marks)

Question 68 | Young Athlete with Syncope — HCM (16 marks)

A 17-year-old male athlete presents with exertional syncope on the football field. His mother is at the bedside. He wants to leave to attend the game presentation.

a) Analyse the ECG (assume HCM-pattern). List 5 features. (5 marks)

b) List 5 history questions about symptoms. (5 marks)

c) List 3 initial investigations with justification. (3 marks)

d) List 3 priorities if patient wants to leave AMA. (3 marks)

Question 69 | Young Female — Syncope + Abdominal Pain (12 marks)

A 22-year-old woman presents with syncope and lower abdominal pain. BP 95/60, HR 110, pale and diaphoretic.

a) List 4 features that favour syncope over seizure. (4 marks)

b) List 4 most likely diagnoses, with 1 supporting examination finding for each. (8 marks)

Question 70 | Syncope — Systematic Approach (10 marks)

Outline a systematic approach to a patient presenting with syncope.

a) List 5 history features and what each suggests. (5 marks)

b) List 4 physical signs to examine for. (2 marks)

c) List 5 investigations with justification. (3 marks)

Question 71 | Syncope — SFSR & ECG (15 marks)

A 62-year-old presents with syncope. ECG shows sinus rhythm with QTc 510 ms. You are using the San Francisco Syncope Rule (SFSR) for risk stratification.

[ECG] 12-lead ECG

a) State the rhythm and 2 differential diagnoses for the QTc finding. (3 marks)

b) List 3 ECG abnormalities and the mechanism by which each may cause syncope. (6 marks)

c) State the components of the San Francisco Syncope Rule and its utility. (6 marks)

Question 72 | Syncope — WPW Diagnosis (13 marks)

A 24-year-old woman presents with syncope. ECG shows short PR interval, delta waves, and broad QRS. She is asymptomatic on arrival, BP 110/70.

[ECG] 12-lead ECG

a) State the ECG diagnosis. (2 marks)

b) List 5 history questions. (5 marks)

c) List 5 bedside investigations with justification. (5 marks)

d) State the disposition. (1 mark)

Question 73 | Syncope Causes — Neurally Mediated, Orthostatic, Arrhythmogenic (11 marks)

Discuss the categorical causes of syncope.

a) List 3 causes of neurally mediated syncope. (3 marks)

b) List 3 causes of orthostatic hypotension. (3 marks)

c) List 5 ECG findings suggesting arrhythmogenic syncope. (5 marks)

Question 74 | Syncope — Long QT and Torsades (14 marks)

A 45-year-old female presents with syncope. ECG shows QTc 540 ms. The rhythm strip captured during her episode shows polymorphic VT with twisting QRS.

[ECG AND RHYTHM STRIP] 12-lead ECG and rhythm strip

a) State the primary ECG abnormality. (1 mark)

b) List 5 pharmacological causes from different drug classes. (5 marks)

c) List 3 non-pharmacological causes / risk factors. (3 marks)

d) Name the rhythm strip abnormality. (1 mark)

e) List 4 management steps. (4 marks)
