

SINGLE BEST ANSWER (SBA) QUESTIONS

- A 19-year-old university rower presents for the pre-Oxford–Cambridge boat race medical evaluation. He is healthy and has no significant medical history. However, his brother died suddenly during football practice at age 15. Which one of the following is the most likely cause of the brother's death?

 - Aortic stenosis
 - Congenital long QT syndrome
 - Congenital short QT syndrome
 - Hypertrophic cardiomyopathy (HCM)
 - Wolff–Parkinson–White syndrome
- A 65-year-old man presents to the heart failure outpatient clinic with increased shortness of breath and swollen ankles. On examination his pulse was 100 beats/min, blood pressure 100/60 mmHg and jugular venous pressure (JVP) +10 cm water. The patient currently takes furosemide 40 mg BD, spironolactone 12.5 mg, bisoprolol 2.5 mg OD and ramipril 2.5 mg BD. Which of the following is true?

 - Diuretics reduce the degree of neurohormonal activation in heart failure
 - Diuretics alone rarely provide rapid symptomatic relief
 - Beta-blockers are contraindicated
 - Treatment with spironolactone reduces mortality
 - Angiotensin-converting enzyme (ACE) inhibitors are unlikely to induce hypotension if an adequate diuresis has been achieved with diuretics
- A 73-year-old woman complains of sudden-onset chest pain. On examination you note her pulse is regular at 53 beats/min. You request an electrocardiogram (ECG) which demonstrates a time interval of 3 seconds between each consecutive P wave. What is the most likely diagnosis?

 - Sick sinus syndrome
 - First-degree atrioventricular (AV) block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
- A 63-year-old man complains of gradual-onset chest pain. On examination you note his pulse is regular at 60 beats/min. You request an ECG which demonstrates an increasing PR interval which eventually culminates in an absent QRS complex after the P wave. What is the most likely diagnosis?

 - Sick sinus syndrome
 - First-degree AV block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
- A 28-year-old man with no past medical history and not on medications presents to the emergency department with palpitations for several hours and was found to have supraventricular tachycardia. Carotid massage was attempted without success. What is the treatment of choice to stop the attack?

 - Intravenous (IV) lignocaine
 - IV digoxin
 - IV amiodarone
 - IV adenosine
 - IV quinidine
- A 75-year-old cigarette smoker with known ischaemic heart disease and a history of cardiac failure presents to the emergency department with a 6-hour history of increasing dyspnoea. His ECG shows a narrow complex regular tachycardia with a rate of 160 beats/min. What is the most appropriate initial step in patient care?

 - His heart rate should be slowed using IV atenolol to aid in the diagnosis of the rhythm
 - He should be given a single IV dose of lignocaine (50 mg) followed by an infusion at 4 mg/min
 - He should be given IV adenosine to aid in the diagnosis of the rhythm
 - His rhythm may represent a ventricular tachycardia and he should be immediately cardioverted
 - He should not be given high flow oxygen
- A 57-year-old man comes to his general practitioner (GP) concerned about his general health. He is particularly worried as there is a strong family history of heart disease. The GP performs an ECG which shows a prolonged PR interval of 0.3 seconds. What is the most likely diagnosis?

 - Sick sinus syndrome
 - First-degree AV block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
- A 75-year-old man is referred by the GP to the cardiology outpatient clinic. The patient has atrial fibrillation (AF) and hypertension. Examination reveals a blood pressure of 124/80 mmHg and his pulse

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- varies between 90 and 130 beats/min. His last echocardiogram (done 1 month ago) revealed left atrial chamber dimensions that are increased above normal. What is the most effective management?
- Adenosine
 - No medication
 - Digoxin alone
 - Cardioversion
 - Digoxin, with warfarin
9. You are a house officer on call when a nurse bleeps you to review an ECG. The ECG demonstrates an intermittent absence of the QRS complex but no evidence of progressive PR interval increase. What is the most likely diagnosis?
- Sick sinus syndrome
 - First-degree AV block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
10. A 48-year-old woman attends her GP for a routine health check. She was found to have high cholesterol (at 5.8 mmol/L) and high triglyceride level (at 2.7 mmol/L). She is a nonsmoker and consumes 10 units of alcohol per week. Her body mass index is 29 kg/m² and she is otherwise well with no personal or family history of illnesses. Clinical examination and vital signs were unremarkable. Her calculated QRISK is 12%. Which one of the following in her initial management is LEAST likely needed?
- Low carbohydrate diet
 - High consumption of monounsaturated fats
 - Regular aerobic exercise
 - Start medical therapy with statins
 - Decrease body mass index to <25
11. You are a house officer on call when you are bleeped to see a patient complaining of dizziness. On further questioning the patient comments that he has blacked out on several occasions in the past. You perform an ECG which shows regular P and QRS complexes occurring independently of one another. What is the most likely diagnosis?
- Sick sinus syndrome
 - First-degree AV block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
12. You are called to see a 48-year-old man who is found to be unresponsive by the nursing staff. You cannot obtain a palpable carotid pulse and the cardiac monitor shows ventricular fibrillation. What is the first appropriate measure?
- Sodium bicarbonate 50-mg IV injection
 - Defibrillation with 200J
 - One ampoule injection of IV calcium chloride
 - One ampoule injection of IV adrenaline
 - Carotid artery compression
13. You are a medical student attending a teaching session on ECG interpretation. The consultant tells you that a patient was admitted to the coronary care unit with an atrial rate of 300 beats/min and a ventricular rate of 150 beats/min. What is the most likely diagnosis?
- Atrial flutter
 - First-degree AV block
 - Mobitz type 1 block
 - Mobitz type 2 block
 - Complete heart block
14. A 50-year-old lawyer presents to the cardiology outpatient clinic with recurrent episodes of dull central chest pain radiating up to her jaw and down her left shoulder, associated with sweating and nausea following exertion and alleviated by rest. She is a heavy smoker and her father died of a heart attack in his 40s. What is the most definitive diagnostic test in this case?
- Echocardiography
 - Stress testing with echocardiography
 - Stress testing with myocardial perfusion scintigraphy
 - Coronary angiography
 - Electrocardiography during an attack
15. You are a house officer on call when you are asked to review a patient in the coronary care unit. You note that the patient has an atrial rate of 300 beats/min and a ventricular rate of 150 beats/min. The nurse says this is of new onset. Which management plan would you instigate first?
- Sotalol
 - Radiofrequency catheter ablation
 - Procainamide
 - Lignocaine
 - Electrical cardioversion
16. A previously fit and well 36-year-old woman presents to her GP with a 2-month history of palpitations and sweats. These attacks come on suddenly and are unrelated to food intake, supine posture or exercise. She is a nonsmoker and does not drink alcohol. Which of the following investigations is the LEAST useful to evaluate this patient?
- Thyroid function tests
 - Urinary collection for catecholamines
 - Holter monitor

- d. Echocardiography
e. Upper gastrointestinal study
17. A 57-year-old Bangladeshi patient is admitted to accident and emergency (A&E) with palpitations. He speaks very little English but tells you he has a 'heart problem'. On examination you note his pulse is irregular at 145 beats/min. An ECG is performed which demonstrates no P waves. Which management plan would you instigate first?
- Bisoprolol
 - Flecainide
 - Radiofrequency catheter ablation
 - Procainamide
 - Lignocaine
18. A 55-year-old man presents to a local district general hospital A&E with acute central chest pain, radiating to his neck and left shoulder, and associated with one episode of vomiting. His medical history includes hypertension and hyperlipidaemia. ECG and troponin show evidence of an acute myocardial infarction (MI). Primary percutaneous coronary intervention is unavailable within close distance; therefore a decision is made to perform thrombolytic therapy. This therapy is most beneficial when done within which of the following time limits from the onset of pain?
- Within 2 days
 - Within 18 hours
 - Within 12 hours
 - Within 24 hours
 - Within 36 hours
19. A 37-year-old woman is complaining of palpitations following recent surgery. On examination her pulse rate is regular at 175 beats/min and blood pressure is stable at 125/70 mmHg. She tells you she was seen the night before by the on-call cardiologist for the same problem. Her past medical history includes asthma. You request an ECG which shows normal-shaped QRS complexes but no P waves. What is the next most appropriate step in management?
- Adenosine
 - Verapamil
 - Carotid sinus massage
 - Direct current (DC) cardioversion
 - Flecainide
20. While on call you are bleeped to see a patient who has had a massive bleed PR. On examination you note he is drowsy with a blood pressure of 65/40 mmHg and pulse rate of 130 beats/min. While you obtain IV access, he arrests. The nurse calls the crash team and you commence cardiopulmonary resuscitation (CPR). After 2 minutes, you note QRS complexes on the cardiac monitor but no evidence of a pulse. What is the next most appropriate step in management?
- Administration of colloid
 - DC shock 200J
 - Amiodarone 300 mg IV
 - Adrenaline 1 mg IV
 - Atropine 1 mg IV
21. You are asked to review an 89-year-old arteriopath who complains of severe pain at rest in both feet, the toes of which are cold and purple. He has had a recent course of heparin and aspirin for suspected unstable angina. The major arterial pulses are present in the limbs, but there are areas of lace-like purplish discoloration on the skin over both knees. What is the most likely explanation for these findings?
- Allergic reaction to the heparin
 - Cholesterol embolism
 - Haemorrhage from the anticoagulants
 - Heparin-induced thrombocytopenia
 - Sepsis
22. A 65-year-old man has NYHA class III chronic heart failure. Despite conventional therapy with appropriate dosages of a diuretic, an ACE inhibitor and a beta-adrenergic blocker, his left ventricular ejection fraction hovers around 35%, and he continues to have shortness of breath on exertion. His latest urea and electrolytes test results were normal and you consider adding digoxin to his treatment regimen. Which one of the following is true regarding digoxin therapy in this situation?
- A reasonable dosage is 0.50 mg/day orally
 - Serial drug levels are generally not necessary
 - A loading dose will be necessary
 - It is not likely to improve the ejection fractions
 - It is the treatment of choice if the patient's ECG shows AV block
23. A 42-year-old man presents with shortness of breath and haemoptysis. On examination you note a loud first heart sound (HS) and a rumbling mid-diastolic murmur at the apex. What is the most likely diagnosis?
- Mitral stenosis
 - Mitral regurgitation
 - Aortic stenosis
 - Aortic regurgitation
 - Tricuspid stenosis
24. A 16-year-old boy athlete is brought to A&E after he collapsed during football training. On arrival, he appears alert and orientated. His vital signs and physical examination are normal. He remembers

Single best answer (SBA) questions

- feeling dizzy prior to collapsing but cannot recall much else. He is normally healthy and not on any regular medications. Blood tests have been sent. What is the most appropriate next step for this patient?
- Admit him for cardiac monitoring
 - Request a neurology review
 - Order an ECG
 - Order electroencephalography (EEG)
 - Schedule a tilt-table test
25. A 55-year-old woman presents with shortness of breath on exertion and fatigue. On examination you note a soft first HS and a pansystolic murmur at the apex radiating to her axilla. What is the most likely diagnosis?
- Mitral stenosis
 - Mitral regurgitation
 - Aortic stenosis
 - Aortic regurgitation
 - Tricuspid stenosis
26. A man has been diagnosed with essential hypertension by his GP and needs to commence on the appropriate treatment. In the treatment of essential hypertension, which of the following statements is true?
- Alpha-blockers such as prazosin are unlikely to cause postural hypotension
 - Patients of Afro-Caribbean descent respond well to ACE inhibitors
 - ACE inhibitors are indicated if there is unilateral renal artery stenosis
 - Treatment with bendrofluazide may result in hypokalaemia
 - ACE inhibitors may cause ankle swelling as a side effect
27. An otherwise healthy 50-year-old male presents to the GP with palpitations and is noted to have an irregular heartbeat. He is otherwise fit and healthy. This resolves without treatment. Total duration was less than 2 hours. Full blood count, metabolic profile, thyroid studies, ECG and echocardiogram were all normal. Which one of the following would be the most appropriate treatment?
- Aspirin
 - Clopidogrel
 - Do nothing
 - Dipyridamole
 - Warfarin
28. A 62-year-old man presents with angina and dyspnoea. On examination you note an ejection systolic murmur at the upper right sternal border radiating to his neck. What is the most likely diagnosis?
- Mitral stenosis
 - Mitral regurgitation
 - Aortic stenosis
 - Aortic regurgitation
 - Tricuspid stenosis
29. A 50-year-old man has persistently elevated blood pressure of about 185/110 mmHg. He has been complaining of headaches for a few weeks but otherwise well. ECG reveals abnormal voltage changes and ST segment depression in the left ventricular leads. He was also found to have evidence of arteriovenous nipping on fundoscopy. What is the most appropriate management?
- Advise weight loss and see again in 2 months
 - Arrange an exercise stress test
 - Hospitalize and give urgent IV antihypertensive medication
 - Begin oral antihypertensives and see in 2 months
 - Begin oral antihypertensives and see in 3 days
30. A 55-year-old woman presents with dyspnoea and orthopnoea. On examination you note a blowing early diastolic murmur at the left sternal edge. What is the most likely diagnosis?
- Mitral stenosis
 - Mitral regurgitation
 - Aortic stenosis
 - Aortic regurgitation
 - Tricuspid stenosis
31. A 42-year-old man is reviewed in the outpatient cardiology department following a recent echocardiogram (echo). The echo demonstrates right ventricular dysfunction. On examination you note an elevated JVP in addition to a pansystolic murmur at the lower left sternal edge. What is the most likely diagnosis?
- Mitral stenosis
 - Mitral regurgitation
 - Tricuspid regurgitation
 - Aortic stenosis
 - Aortic regurgitation
32. A 50-year-old Caucasian man sees his GP for a blood pressure check as he has recently been diagnosed with essential hypertension. His only other medical history is type II diabetes mellitus with no end-organ damage, which is well controlled on oral hypoglycaemic agents. His blood pressure has been 145/90 mmHg persistently despite diet and exercise for 3 months.

- Which of the following is the first-line medication for blood pressure control in this patient?
- Start on losartan
 - Start on bisoprolol
 - Start on thiazide diuretic
 - Start on nifedipine
 - Start on enalapril
33. A 62-year-old man presents with angina and dyspnoea. On examination you note a murmur at the right upper sternal border radiating to his neck. Which investigation is most likely to lead to a diagnosis?
- Chest X-ray (CXR)
 - Echocardiogram
 - ECG
 - Coronary angiography
 - 24-hour ECG
34. A 42-year-old man presents with shortness of breath and haemoptysis. On examination you note a loud first HS and a rumbling mid-diastolic murmur at the apex. You request an echocardiogram and a CXR. The following are all features of the CXR in this condition EXCEPT?
- Large right atrium
 - Large left atrium
 - Kerley B lines
 - Pulmonary venous hypertension
 - Narrowed carina
35. A 50-year-old man presents to the emergency department with a mild headache. He is known to have poorly controlled hypertension and is on multiple antihypertensive medications. On examination his blood pressure is 205/110mmHg and there is no evidence of end-organ involvement. His headache is still present but there is no focal neurology identified. Which of the following is the least appropriate in the management of this patient's blood pressure?
- Rapidly lowering blood pressure in the emergency department
 - Adjust treatment and follow-up within 24 to 48 hours of presentation in the community
 - Initiate a maintenance dose of an oral medication before discharge
 - Consider a short observation period before discharge
 - Discharge the patient, emphasizing the importance of close follow-up and compliance with medications
36. A 55-year-old man presents to A&E with shortness of breath and fatigue. On examination you note pitting oedema in both his lower limbs. You suspect heart failure. Which investigation is most likely to demonstrate the aetiology?
- CXR
 - Echocardiogram
 - ECG
 - Coronary angiography
 - 24-hour ECG
37. A 46-year-old woman presents with shortness of breath. She comments that she feels particularly breathless when lying down and uses five pillows to sleep at night. On examination her pulse rate is regular at 122 beats/min and her blood pressure is stable at 122/65mmHg. You note bibasal crackles when listening to her chest. You suspect heart failure and order a CXR and echocardiogram. The following may all be features on her CXR EXCEPT?
- Kerley B lines
 - Hilar haziness
 - Fluid in the left horizontal interlobar fissure
 - Upper lobe venous engorgement
 - Cardiomegaly
38. A 55-year-old banker is admitted to A&E complaining of sudden-onset shortness of breath. Following an echocardiogram, he is diagnosed with heart failure. What is the most likely aetiological cause for cardiac failure in the Western world?
- Ischaemic heart disease
 - Hypertension
 - Valvular dysfunction
 - Cardiomyopathy
 - Arrhythmia
39. A 66-year-old man with heart failure secondary to previous MIs is on regular digoxin and furosemide without much effect. A recent echocardiogram shows global dysfunction. His renal function is normal. Which medication should be added to his management?
- ACE inhibitors
 - Verapamil
 - Disopyramide
 - Phosphodiesterase inhibitors
 - Propranolol
40. A 65-year-old man presents with shortness of breath at rest. Physical examination reveals evidence of pitting oedema over the sacrum and leg oedema to the mid thigh. An echocardiogram is requested which demonstrates an ejection fraction of 0.4. What is the next most appropriate step in management?
- ACE inhibitor
 - Angiotensin II receptor antagonist
 - Beta-blocker

Single best answer (SBA) questions

- d. Calcium channel antagonist
e. Diuretic
41. A 72-year-old man with known cardiac failure comes to see his GP. He is currently on a diuretic. His GP decides to commence an ACE inhibitor. The following are all side effects of ACE inhibitors EXCEPT?
- Renal failure
 - Hypokalaemia
 - Rash
 - Angioedema
 - Cough
42. A 64-year-old man with known cardiac failure presents with acute shortness of breath and a cough productive of frothy pink sputum. He comments that he feels nauseous. On examination you note wheezes and crackles throughout his chest. What is the next most appropriate step in management?
- Glyceryl trinitrate (GTN) infusion
 - Aminophylline
 - Metoclopramide
 - Furosemide
 - Mechanical ventilation
43. A 44-year-old female comes to your office with chest pain of several days' duration. She describes the pain as sharp and stabbing, and indicates that it is located at the left sternal border; it is increased by coughing and palpation. There is no family history of heart disease, nor is there a personal history of diabetes, hypertension, smoking or hyperlipidaemia. A physical examination, an ECG and chest radiographs are all normal. Further diagnostic studies should include which of the following?
- A treadmill exercise test with ECG and blood pressure monitoring
 - A stress echocardiogram
 - Referral for cardiac catheterization
 - Stress myocardial perfusion imaging
 - No additional tests
44. A 53-year-old man comes to see his GP complaining of chest pain. The GP performs an ECG which demonstrates ischaemic changes. The following are all risk factors for ischaemic heart disease EXCEPT?
- Hyperlipidaemia
 - Smoking
 - Hypertension
 - High homocysteine levels
 - High dietary folic acid intake
45. A 23-year-old man who has recently recovered from an upper respiratory tract infection presents to the A&E department with chest pain made worse on breathing. On examination he is febrile, and has a 'scratchy' sound heard on auscultation in systole and diastole. ECG reveals widespread saddle-shaped ST segment elevation. What is the most likely diagnosis?
- Unstable angina
 - Hyperventilation syndrome
 - Pulmonary emboli
 - Evolving cardiac infarction
 - Acute pericarditis
46. A 56-year-old woman presents to A&E complaining of sudden-onset central chest pain. She comments that it came on at rest. She is referred for an exercise test and coronary angiogram. The exercise test is stopped early due to chest pain and ST depression in the lateral leads. However, she has normal coronary arteries on the angiogram. What is the most likely diagnosis?
- Decubitus angina
 - Prinzmetal angina
 - Cardiac syndrome X
 - Unstable angina
 - Stable angina
47. A 55-year-old man has been recently diagnosed with hypertension and commenced on treatment. He attends his GP to find out more about the condition. Which of the following is the commonest cause of hypertension?
- Polycystic kidney disease
 - Renin-producing tumour
 - Undetermined cause
 - Oral contraceptive pills
 - Coarctation of aorta
48. You are on call in A&E when a patient with sudden-onset chest pain is admitted. You request an ECG which shows evidence of T-wave inversion in leads V2–V6 but no evidence of ST elevation. You prescribe aspirin, enoxaparin and clopidogrel. What is the most appropriate dose of enoxaparin?
- 40 mg once a day
 - 20 mg once a day
 - 1 mg/kg once a day
 - 1.5 mg/kg twice a day
 - 1 mg/kg twice a day
49. A previously fit and well 30-year-old gym instructor is admitted to hospital following a stab wound to the left side of his chest. He has a blood pressure of 80/45 mmHg and heart rate of 125 beats/min. Breath sounds are present throughout but his HSS are muffled. His JVP appears raised. What additional feature is most likely to be present in this patient?

- a. Diastolic murmur over the praecordium radiating towards the left axilla
- b. S3
- c. Wide-split S2
- d. An 18-mmHg blood pressure drop during inspiration
- e. An 18-mmHg blood pressure drop during expiration
50. You are a house officer on call when you are asked to see a patient with chest pain. The patient tells you that he suffers from angina and this pain is similar to previous episodes of chest pain. An ECG is performed which rules out an MI. What is the next most appropriate step in management?
- a. Atenolol
- b. Glyceryl trinitrate (GTN)
- c. Diltiazem
- d. Nicorandil
- e. Aspirin
51. An ECG is performed on a 45-year-old man as part of a routine medical check-up. His past medical history includes a previous MI some years ago. The ECG shows presence of Q waves. Q waves in inferior MI appear in which ECG leads?
- a. I and II
- b. II, III and aVF
- c. V1, V2 and V3
- d. I, aVF and V6
- e. V4, V5 and V6
52. A 56-year-old man presents with central chest pain at rest. He comments that he feels short of breath and nauseous. An ECG demonstrates tall R waves, ST segment depression and tall T waves in leads V1 and V2. What is the most likely diagnosis?
- a. Anterior myocardial infarct
- b. Lateral myocardial infarct
- c. Inferior myocardial infarct
- d. Anterio-lateral myocardial infarct
- e. Posterior myocardial infarct
53. A 21-year-old fit university student with no past medical history has sudden loss of consciousness 1 hour into a gym session. CPR is administered by bystanders. On arrival of the paramedics, he has regained consciousness. What is the most effective means of preventing sudden death in high-risk patients with asymptomatic HCM?
- a. Amiodarone
- b. An implantable cardioverter-defibrillator (ICD)
- c. Chronic dual-chamber pacing
- d. Metoprolol
- e. Verapamil
54. A 42-year-old lawyer presents with sudden-onset chest pain. You suspect a myocardial infarct and explain to the patient that you need to measure a protein from his heart to confirm your suspicion. Which serum investigation is most likely to lead to a diagnosis?
- a. Troponin
- b. Creatine kinase
- c. Myoglobin
- d. Aspartate aminotransferase
- e. Lactic dehydrogenase
55. Which ECG change would lead you to initiate thrombolytic therapy?
- a. Right bundle-branch block
- b. ST segment elevation in left ventricular leads
- c. Widespread ST segment depression
- d. Q waves in septal leads
- e. Prolongation of the QT interval
56. A 32-year-old obese woman presents to the GP with sudden-onset crushing chest pain and nausea. The GP is concerned about a myocardial infarct and calls an ambulance. What is the next most appropriate step in management?
- a. Metoprolol
- b. Morphine
- c. Metoclopramide
- d. Aspirin
- e. Streptokinase
57. A 45-year-old man attends the emergency department with worsening breathlessness and fevers. The medical team suspects a diagnosis of infective endocarditis. Which of the following is the most suggestive feature of infective endocarditis?
- a. Appearing and changing murmurs
- b. Erythema marginatum
- c. Juxta-articular nodes
- d. Atrial fibrillation
- e. Lymphadenopathy
58. A 43-year-old man presents with central chest pain. He is diagnosed with an acute MI and referred for immediate angioplasty. The following are all late complications of a myocardial infarct EXCEPT?
- a. Mitral valve regurgitation
- b. Thromboembolism
- c. Ventricular aneurysm
- d. Pericarditis
- e. Ventricular septal rupture
59. An elderly woman complains of abdominal distension, due to ascites, upper abdominal pain from an enlarged tender liver and flatulence. She is mildly jaundiced and has marked pitting of the legs.

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- Her arterial pulse is rapid and irregular, and she is sitting propped up in bed where it is evident that her face is cyanosed, and her jugular veins are engorged and pulsating in systole. She is passing little urine and the urine contains 2+ of protein. What is the most likely diagnosis?
- Cirrhosis of the liver
 - Congestive heart failure
 - Malignant ascites
 - Nephrotic syndrome
 - Superior mediastinal obstruction
60. A 35-year-old IV drug abuser presents with night sweats and weight loss. On examination he is pyrexial with a temperature of 38.5°C. You suspect a diagnosis of infective endocarditis. Which of the following organisms is most likely to account for his condition?
- Streptococcus mutans*
 - Streptococcus sanguis*
 - Enterococcus faecalis*
 - Staphylococcus aureus*
 - Coxiella burnetii*
61. A 31-year-old woman presents with night sweats. On examination you detect a systolic murmur. She has severe gum and tooth decay and has recently had two teeth taken out. Which of the following organisms is most likely to account for her condition?
- Streptococcus mutans*
 - Streptococcus sanguis*
 - Enterococcus faecalis*
 - Staphylococcus aureus*
 - Coxiella burnetii*
62. A 40-year-old man with an underlying cardiac condition is about to undergo a root canal treatment with a new crown to be fitted in the dentist's office. Which one of the following conditions strongly warrants antibiotics prophylaxis?
- Atrial septal defect
 - Ventricular septal defect
 - Previous coronary artery bypass grafting involving the use of the internal mammary arteries
 - Presence of a dual chamber pacemaker
 - None of the above
63. You are attending a seminar on infective endocarditis. The lecturer comments that some clinical features of the condition result from immune complex deposition. The following features are all the result of immune complex deposition EXCEPT?
- Splenic abscess
 - Janeway lesions
 - Roth spots
 - Osler nodes
 - Splinter haemorrhages
64. A 35-year-old man complains of fatigue, night sweats and weight loss. On examination you note a systolic murmur and evidence of splenomegaly. Which investigation is most likely to lead to a diagnosis?
- Serology testing
 - CXR
 - ECG
 - Full blood count
 - Blood cultures
65. A 31-year-old man presents with several months of shortness of breath and chest discomfort. An ECG shows evidence of T-wave flattening. You request an echocardiogram which demonstrates dilated ventricles with global hypokinesis. What is the most likely diagnosis?
- Dilated cardiomyopathy
 - Hypertrophic cardiomyopathy
 - Restrictive cardiomyopathy
 - Arrhythmogenic right ventricular cardiomyopathy
 - Myocarditis
66. A 20-year-old student sees his GP for blurred vision. On further questioning, he reports he had a 'lens problem' a year ago. On examination he also has pectus excavatum, a high arched palate and signs of hypermobility. Which of the following cardiac disorders is often associated with this patient's condition?
- Aortic valve stenosis
 - Coarctation of the aorta
 - Mitral valve prolapse
 - Ventricular septal defect
 - Ebstein anomaly
67. A 27-year-old footballer presents with laboured breathing and chest pain. An ECG shows evidence of left ventricular hypertrophy. What is the most likely diagnosis?
- Dilated cardiomyopathy
 - Hypertrophic cardiomyopathy
 - Restrictive cardiomyopathy
 - Arrhythmogenic right ventricular cardiomyopathy
 - Myocarditis
68. A 42-year-old woman presents with chest pain. She comments that the pain is worse on inspiration but is relieved by leaning forward. Her past medical history includes breast carcinoma. What is the most likely diagnosis?
- Acute pericarditis
 - Pericardial effusion

- c. Pericardial tamponade
d. Constrictive pericarditis
e. Myocarditis
69. A 65-year-old man sees his GP with worsening central chest pain and breathlessness following exertion for 3 months. These symptoms usually resolve with rest. Lately he has also been feeling dizzy. On examination a systolic murmur is heard. ECG shows large R waves in leads I, aVL and V4–6, and large R waves in leads V1–3. What is the most likely diagnosis?
a. Myocardial infarction
b. Unstable angina
c. Stable angina
d. Aortic stenosis
e. Hypertrophic cardiomyopathy
70. A 43-year-old obese woman with known breast cancer complains of shortness of breath. On examination you note soft HSs and obscuration of the apex beat. Which investigation is most likely to lead to a diagnosis?
a. CXR
b. Echocardiogram
c. ECG
d. Arterial blood gas
e. Coronary angiography
71. A 63-year-old retired doctor presents with nausea and headaches. His past medical history includes type II diabetes mellitus. On examination you note his blood pressure is 165/76 mmHg. What is the next most appropriate step in management?
a. Beta-blockers
b. Calcium channel antagonists
c. ACE inhibitors
d. Diuretics
e. Alpha-blockers
72. A previously fit and well 45-year-old man presents to A&E with fevers and malaise. On examination he has multiple splinter haemorrhages and a systolic murmur. A diagnosis of infective endocarditis is suspected. Dukes criteria is used to help with the diagnosis of the condition. Which of the following statements is INCORRECT in Dukes criteria?
a. Presence of Osler nodes is a minor criterion
b. Positive blood for rheumatoid factor is a minor criterion
c. Echocardiographic evidence of prosthetic valve dehiscence is a major criterion
d. Serological evidence of active infection with an organism consistent with infective endocarditis (IE)
e. Definite diagnosis can be made with three minor criteria
73. A 65-year-old hypertensive patient is reviewed in the outpatient clinic complaining of visual disturbances. On examination you note flame-shaped haemorrhages. What is the most likely diagnosis?
a. Grade 1 retinal disease
b. Grade 2 retinal disease
c. Grade 3 retinal disease
d. Grade 4 retinal disease
e. Grade 5 retinal disease
74. A 45-year-old teacher with known mitral valve prolapse presents to his GP with a 2-week history of fevers, rigors, chest pain and breathlessness. He recently underwent a tooth extraction. On examination he is febrile with multiple splinter haemorrhages. A systolic murmur is heard and appears to have increased in intensity since his last GP visit. What is the most likely causative agent in this case?
a. *Candida albicans*
b. *Staphylococcus aureus*
c. *Pseudomonas aeruginosa*
d. *Streptococcus viridans*
e. *Enterococcus*
75. A 64-year-old female comes to your surgery with a past medical history of hypertension. She is on an ACE inhibitor as well as on a range of other medications. Which one of the following would be most likely to blunt the antihypertensive effects of an ACE inhibitor?
a. Chlorpromazine
b. Allopurinol
c. Ibuprofen
d. Spironolactone
e. Paracetamol

EXTENDED-MATCHING QUESTIONS (EMQs)

Cardiac murmurs and added sounds

Each answer can be used once, more than once or not at all.

- a. Aortic regurgitation
b. Aortic stenosis
c. Bicuspid aortic valve
d. Mitral regurgitation
e. Mitral stenosis
f. Patent ductus arteriosus

Extended-matching questions (EMQs)

- g. Transposition of the great vessels
- h. Tricuspid regurgitation
- i. Ventricular septal defect

For each scenario below, choose the most likely corresponding option from the list given above.

1. A 60-year-old man presents with heart failure. On examination he has a collapsing pulse, an early diastolic murmur and a displaced apex beat.
2. A 56-year-old man gives a history of rheumatic fever. He has flushed cheeks, an irregularly irregular pulse and a mid-diastolic murmur.
3. A 75-year-old woman presents to A&E following a drop attack. Her ECG shows left ventricular hypertrophy. On examination, a harsh systolic murmur is heard over both carotid arteries.
4. Three days following his MI, Mr Thompson has a sudden deterioration, developing left ventricular failure. He has a new pansystolic murmur radiating from the apex to the axilla.
5. A baby who is cyanotic at birth with a loud long systolic murmur in whom tetralogy of Fallot is suspected.

Chest pain

Each answer can be used once, more than once or not at all.

- a. Angina pectoris
- b. Pericarditis
- c. Myocardial infarction
- d. Aortic dissection
- e. Reflux oesophagitis
- f. Pulmonary infarct
- g. Pneumonia
- h. Costochondritis
- i. Pneumothorax
- j. Pulmonary embolus

For each scenario below, choose the most likely corresponding option from the list given above.

1. A middle-aged man presenting with a central crushing chest pain on exercise but relieved by rest.
2. Associated with central crushing chest pain which occurs at rest and may radiate to the jaw or arms.
3. Severe tearing chest pain which may radiate to the back.
4. Central chest discomfort which is sharp in nature with a tender area on palpation.
5. Sharp chest pain aggravated by movement, respiration and changes in posture.

Drugs

Each answer can be used once, more than once or not at all.

- a. Propranolol
- b. Nicorandil
- c. Aspirin
- d. Nifedipine
- e. Captopril
- f. Digoxin
- g. Bisoprolol
- h. Bendrofluzide
- i. Clopidogrel
- j. Simvastatin

For each scenario below, choose the most likely corresponding option from the list given above.

1. Used in the treatment of cardiac failure. Known to cause a persistent cough.
2. Contraindicated in renal artery stenosis.
3. Associated with bradycardia, headaches and fluid retention.
4. First-line management in acute coronary syndrome.
5. Specifically contraindicated in asthmatics and individuals with peripheral vascular disease.

Clinical features of cardiac disease

Each answer can be used once, more than once or not at all.

- a. Aortic stenosis
- b. Aortic regurgitation
- c. Mitral stenosis
- d. Mitral regurgitation
- e. Infective endocarditis
- f. Rheumatic fever
- g. Tricuspid stenosis
- h. Tricuspid regurgitation
- i. Pulmonary hypertension
- j. Pulmonary embolism

For each scenario below, choose the most likely corresponding option from the list given above.

1. A pansystolic murmur auscultated at the apex and radiating into the axilla.
2. Associated with erythematous macules on the palms and haemorrhages under the nails.
3. Associated with pink-coloured rings on the trunk and subcutaneous nodules over the joints.
4. Associated with a slow rising carotid pulse and ejection systolic murmur at the right upper sternal border.
5. Known to cause a right parasternal heave and a loud pulmonary second sound.

Murmurs

Each answer can be used once, more than once or not at all.

- Aortic regurgitation
- Aortic stenosis
- Austin–Flint murmur
- Flow murmur
- Graham Steell murmur
- Mitral regurgitation
- Mitral stenosis
- Tricuspid regurgitation
- Tricuspid stenosis
- Ventricular septal defect

For each scenario below, choose the most likely corresponding option from the list given above.

- A 60-year-old Egyptian man with a pansystolic murmur loudest at the right sternal edge, a raised JVP and a pulsatile liver.
- A 70-year-old woman in atrial fibrillation, an apex beat palpable in the mid-axillary line and a loud pansystolic murmur which is heard all over the heart.
- A 14-year-old girl with a flat occiput, single palmar crease and a pansystolic murmur. She has a chromosomal abnormality affecting chromosome 21.
- An elderly gentleman with a collapsing pulse and an early diastolic murmur which is loudest when sitting forward.
- A diastolic murmur which is early and continues past mid-diastole.

Symptoms of heart failure

Each answer can be used once, more than once or not at all.

- Ankle swelling
- Cough
- Hepatomegaly
- Orthopnoea
- Paroxysmal nocturnal dyspnoea
- Pink frothy sputum
- Pulmonary fibrosis
- Pulmonary oedema
- Shortness of breath

For each scenario below, choose the most likely corresponding option from the list given above.

- A patient has been on a cardiology ward for 3 weeks with a diagnosis of pulmonary oedema. He is receiving large doses of furosemide. His systolic blood pressure is 74 mmHg and increases on being placed head down in bed. On auscultation he has fine crackles throughout both lung fields.

- A patient complains of waking in the middle of the night and racing out of bed to the window, gasping for breath.
- A patient sleeps on four pillows at night so he can catch his breath.
- A patient with a diagnosis of heart failure complains of this symptom several weeks after starting an ACE inhibitor.
- Congestion due to right heart failure can cause a nutmeg appearance and this symptom.

Electrocardiograph findings

Each answer can be used once, more than once or not at all.

- Anterior myocardial infarction
- Atrial fibrillation
- Atrial flutter with 2:1 block
- Digitalis effect
- Inferior myocardial infarction
- Pericarditis
- Posterior myocardial infarction
- Sick sinus syndrome
- Third-degree heart block
- Ventricular tachycardia

For each scenario below, choose the most likely corresponding option from the list given above.

- ST depression in V1–3 and tall R wave in V1 and V2.
- ST elevation that is present in all leads and is saddle shaped.
- ST elevation of 3 mm in leads II, III and aVF.
- Broad complex QRS with a rate of 45 beats/min; P waves are present.
- No P waves, narrow complex QRS rate of 150 beats/min with sawtooth baseline.

Heart disease

Each answer can be used once, more than once or not at all.

- Acute myocardial infarction
- Aortic stenosis
- Atrial myxoma
- Complete heart block
- Cor pulmonale
- Dilated cardiomyopathy
- Fibrinous pericarditis
- Infective endocarditis
- Mitral valve stenosis
- Tricuspid incompetence

For each scenario below, choose the most likely corresponding option from the list given above.

- A 58-year-old woman with known asymptomatic aortic stenosis presents with fever and feeling

generally unwell. She has just had three fillings performed by her dentist.

2. A 49-year-old man presents to his GP with shortness of breath on walking up hills. He also experiences central chest pain which is relieved by resting, as well as occasional dizziness. He has a loud systolic murmur.
3. On the second day post-MI, a 71-year-old man develops pleuritic sounding chest pain. This is relieved by ibuprofen. The ECG demonstrates saddle-shaped ST changes.
4. A 63-year-old man presents to A&E with shortness of breath. He has a loud pansystolic murmur and a displaced apex beat. CXR demonstrates a straight left heart border and cardiothoracic ratio of >50%. He admits to previous excess alcohol intake.
5. A 44-year-old woman attends her respiratory clinic appointment. She has known chronic obstructive pulmonary disease and is a previous heavy smoker. Her most recent symptoms are ankle swelling and an exercise tolerance of 15 yards.

Chest pain

Each answer can be used once, more than once or not at all.

- a. Myocardial infarct
- b. Pulmonary embolus
- c. Pericarditis
- d. Left lower lobe pneumonia
- e. Rib fracture
- f. Oesophageal reflux disease
- g. Aortic dissection
- h. Costochondritis
- i. Angina pectoris
- j. Herpes zoster

For each scenario below, choose the most likely corresponding option from the list given above.

1. A 48-year-old housewife is admitted with left-sided chest discomfort, sharp in nature, which is worse on coughing. She has no sputum. She takes the oral contraceptive pill and propranolol hydrochloride (Half-Inderal LA). Her father and

uncle died in their 60s from 'heart attacks'.

She smokes 30 cigarettes a day. ECG: sinus tachycardia and right bundle-branch block.

D-dimer 0.71 mg/L, troponin I 0.01 mg/L. CXR: no active disease (NAD).

2. A 58-year-old insulin-dependent diabetic is admitted at the request of his GP. He has been complaining of intermittent central chest pain for the past month. He is a poor historian but claims he has not noticed any relationship to the pain. He has suffered from AF and hypertension for 6 years. He currently takes digoxin, atenolol, diclofenac and simvastatin. O/E: body mass index 31 kg/m², no chest wall tenderness, HS I + II + ejection systolic murmur in aortic area. No clinical evidence of deep vein thrombosis. HbA1C 10.5%, random glucose 13.2 mmol/L, digoxin level 1.3 mmol/L. ECG: 1-mm depression in leads V1–V6. CXR: NAD.
3. A 45-year-old Moroccan man (working in the local chicken factory) attended A&E with central chest discomfort. His English is broken, but you establish that this has been a problem for the past week and that it is sharp in nature ('like a knife, doctor'). He has no recent trauma. Examination is unremarkable. CXR: scarring of right apex and calcified hilar nodes. You return to the patient and he confirms previously being treated for tuberculosis back in Morocco.
4. A 36-year-old man is admitted via A&E with right-sided chest pain associated with shortness of breath. There is no fever. O/E: Thin gentleman, smells of tobacco and alcohol. He is uncooperative to examination. Reduced breath sounds on the right side. Tender over the anterior chest wall. CXR: peripheral area of decreased lung markings on the right side.
5. A 56-year-old insulin-dependent diabetic is admitted at the request of a concerned relative (a local doctor). He has been complaining of niggling chest pain for the past 2 days, with an associated feeling of shortness of breath. O/E: afebrile, no chest wall tenderness. Nil adventitious sounds. HS I + II + 0. CXR: NAD. ECG: ST elevation 3-mm leads V4–V6 with T-wave inversion. Troponin 6.5 mg/L.