

CVS Midterm Exam

022 Batch

Made By : A+ Agonists

Physiology

1. A 54-year-old woman presents to the hospital with symptoms of dizziness and edema. On physical examination, she showed bilateral edema and an S3 sound could be heard during the heart sound exam. An echocardiography has shown an Ejection Fraction of 32%. Which of the following explains the pathophysiology of the disease?
 - a. Decreased ventricular filling to decreased LV compliance
 - b. Increased cardiac output
 - c. Decreased preload due to systemic vasodilation
 - d. Decreased contractility due to weak myocardial cells

Answer: D

2. A 45-year-old man came in for evaluation of Exercise-induced fatigue. On heart sound examination a loud harsh systolic murmur was heard best on the upper right stern-costal corner. What is the indicated diagnosis?
 - a. Aortic Stenosis
 - b. Mitral Stenosis
 - c. Aortic regurgitation
 - d. Mitral regurgitation

Answer: A

3. Which of the following combinations is true regarding the pacemaker action potential in the heart?
 - a. Funny sodium channels (L_f) --> Phase 3
 - b. T-Type Calcium Channel --> Phase 0
 - c. Potassium and Calcium channels --> Plateau Phase
 - d. Pacemaker action potential --> Very high threshold
 - e. Pacemaker action potential is less negative than Cardiac action potential: very unstable

Answer: E



4. A 55-year-old woman presents to the clinic with progressive shortness of breath during exertion. She has history of uncontrolled hypertension. On examination, blood pressure is 140/90 mm Hg. No peripheral edema. Echocardiography reveals Left ventricular hypertrophy, reduced Stroke Volume, reduced EDV, and normal ejection fraction. Which of the following is the primary factor responsible for her reduced stroke volume?
- Increased afterload due to increased arterial pressure
 - Increased preload due to reduced ventricular filling
 - Increased myocardial contractility due to diabetic cardiomyopathy
 - Decreased heart rate limiting ventricular filling
 - Decreased afterload due to decreased venous return

Answer: A

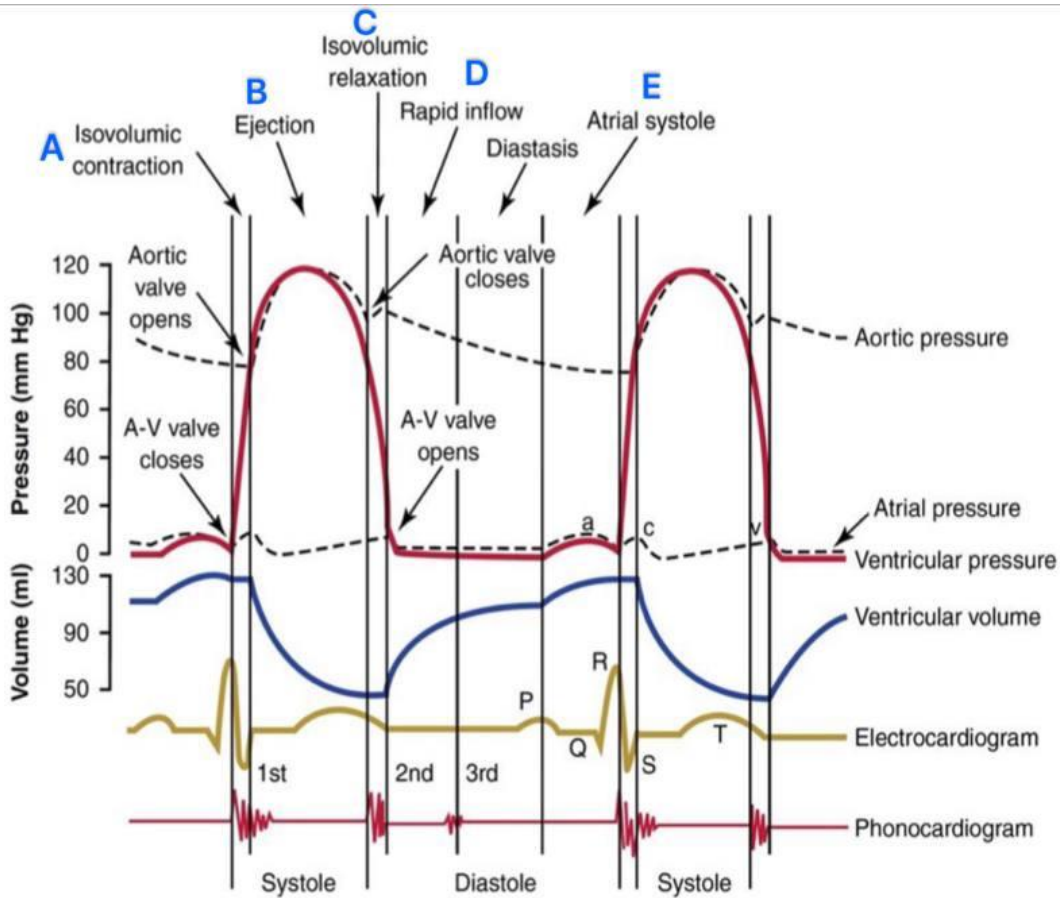
5. 28 year-old woman came in with complaints of palpitations. She reports that they worsen during public speaking events. Her heart rate was detected at 110 bpm and her blood pressure was 130/90. History concludes no previous heart disease. ECG shows sinus tachycardia. What explains these findings best?
- Sympathetic stimulation of SA node
 - Increased parasympathetic stimulation
 - Increased vagal tone
 - Decreased sympathetic
 - Decreased parasympathetic to improve atrial relaxation

Answer: A

6. Concerning cardiac muscle excitation-contraction coupling. What is the source of intracellular calcium?
- A- Sarcoplasmic reticulum
 - B- ECF from calcium channels
 - C- Both SR and ECF

Answer: c





Answer the following questions on this image of the cardiac cycle:

7. At which point does the ventricular pressure increase without a change in volume?

- a. A
- b. B
- c. C
- d. D
- e. A+B (?)

Answer: A

8. At what point does the rapid filling phase occur?

- a. C



- b. D
- c. A
- d. B
- e. None of the above (?)

Answer: C

9. What are the cardiac events that happen at point D?

- a. Atrial systole
- b. AV valve closure

Answer: A

10. While working in the emergency department, a student approached you and asked about the electrode placement in Lead 2, what's your answer?

- a. Positive electrode on left arm, negative electrode on right arm
- b. Negative electrode on left arm, positive electrode on left foot
- c. Negative electrode on heart, positive electrode on left foot
- d. Positive electrode on right arm, negative electrode on left foot
- e. Negative electrode on right arm, positive electrode on left foot

Answer: E

11. A 54-year-old man with a history of hypertension and hyperlipidemia came in for a routine ECG checkup. The attending physician pointed to a negative deflection at the beginning of the QRS complex on lead 1; the q wave. What explains the q wave?

Answer: Septal depolarization from left to right

12. A 28-year-old woman came in with complaints of heart palpitations. ECG examination has found a prolonged QT interval, the attending physician asks you what waves/segments does the QT interval include?

- a. QRS complex alone
- b. QRS complex + ST segment
- c. QRS complex + ST segment + T wave
- d. PR segment + QRS complex
- e. None of the above (?)

Answer: C



13. On an actual ECG you noticed that T waves are not the exact opposite of QRS complex as they 'logically' should be (?), what is the explanation for this?

Answer: repolarisation happens at different speeds and patterns than depolarisation

14. Your uncle was diagnosed with atrial fibrillation (A-fib), what is true about this condition?

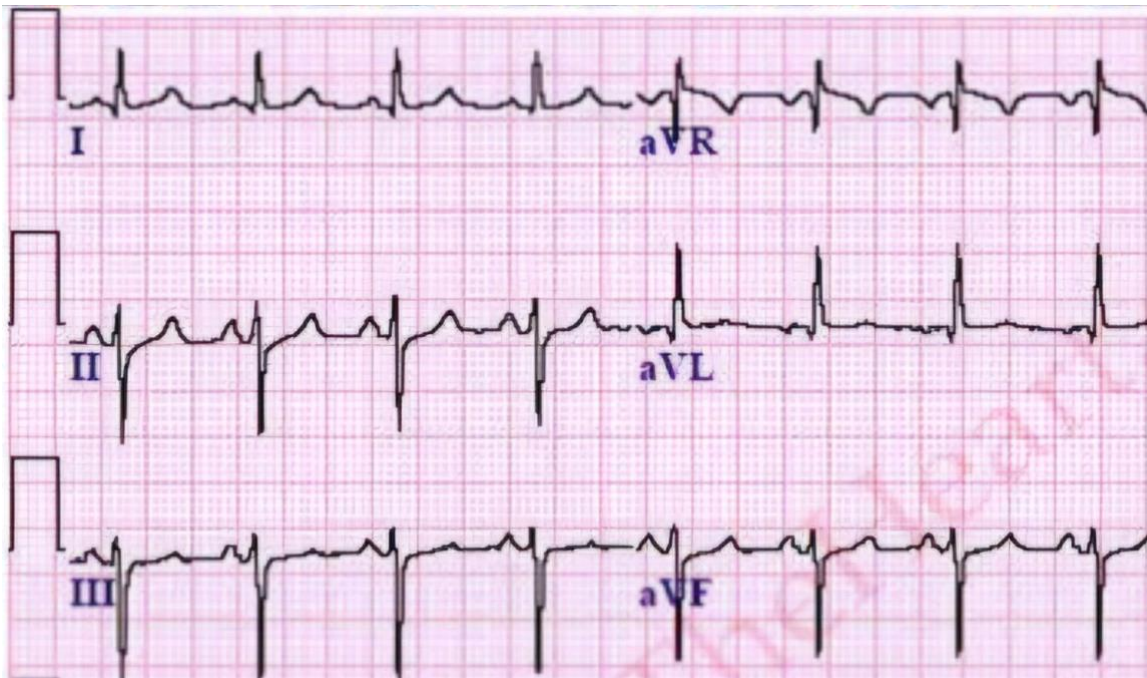
- a. It's life threatening
- b. It increases ventricular filling
- c. Management includes anti-coagulants if not contraindicated

Answer: C

15. During your cardiology rotation, your attending physician asks you of the causes of sinus tachycardia. Which of the following is one of them?

- a. Sleep
- b. Athletes
- c. Old age
- d. Parasympathetic stimulation
- e. Fever

Answer: E



16. What is the axis of the heart on the shown ECG?

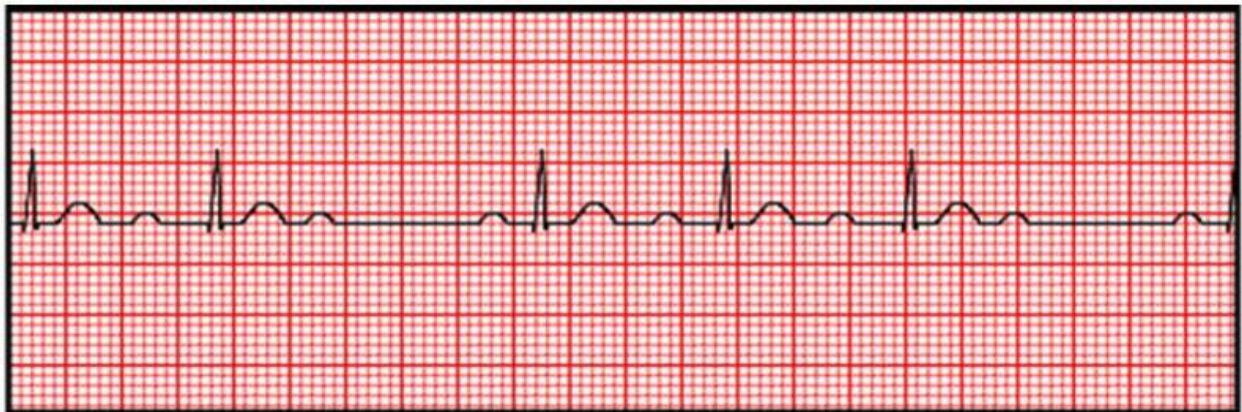
- a. Right axis deviation
- b. Left axis deviation
- c. Normal axis deviation
- d. Extreme axis deviation
- e. Cannot be determined

Answer: B

17. What is the pathological condition displayed on the ECG?

- a. ST Elevation showing an inferior wall myocardial infarction
- b. ST Elevation showing an anterior wall myocardial infarction
- c. ST Elevation showing a posterior wall myocardial infarction
- d. ST Depression ____ (?)
- e. ST Depression ____ (?)

Answer: A



18. This is an ECG of a 75-year-old woman who came in with complaints of dizziness, syncope. What is the phenomenon showcased?

- a. First degree AV block
- b. Mobitz type 1 AV Block
- c. Mobitz type 2 AV Block



- d. Mobitz type 3 AV Block
- e. Cardiac arrest (?)

Answer: B

19. A 42-year-old woman came in with complaints of palpitations and dizziness. She is currently on anti-depressant medication. An ECG examination was performed, and it showed polymorphic QRS complexes with tachycardia and varying amplitude. The QRS complexes appear to twist around a designated baseline. What is your provisional diagnosis?

- a. Mobitz type 1 AV Block
- b. SA Node block
- c. Stokes-Adams syndrome
- d. Atrial fibrillation
- e. Torsade de pointes

Answer: E

20. An engineer that is attempting to design a pacemaker calls you and asks why the SA node is the pacemaker of the cell?

- a. It has the fastest conduction rate
- b. It has the fastest discharge rate
- c. It contains the most gap junctions
- d. Its intranodal fibers increase its threshold
- e. None of the above

Answer: B

21. You're a researcher studying the Plateau phase of the action potential, which of the following is the correct statement regarding it?

- a. It allows time for relaxation between two action potentials
- b. Allows enough contraction to pump the blood
- c. Enough calcium to enter the cell
- d. Protects the heart from tetanus
- e. All of the above
- f.

Answer: E



Pharmacology:

22. Which of the following drugs can cause hyperuricemia:

- a. Furosemide
- b. Hydrochlorothiazide

Answer: A+B

23. Which drug modulates metabolism:

Answer: Trimetazidine

24. The reason why Esmolol Is used intraoperative:

Answer: Short half life

25. Which Of the following combinations is right:

- a. Methyldopa => tolerance
- b. Trimetazidine => restless leg syndrome
- c. trimetazidine => Prolonged QT

Answer: B

26. Angiotensin converting enzyme inhibitors and angiotensin receptor blocker don't cause one of the following effects: (deleted)

27. A drug that causes vasodilation by binding to dopamine-1 receptors:

Answer: Fenoldopam



28. From a pharmacological point of view, which one of the following drug uses is considered Correct:

- a. beta blockers and verapamil
- b. verapamil in patients with Bradycardia
- c. ACEI to a pregnant women
- d. Oral nitroglycerin as a rescue drug to a pt with angina attack

Answer: A

29. Usage of which drug results in an increased diastolic volume:

Answer: Atenolol

30. Which of these drugs must be withdrawn gradually:

Answer: A&C (both were beta blockers)

Microbiology

31. Which of the following is not a predisposing factor for IE:

- a. Congenital heart disease
- b. IV drug usage
- c. Dental procedures
- d. Hemodialysis
- e. Rheumatoid arthritis

Answer: E

32. Which of the following is incorrect about lassa fever:

- a. Transmitted by breast feeding
- b. Causes exudative pharyngitis
- c. Can cause hearing loss
- d. Rodent borne
- e. Mortality rate 50-90%

Answer: E



33. -Catalase -ve, Coagulase -ve IE in a colon cancer patient- What is the causative agent?

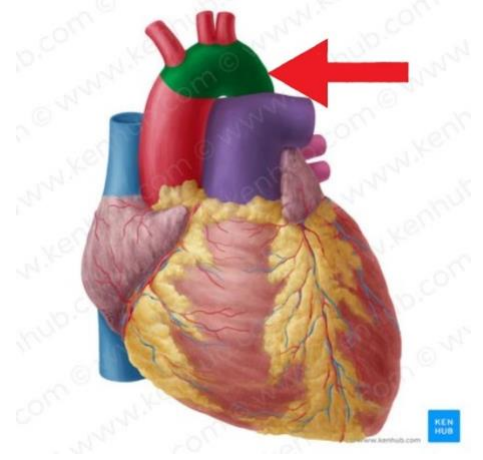
- a. Staph. aureus
- b. Staph. Epidermidis
- c. Streptococcus bovis
- d. Eikenella
- e. Strep. pyogenes

Answer: C

LAB:

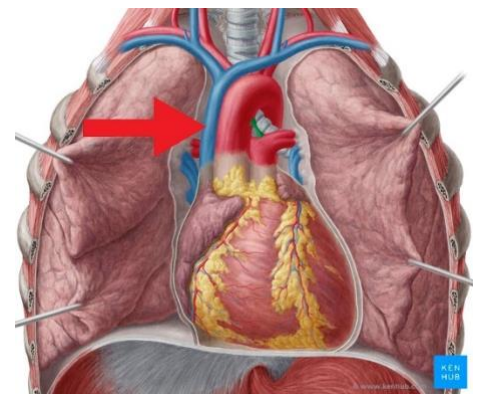
34. The pointed structure begins at the level of:

Answer: Right second costal cartilage



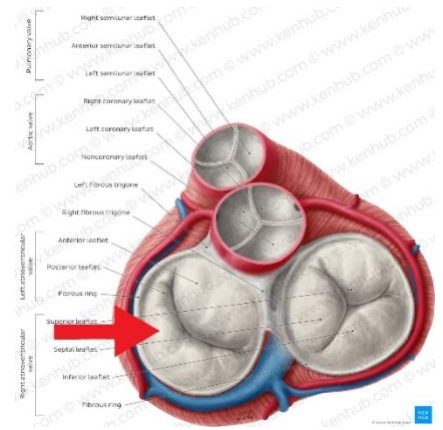
35. The pointed structure ends at the level of:

Answer: Third costal cartilage



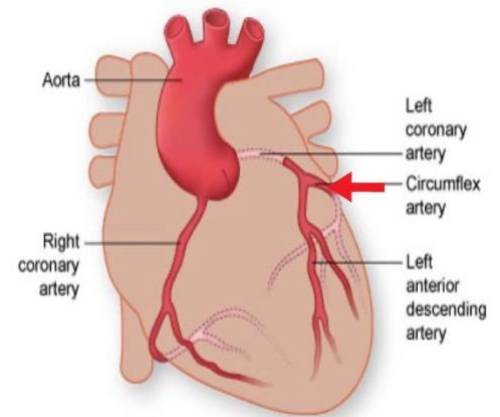
36. Identify the pointed structure:

Answer: Mitral valve



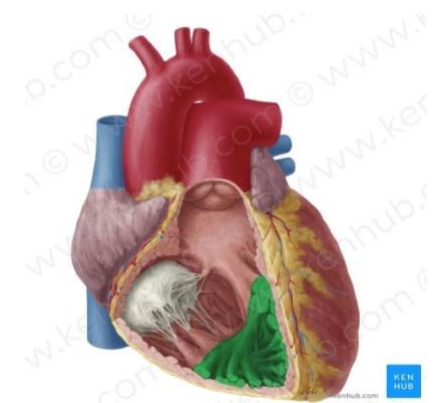
37. The pointed artery is a branch of:

Answer: Circumflex artery



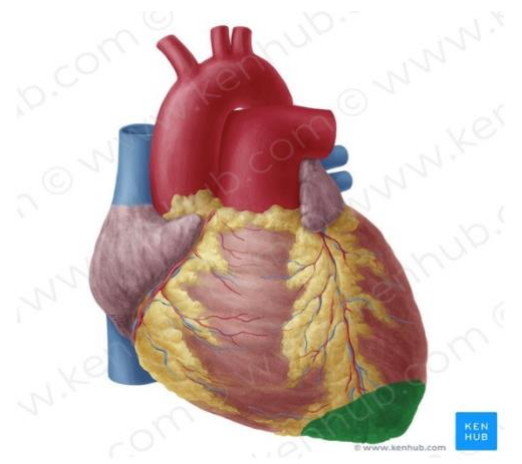
38. The embryonic origin of the highlighted structure is:

Answer: Primitive common ventricle



39. This structure lies in:

Answer: Left fifth intercostal space, 3.5 inches from the midline



40. V4 is placed at:

Answer: Fifth left intercostal space, midclavicular line

41. (Calculate heart rate):

Answer: 75 bpm

Anatomy:

42. The blood supply of the left atrium is a branch of:

Answer: circumflex artery

43. the abnormality that causes right ventricular hypertrophy:

- a. great vessel transposition
- b. Fallot's tetralogy

Answer: b

44. Which statement is wrong regarding fibrous pericardium:



Answer: it's supplied by vagus nerve

45. . Which of the following is correct in regard of fossa ovalis:

Answer: it's found on the right side of the interatrial septum

46. . Valve of fossa ovalis is formed by:

Answer: the cranial end of septum primum

47. Which structure is present in both superior and posterior mediastinum:

Answer: thoracic duct

48. Incorrect about coronary sinus:

Answer: has the eustachian valve

49. Where does the left recurrent laryngeal nerve pass :

Answer : between trachea and esophagus

50. The second rib articulates with which thoracic vertebra:

Answer: T1 & T2

51. A patient with colon cancer presents with pallor, sweating and dysphagia, this is probably due to the enlargement of:

Answer: left atrium

52. Which of the following structures passes in the coronary sulcus:

Answer: right coronary artery

53. The incorrect statement about the ventricles:

Answer: blood in the left ventricle takes a U turn around the subaortic curtain



54. Right border of the heart is formed by:

Answer: right atrium

55. Epigastric pain is felt through afferent fibers that enter the spinal cord through the posterior roots of:

Answer: T7, T8 & T9

56. Which of the following structures is responsible for the formation of the membranous part of the interventricular septum:

a. proximal bulbar septum

b. atrioventricular orifice

Answer: a

57. What structure contributes to the formation of the smooth part of the right atrium:

Answer: central body of sinus venosus

58. wrong about thoracic wall blood supply: Deleted question :)

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