Pathophysiology of cardiovascular system
(The questions to the colloquium)

1 .What does it mean: Heart failure? What are the pathogenetic mechanisms of heart failure?
2. Enumerate the diseases and conditions which can lead to chronic right heart insuffiiency
3. What is the mechanism of lung edema in patient with acute myocordial infarction ?
4. Name the hemodynamic indexes which characterize the systemic circulation?
5. Enumerate positive and negative effects of activated sympathetic nervous system.
6. What are the complications of secondary aldosteronism ?
7. Name the factors which lead to pathologic hypertrophy of the heart
8. Give the characteristics and features of third stage of heart hypertrophy
9. Enumerate clinical symptoms of chronic heart failure.
10. Mechanism of positive effect of use the ACE inhibitors in therapy of chronic heart failure.
11. What does it mean – Cardio-vascular failure? Name 3 pathogenetic mechanisms of cardio-vascular failure.
12. What is the mechanism of decreased contractility of the heart in condition of prolonged tachycardia. Name the main hemodynamic index characterizes contractility of the heart.
13. Which causes can lead to Myocardial Infarction of left venricle?
14. Acute and delay compensatory mechanisms in patient with heart failure.
15. Enumerate positive and negative effects of activated RAAS during chronic heart failure.
16. Give the classification of hypertension disease due to pathogenesis.
17. What are the features of alarm stage of the heart hypertrophy?
18. Explain the mechanism of lung edema when "wedge" pressure of pulmonary capillaries is equal to 30 mm Hg
19. Name the factors which can decrease the coronary blood flow.
20. Suggest the therapy to the patient with acute Myocardial Infarction.
21. What does it mean: Cardiac insufficiency ? Name the forms of cardiac insufficiency.
22. Enumerate the causes and conditions which provoke the ischemic heart disease.
23. Point out the main compensatory mechanisms of decreased CO in patient with heart failure.
24. What are the causes and complications of hypertension in lung circulation ?
25. Why did the venous return decrease after massive blood loss?
26. What are the possible causes of arrhythmia development in Myocardial Infarction?
27. What are positive and negative effects of left ventricle hypertrophy in patient with chronic heart failure?
28. Point out the characteristics of the stages of arterial hypertension disease.
29. The causes and role of pain sensation in pathogenesis of Myocardial Infarction
30 Enumerate the principles of therapy for patient with arterial hypertension disease.
31. Write causes which can lead to chronic “left/sided” heart overload by high volume
32. Write causes which can lead to chronic “right/sided” heart overload by high pressure.
33. How does the stroke volume .(or heart contractility) change when Starling curve shifts to the right (or to the left)?
34. Which of the cardiac indices must be used for best quantitative evaluation of heart work?
35. What formulas can be used for calculation of stroke volume, ejection fraction, heart index, cardiac output?
36. What ion has a direct relation to a (heart) muscle contraction?
37. Describe the mechanisms (3) of tachycardia in case of heart failure.
38. Name the three successive stages of cardiac hypertrophy.
39. How does the level of Ca^{2+}-ions change (↓↑) in the hypertrophied cardiomyocytes?
40. How does the relative myocardial fiber surface change in the hypertrophied cardiomyocites?
41. How do cardiac index, venous pressure, peripheral vessel resistance, aldosteron production change at congestive heart failure?

42. Describe the atriopeptide role in mechanisms of chronic congestive heart failure development.
43. What is the best mechanism for compensation for chronic heart insufficiency?
44. Describe the mechanism of secondary aldosteronism by congestive heart failure.
45. Describe the ECG patch of the right bundle branch block.
46. Write the risk factors (5) of myocardial infarction.
47. Write the pathogenetic principles of acute myocardial infarction therapy (5).
48. Give an ECG description of an acute left side transmural myocardial infarction.
49. Explain the mechanism of T-coronary wave formation in case of subepicardial (or transmural) and subendocardial ischemia (+ make a picture).
50. Explain QS-complex formation in case of transmural myocardial infarction (+ make a picture).
51. What kind of myocardial infarction are represented by the following:
1) ST segment ↑, pathological Q wave in V_1-V_3 leads;
2) ST on baseline, pathological Q wave in II, III, a VF leads + coronary downward T wave ?
52. Write the 4 possible mechanisms of heart fibrillation.
53. In what phase of cardiac work does coronary flow mostly occur?
54. Write the 2 main factors that can influence on the average pressure in aorta.
55. Write the formula for calculation of average arterial pressure in patients.
56. What are the main target organs at hypertonic disease?
57. What humoral substances are vasodilatators and vasoconstrictors?
58. Activation of what humoral systems is associated with increase of arterial blood pressure?
59. Describe a pathogenesis of cyanosis at heart insufficiency.
60. Why does the left ventricle more often involve in ischemic process?
61. Write causes (1,2,3) and consequences (1,2,3) of the lung vessels hypertension.
62. Write three main organ-targets to angiotensin.
63. Describe the “Starling” low.
64. How much times must coronary flow increase in order to teach it maximum in comparison with normal at rest (coronary reserve)?
65. What differens can be noticed between indexes of central venous pressure in two patients, when one has cardiogenic shock and another – hypovolemic shock?
66. How will change the indices of pulmonary capillare pressure (↑↓) after successful treatment of left ventricular failure?
67. The student should be able to define and calculate such indices of cardiac functions as stroke volume, ejection fraction, cardiac output (2 formulas), cardiac index, coefficient of O_2 utilization, the volume of circulating blood.