Questions for test-control on the theme: "Cardiac arrhythmias":

1. **What of the following arrhythmias are nomotopic?**

   1. Atrioventricular rhythm
   2. Sinus bradycardia
   3. Sinus tachycardia
   4. Idioventricular rhythm
   5. Sinus arrhythmia
   6. Syndrome weakness of sinoatrial node

2. **What of the following arrhythmias are heterotopic?**
   1. Atrioventricular rhythm
   2. Sinus bradycardia
   3. Sinus tachycardia
   4. Sinus arrhythmia
   5. Atrial paroxysmal tachycardia
   6. Idioventricular rhythm
3. **Sinus tachycardia is characterized by:**
   1. Increase in heart rate to 90-180 / min
   2. Increase in the automaticity of the sinoatrial node
   3. Union P wave with QRS complex
   4. Development at a heart failure
   5. Development at temperature increase
   6. Stratification of P wave on T wave of previous cycles at the expressed tachycardia
4. **Sinus bradycardia is characterized by:**
   1. Decrease in heart rate to 59-40/min
   2. Decreased P-Q interval
   3. Development at increase of a vagal tone
   4. Development at decrease of a vagal tone
   5. Preservation of the right sinus rhythm
   6. Moderate lengthening of P-Q interval at the expressed bradycardia
5. **Choose the arrhythmias resulting from the mechanism of a repeated entrance of a wave of excitation (re-entry):**
   1. Supraventricular migration of the pacemaker of a rhythm
   2. Atrial fibrillation
   3. Atrial flutter
   4. Paroxysmal tachycardia
   5. Extrasystolia
   6. Ventricular fibrillation
6. **Atrial paroxysmal tachycardia is characterized by:**
   1. Sudden beginning of an attack of accelerated heart rate
   2. Absence of P wave before QRS complex
   3. Increase in heart rate to 140-250/ min
   4. Deformed P wave
   5. the presence of P wave before each QRS complex
   6. Negative P wave before QRS complex
7. **Atrioventricular paroxysmal tachycardia is characterized by:**

1. Sudden beginning of an attack of tachycardia to 140-220/min
2. Right rhythm during the attack
3. Deformed QRS complex
4. Absence of deformed QRS complex
5. Negative P wave after QRS complex
6. Union P wave with QRS complex

8. Point out the pathogenetic factors of development of cardiac arrhythmias:

1. Decreasing ATP in cardiomyocytes
2. Increasing K^+ in cardiomyocytes
3. Increasing Ca^{2+} in cardiomyocytes
4. Increasing extracellular K^+ in myocardium
5. Decreased pH in cardiomyocytes

9. **Cardiac arrhythmias can result from disturbance of:**

1. Automatism
2. Excitability
3. Conduction
4. Contractility

10. What ECG-signs are characteristic for a passive ectopic (heterotopic) atrioventricular rhythm?

1. Right ventricular rhythm
2. Heart rate does not exceed 60/min
3. Negative P wave before QRS complex
4. Absence of P wave before QRS complex

11. **Choose the mechanism of development of sinus tachycardia:**

1. Reduction of velocity of a spontaneous diastolic depolarization
2. More negative value of threshold potential of cells of sinus node
3. Increase of velocity of a spontaneous diastolic depolarization of sinus node cells
4. Decreased level of a rest potential of cells of sinus node

12. Loss of P wave on surface ECG is consistent with:

1. Heterotopic atrioventricular rhythm
2. Atrial fibrillation
3. Third-degree AV block
4. Intra atrial block

13. **Ectopic rhythms of heart can be caused by:**

1. Decrease in automatism of SA node
2. Blockade of carrying out an impulse on conductive system of heart
3. Increase in automatism of SA пode
4. Increase of automatism of potential pacemakers of a rhythm

14. Tachycardia at a heart failure develops as a result of:

1. Excitement of mechanoreceptors in the mouth of venae cava (Bainbridge reflex)

2. Stagnant phenomenons in a big circle of blood circulation
3. Increase in venous return to heart
4. Decrease in venous return to heart
5. Decreased pump function of the heart

15. The widening and deformation of a QRS complex are observed at:

1. Idioventricular (ventricular) rhythm
2. SA block
3. First-degree AV block
4. Third-degree AV block
5. Bundle branch block

16. Choose the ECG-signs of migration of supraventricular pacemaker of a rhythm:

1. Deformed QRS complex
2. Negative P wave before QRS complex
3. Change of a configuration of P wave
4. Periodically changed duration of PQ interval
5. Negative P wave after QRS complex

17. **Point out the ECG-signs of atrial extrasystoles (premature atrial contractions):**

1. Shortened R-R interval before the extrasystole
2. P wave before an extraordinary QRS complex
3. Absence of P wave before an extraordinary QRS complex
4. Incomplete compensatory pause
5. Deformed and prolonged extraordinary QRS complex

18. What ECG-signs are characteristic for AV extrasystole?

1. Shortened R-R interval before the extrasystole
2. Negative P wave after an extraordinary QRS complex
3. Complete compensatory pause
4. Deformed and prolonged extraordinary QRS complex
5. Absence of P wave before an extraordinary QRS complex

19. **Choose the ECG-signs of ventricular extrasystole:**

1. Shortened R-R interval before the extrasystole
2. Complete compensatory pause
3. Negative P wave before an extraordinary QRS complex
4. Deformed and prolonged extraordinary QRS complex
5. Absence of P wave before an extraordinary QRS complex

20. **Fibrillation of ventricles can be caused by:**

1. Electric inhomogeneity of a myocardium
2. Overstrain of atrial myocardium
3. Decreased extracellular concentration of K^+ in a myocardium
4. Increased extracellular concentration of K^+ in a myocardium
5. Raised tone of sympathetic nervous system

21. The SA block is characterized by:

1. Periodic loss of one or several cardiac cycles
2. Periodic loss of QRS complexes
3. Disturbance of carrying out an impulse from sinus node to atriums
4. Asystolia periods, ≥ 2 to the preceding R-R intervals
5. Prolonged PQ interval more than 0,20 sec

22. Choose the ECG-signs of intra atrial blockade:

1. Prolonged PQ interval
2. Negative P wave before QRS complex
3. Splitting of P wave ("double-peak" P waves)
4. Increased duration of P wave more than 0,11 sec
5. Prolonged PQ segment

23. **What ECG-signs are characteristic for the first-degree AV block?**

1. Prolonged and deformed QRS complexes
2. Continually lengthened PQ interval more than 0,20 sec
3. Periodic loss of QRS complexes
4. Increased duration of P wave
5. Complete dissociation of ventricular and atrial rhythms

24. **What ECG-signs correspond to second-degree AV block (Mobitz I block)?**

1. Continually lengthened PQ interval more than 0,20 sec
2. Gradual lengthening of PQ interval with the subsequent loss of QRS complex (Wenckebach periods)
3. Loss of each second QRS complex
4. Deformed and prolonged QRS complexes
5. Dissociation of ventricular and atrial rhythms

25. **What ECG-signs correspond to second-degree AV block (III type)?**

1. Constant duration of PQ interval (normal or increased)
2. Loss of every second (2:1), or two and more in a row QRS complexes (3:1, 4:1 and so forth)
3. Deformed and prolonged QRS complexes (at a distal form)
4. Gradual lengthening of PQ interval
5. Dissociation of ventricular and atrial rhythms

26. **Choose the ECG-signs of third-degree AV block (complete):**

1. Frequency of an atrial rhythm 70-80/min
2. Deformed and prolonged QRS complexes (at localization of the pacemaker of ventricular rhythm in one of His bundle branches)
3. Complete dissociation of ventricular and atrial rhythms
4. Constant duration of PQ interval
5. Frequency of ventricular rhythm 40-59/min (at localization of the pacemaker of ventricular rhythm in AV junction)

27. **What ECG-signs indicate to complete right bundle branch block?**

1. Deformed and prolonged R wave in left-sided leads
2. Deformed M-shaped QRS complex in right-sided leads $V_{1,2}$
3. Increased duration of QPS complex more 0,12 sec in leads $V_{1,2}$
4. Prolonged S wave in left-sided leads $V_{5,6}$
5. ST segment depression in lead V_1

28. **What ECG-signs indicate to complete left bundle branch block?**
1. Duration of QRS complex more 0,12 sec in leads $V_{5,6}$, I, aVL
2. Shift of ST segment, discordant in relation to QRS complex, in leads $V_{5,6}$, I, aVL
3. Deformed QRS complex in leads $V_{5,6}$, I, aVL
4. Deformed and prolonged R wave in leads $V_{1,2}$
5. Prolonged and split S wave in leads $V_{1,2}$

29. The ectopic foci of excitation can be localized in:
1. Fibers of a contracting myocardium
2. Atrioventricular junction
3. His bundle
4. His bundle branches
5. Lower departments of the right atrium (area of a coronary sinus)

30. Compare elements of the right and left-hand columns:

A. Atrial extrasystole	1. P wave before not changed QRS complex
B. AV extrasystole	2. Absence of P wave, deformed QRS complex
C. Ventricular extrasystole	3. Negative P wave after not changed QRS complex

31. Compare elements of the right and left-hand columns:

A. Intra atrial blockade	1. Continually lengthened PQ interval
B. First-degree AV block	2. Increased duration of P wave
C. SA block	3. Loss of one or several cardiac cycles (PQRST)

32. Compare elements of the right and left-hand columns:

A. SA block	1. Periodic loss of QRS complexes
B. Second-degree AV block	2. Loss of one or several cardiac cycles (PQRST)
C. Third-degree AV block	3. Dissociation of atrial and ventricular rhythms

33. Choose the conditions of formation of the mechanism “re-entry”:
1. Existence of unidirectional blockade of carrying out impulse
2. Exit of earlier blocked myocardium site from the refractory period
3. Possibility of retrograde carrying out an impulse through the

myocardium site blocked earlier
4. Formation of potentially closed path of carrying out impulse
5. Existence of retrograde blockade of carrying out impulse

34. **Choose ECG-signs of the right atrial hypertrophy (enlargement):**
    1. Tall R wave with the pointed top in leads II, III, aVF
    2. Bifurcate and tall P waves in leads I, aVL, $V_{5,6}$
    3. Duration of P wave more 0,10 sec
    4. Duration of P wave does not exceed 0,10 sec
35. **What of the following ECG-signs point to the left atrial hypertrophy (enlargement)?**
    1. Tall R wave with the pointed top in leads II, III, aVF
    1. Bifurcate and tall P waves in leads I, aVL, $V_{5,6}$
    2. Duration of P wave more 0,10 sec
    3. Duration of P wave does not exceed 0,10 sec
36. **What of the following ECG-signs point to the right ventricular hypertrophy?**
    1. Tall R wave in leads $V_{1,2}$
    2. Deep S wave in leads $V_{1,2}$
    3. Tall R wave in leads $V_{5,6}$
    4. Deep S wave in leads $V_{5,6}$
    5. Shift of an electrical axis of heart to the right (α>+100 degrees)
    6. Shift of an electrical axis of heart to the left (α<-30 degrees)
37. **What of the following ECG-signs point to the left ventricular hypertrophy?**
    1. Tall R wave in leads $V_{1,2}$
    2. Tall R wave in leads $V_{5,6}$
    3. Deep S wave in leads $V_{5,6}$
    4. Deep S wave in leads $V_{1,2}$
    5. Shift of an electrical axis of heart to the left
    6. ST segment depression with formation (-) or two-phase T wave in leads $V_{5,6}$, I, aVL

Tests II levels

38. Choose the arrhythmias caused by disturbance of automatism of SA node (nomotopic arrhythmias): 1. … 2. … 3. … 4. …
39. Sinus tachycardia is determined by: ……
40. Sinus bradycardia is determined by: ……..
41. Dissociation of atrial and ventricular rhythms at third-degree of AV block is result of: …
42. Degree of AV block which is characterized by periodic loss of QRS complexes: …

43. Loss of P wave on an ECG in an atrioventricular extrasystole is a consequence of: …
44. Appearance of negative P wave in an atrioventricular extrasystole is a consequence of: …
45. Choose the arrhythmias at which loss of P wave on an ECG in all leads is observed: …
46. Type of blockade which is characterized by loss of the complete cardiac cycle (PQRST): …
47. Choose ECG sign of first-degree AV block: …