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«ГОМЕЛЬСКИЙ ГОСУДАРСТВЕННЫЙ МЕДИЦИНСКИЙ УНИВЕРСИТЕТ»

Кафедра патологической физиологии

К. А. КИДУН

ТЕСТОВЫЕ ЗАДАНИЯ
ПО ПАТОЛОГИЧЕСКОЙ ФИЗИОЛОГИИ

Учебно-методическое пособие для студентов 3 курса факультета
по подготовке специалистов для зарубежных стран,
обучающихся на английском языке по специальности
«Лечебное дело», медицинских вузов

В трех частях

Часть 3

Частная патофизиология

TEST TASKS
ON PATHOLOGICAL PHYSIOLOGY

Teaching workbook
for 3nd year students of the faculty for training specialists
for foreign countries, studying in English on specialty «General medicine»
of higher medical education institutions

In three parts

Part 3

Systemic pathophysiology

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Рецензенты:

доктор медицинских наук, профессор,
заведующий кафедрой патологической физиологии
Белорусского государственного медицинского университета

Ф. И. Висмонт;

доктор медицинских наук, профессор,
заведующая кафедрой патологической физиологии им. Д. А. Маслакова
Гродненского государственного медицинского университета

Н. Е. Максимович

Под редакцией ***Т. С. Угольник***

Кидун, К. А.

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Учебно-методическое пособие содержит тестовые задания, составленные в соответствии с типовой учебной программой для вузов по специальности «Лечебное дело». Решение этих заданий позволит углубить и закрепить знания студентов при изучении патологической физиологии как в аудиторное, так и внеаудиторное время.

Предназначено для студентов 3 курса факультета по подготовке специалистов для зарубежных стран, обучающихся на английском языке по специальности «Лечебное дело», медицинских вузов. Могут быть использованы для самостоятельной работы и самоконтроля знаний.

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LIST OF ABBREVIATION

Ab	— antibody
ACTH	— adrenocorticotrophic hormone
ADH	— antidiuretic hormone
APUD	— amine precursor uptake and decarboxylation
ARDS	— adult respiratory distress syndrome
ATP	— adenosine triphosphate
AV	— atrioventricular
BAS	— bioactive substance
CNS	— central nervous system
CO ₂	— carbon dioxide
ECG	— electrocardiogram
ESR	— erythrocytes sedimentation rate
FEV ₁	— forced expiratory volume in one second
FSH	— folliclestimulating hormone
MSH	— melanocytestimulating hormone (intermedin)
NO	— nitric oxide
NS	— nervous system
O ₂	— oxigen
Pg	— prostaglandin
SA	— synoatrial
STH	— somatotrophic hormone
T ₃	— triiodothyronine
T ₄	— thyroxin
TTH	— thyrotropic hormone

MULTIPLE CHOICE TESTS

PATHOPHYSIOLOGY OF CARDIOVASCULAR SYSTEM. PATHOLOGY OF HEART FUNCTION

Indicate all correct answers

1. Specify the possible consequences of acute coronary insufficiency:

Variants of answer:

- a) hypotension;
- b) heart failure;
- c) increase in cardiac output;
- d) myocardial infarction;
- e) arrhythmia.

2. Specify the extracardiac compensatory mechanisms of hemodynamic disturbances in heart failure:

Variants of answer:

- a) increase in activity of sympathetic autonomic NS;
- b) increase in activity of parasympathetic autonomic NS;
- c) increase in circulating blood volume;
- d) decrease in circulating blood volume;
- e) increase in tissue O₂ utilization of inflowing blood;
- f) decrease in tissue O₂ utilization of inflowing blood.

3. Which of the following substances is most strongly dilates the coronary vessels in myocardial ischemia:

Variants of answer:

- a) lactic acid;
- b) histamine;
- c) bradykinin;
- d) adenosine;
- e) CO₂.

4. Changes in intracardiac hemodynamics in myogenic dilatation of heart ventricles:

Variants of answer:

- a) increase of systolic flow velocity from the ventricles;
- b) increase of diastolic blood volume in the ventricular cavity;
- c) increase of end systolic volume of blood in the ventricular cavity;
- d) decrease of blood pressure in the right atrium and ostium vena cava;
- e) decrease of stroke volume of the heart.

5. Specify the types of heart failure by mechanisms of development:

Variants of answer:

- a) myocardial;

- b) systolic;
- c) diastolic;
- d) overload by pressure;
- e) overload by volume;
- f) compensated;
- g) decompensated;
- h) mixed.

6. Coronary insufficiency may occur as a result of:

Variants of answer:

- a) stenotic coronary sclerosis;
- b) accumulation of adenosine in myocardium;
- c) paroxysmal tachycardia;
- d) coronary artery spasm;
- e) hypercapnia.

7. Specify the emergency compensatory mechanisms of hemodynamic disturbances in heart failure:

Variants of answer:

- a) bradycardia;
- b) tachycardia;
- c) geometric mechanism;
- d) heterometric Frank Starling mechanism;
- e) myocardial hypertrophy.

8. Is it true that in aortic valve insufficiency reduced coronary blood flow?

Variants of answer:

- a) yes;
- b) no.

9. Specify noncoronarogenic possible causes of myocardial necrosis:

Variants of answer:

- a) significant long-term increase in heart work;
- b) overproduction of steroid hormones;
- c) formation of antimyocardial Ab;
- d) hypercatecholaminemia;
- e) hemoconcentration;
- f) thrombocytopenia;
- g) hemodilution.

10. Specify the true assertion:

Variants of answer:

- a) in heart failure load on the heart is greater than its ability to perform its job adequately, which is accompanied by a decrease in cardiac output below the needs and development of circulatory hypoxia;

b) in heart failure the rate volume is decreased and the linear velocity of blood flow is increased, it is accompanied by a decrease in stroke volume and an increase in perfusion pressure in arterioles.

11. Inhibition of left ventricle contractility as a result of ischemia or myocardial necrosis is always accompanied by:

Variants of answer:

- a) increase in end diastolic volume of left ventricle;
- b) decrease in end diastolic volume of left ventricle;
- c) increase in heart rate;
- d) increase in blood pressure.

12. Identify the reasons of acute heart failure:

Variants of answer:

- a) acute myocardial infarction;
- b) cardiosclerosis;
- c) acute myocarditis;
- d) acute decompensation of hypertrophied myocardium;
- e) attack of paroxysmal tachycardia.

13. Specify noncoronarogenic causes of myocardial ischemia:

Variants of answer:

- a) excess accumulation of adenosine in the myocardium;
- b) acute hypotension;
- c) sharp increase of heart rate;
- d) increase in lactate content in the myocardium;
- e) hypercatecholaminemia;
- f) total hypoxia.

14. Identifying the factors, conditions and diseases that can cause heart failure by direct myocardial damage:

Variants of answer:

- a) tricuspid valve insufficiency;
- b) lack of vitamin B1 (thiamine);
- c) hypertension;
- d) septic conditions;
- e) alcohol.

15. Specify noncoronarogenic types of myocardial infarctions:

Variants of answer:

- a) electrolyte-steroid;
- b) coronary thrombosis;
- c) embolism of coronary vessels;
- d) inflammatory;
- e) toxic.

16. Tachycardia in heart failure is a result of:

Variants of answer:

- a) increased lungs perfusion;
- b) reduced lungs perfusion;
- c) fall in blood pressure in aorta;
- d) Bainbridge reflex.

17. Which zone is identifying in myocardium infarction:

Variants of answer:

- a) lymph disorders;
- b) ischemia;
- c) damage;
- d) muscle fiber hypertrophy;
- e) cardiosclerosis;
- f) necrosis.

18. The causes of dyspnea in heart failure are:

Variants of answer:

- a) increased blood filling of the lungs;
- b) reduction of blood filling of the lungs;
- c) changes in gas and chemical composition of blood;
- d) Bainbridge reflex.

19. Is it right that during tonogenic dilatation of heart, the stroke heart volume is decreased?

Variants of answer:

- a) yes;
- b) no.

20. Heart failure is characterized by systemic venous congestion, if it is caused by:

Variants of answer:

- a) chronic hypertension;
- b) extensive myocardial infarction;
- c) acute hemorrhage;
- d) cardiomyopathy;
- e) heart defects;
- f) collapse.

21. Specify the main risk factors of myocardial infarction:

Variants of answer:

- a) heredity;
- b) atherosclerosis;
- c) hypothyroidism;
- d) hypertension;

- e) hypotension;
- f) obesity;
- g) fat depletion.

22. Which of the following parameters suggest that violations of membrane ion pump in myocardial ischemia?

Variants of answer:

- a) decrease in intracellular potassium concentration;
- b) increase in intracellular calcium concentration;
- c) increase in intracellular sodium concentration.

23. Which forms of heart failure are marked according to the localization of primary heart lesion?

Variants of answer:

- a) predominantly left ventricular;
- b) predominantly right ventricular;
- c) partial;
- d) total;
- e) systolic;
- f) diastolic.

24. During myocardial ischemia:

Variants of answer:

- a) intensity of oxidative phosphorylation is reduced;
- b) intensified glycolysis;
- c) accumulates the lactic acid;
- d) rapidly depleted ATP stores;
- e) concentration of phosphocreatine is increased.

25. Specify the changes in haemogram that are typical for acute myocardial infarction:

Variants of answer:

- a) lymphopenia;
- b) leucopenia;
- c) leukocytosis with a left shift;
- d) increased ESR.

26. Heart failure is characterized by:

Variants of answer:

- a) decrease in myocardial contractility;
- b) usually decrease in stroke volume;
- c) usually decrease in cardiac output;
- d) decrease in end systolic blood volume;
- e) dilatation of heart cavities.

27. The heart failure develops with the rapid resumption of coronary blood flow in the previously occluded artery, is it true?

Variants of answer:

- a) yes;
- b) no.

28. How does the intensity of functioning hypertrophied cardiomyocytes changes in phase of stable compensation:

Variants of answer:

- a) maximum increases;
- b) decreases to the normal;
- c) progressively falls.

29. Which type of heart failure can cause pulmonary edema?

Variants of answer:

- a) right ventricular;
- b) left ventricular;
- c) total.

30. Specify the characteristic signs for right ventricular failure:

Variants of answer:

- a) tendency to develop ascites;
- b) jugular venous distention;
- c) edema of lower extremity;
- d) telangiectasias;
- e) hepatomegaly;
- f) cyanosis.

31. Describe the main manifestations of acute right heart failure:

Variants of answer:

- a) venous blood stasis in systemic circulation;
- b) venous blood stasis in pulmonary circulation;
- c) pulmonary edema;
- d) ascites;
- e) liver failure;
- f) cardiac pseudoasthma.

32. Pallor and lowering of skin temperature in patients with congestive heart failure is caused by:

Variants of answer:

- a) violation of thermoregulation;
- b) increase in sympathetic tone;
- c) decrease in blood volume;
- d) increase in parasympathetic tone;
- e) hypercatecholaminemia.

33. Changes of which of the following indicators are most likely to be indicative of left heart failure:

Variants of answer:

- a) systemic arterial pressure;
- b) central venous pressure;
- c) pressure in pulmonary capillaries;
- d) pulse pressure.

34. In the pathogenesis of edemas in congestive heart failure, involving the following factors:

Variants of answer:

- a) increase in hydrostatic pressure in venous part of capillaries;
- b) increase in blood levels of aldosterone and vasopressin;
- c) decrease in blood levels of aldosterone and vasopressin;
- d) insufficiency of atrial natriuretic factor;
- e) dynamic lymphatic insufficiency;
- f) decrease in reabsorption of sodium and water in renal tubule.

35. Specify the possible causes of right heart failure:

Variants of answer:

- a) hypertension in systemic circulation;
- b) pulmonary hypertension;
- c) anterior left ventricular myocardial infarction;
- d) ventricular septal defect;
- e) mitral insufficiency;
- f) chronic pneumonia.

36. Are the concept of «cardiac pseudo asthma» and «heart failure» identical?

Variants of answer:

- a) yes;
- b) no.

37. Which confirmations are wrong?

Variants of answer:

- a) hypertrophy with myogenic heart dilatation is usually characterized by maintenance of high myocardial contractility;
- b) hypertrophy with tonogenic heart dilatation is characterized by obligatory decrease in myocardial contractility;
- c) dilated hypertrophy develops in a result of activation of geometric compensatory mechanism in heart defects.

38. Overload by pressure of heart is caused by:

Variants of answer:

- a) aortic stenosis;
- b) hypertension;

- c) mitral valve insufficiency;
- d) secondary hypertension;
- e) erythremia.

39. Specify the possible causes of left ventricular failure:

Variants of answer:

- a) mitral insufficiency;
- b) anterior left ventricular myocardial infarction;
- c) pulmonary hypertension;
- d) hypertension;
- e) emphysema;
- f) aorta angusta.

40. Overload by volume of heart is caused by:

Variants of answer:

- a) congenital heart septum defects;
- b) hypertension in systemic circulation;
- c) valvular insufficiency;
- d) hypervolemia;
- e) aortic stenosis;
- f) thyrotoxicosis.

41. Indicate the stage of myocardial hypertrophy:

Variants of answer:

- a) compensatory hyperfunction;
- b) emergency;
- c) completed hypertrophy and relatively stable hyperfunction;
- d) starting hypertrophy;
- e) completed cardiosclerosis;
- f) progressive cardiosclerosis.

42. Specify in which of the following cases left ventricular preload is increased:

Variants of answer:

- a) mitral insufficiency;
- b) aortic stenosis;
- c) hypertension;
- d) aortic valve insufficiency;
- e) combined mitral valve defect;
- f) increase in blood volume.

43. Excess of which factors in blood and myocardium lead to increase of oxygen consumption in heart:

Variants of answer:

- a) catecholamine;
- b) adenosine;

- c) higher fatty acids;
- d) acetylcholine;
- e) calcium ions;
- f) cholesterol.

44. Specify in which cases left ventricular after-load is increased:

Variants of answer:

- a) mitral insufficiency;
- b) aortic stenosis;
- c) hypertension;
- d) aortic valve insufficiency;
- e) combined mitral valve defect;
- f) increase in blood volume.

45. Pathological hypertrophy is characterized by:

Variants of answer:

- a) increased myocardial mass due to hyperplasia of cardiomyocytes and increased their total number;
- b) increase in volume of cardiomyocytes;
- c) decrease in number of capillaries per unit of myocardium volume;
- d) growth of nerve fibers behind the growth of myofibrils mass.

46. Main links in pathogenesis of overload heart failure during heart defects are:

Variants of answer:

- a) increase in secretion of growth hormone;
- b) increase in rennin secretion;
- c) imbalance between the increased mass of cardiomyocytes and lagging the number of capillaries in myocardium, with an outcome of relative ischemia and hypoxia;
- d) imbalance between the increased mass of actomyosin and mitochondrial mass, with an outcome of relative power shortage.

47. In which of the following cases left ventricular hypertrophy occurs significantly:

Variants of answer:

- a) mitral stenosis;
- b) mitral insufficiency;
- c) systemic hypertension;
- d) aortic valve stenosis;
- e) aortic valve insufficiency.

48. The most likely event that led to the sudden death in a patient with «heart attack» is:

Variants of answer:

- a) rupture of the heart;

- b) congestive heart failure;
- c) angina pectoris;
- d) coronary artery embolism;
- e) cardiac arrhythmia.

49. Right heart failure causes:

Variants of answer:

- a) splenomegaly;
- b) pulmonary edema;
- c) ankle edema;
- d) distended neck veins.

50. The most frequent cause of right heart failure is:

Variants of answer:

- a) congenital heart disease;
- b) ischemic heart disease;
- c) pulmonary disease;
- d) liver disease;
- e) renal disease.

PATHOPHYSIOLOGY OF CARDIOVASCULAR SYSTEM. VASCULAR DISORDERS

Indicate all correct answers

1. Specify the neuro-humoral system, the activation of which contributes to the rise of blood pressure in hypertension:

Variants of answer:

- a) activation of prostaglandin kinin system in kidneys;
- b) activation of rennin-angiotensin system in kidneys;
- c) activation of rennin-angiotensin system in tissues;
- d) increase in production of natriuretic factor.

2. Specify the mechanisms of development of renovascular hypertension:

Variants of answer:

- a) activation of rennin-angiotensin-aldosterone system;
- b) violation of glomerular filtration function of kidneys;
- c) deficiency of renal prostaglandin and kinin systems;
- d) deficiency of rennin-angiotensin-aldosterone system.

3. Endogenous substances that enhance blood pressure by increasing peripheral vascular resistance include:

Variants of answer:

- a) bradikinin;
- b) catecholamines;

- c) angiotensin II;
- d) prostacyclin;
- e) vasopressin (antidiuretic hormone);
- f) nitric oxide (NO);
- g) endothelins.

4. The experimental methods of hypertension modeling include:

Variants of answer:

- a) bilateral transection of depressor nerves;
- b) both adrenal glands ischemia;
- c) removal of one kidney and compression of second renal artery;
- d) electrical stimulation of depressor nerves;
- e) bilateral ligation of internal carotid artery;
- f) modeling of neurosis.

5. Pathogenesis of primary hypertension presumably includes the following links:

Variants of answer:

- a) stable increase in excitability and reactivity of sympathetic nerve centers in posterior hypothalamus;
- b) decrease in inhibitory effect of cerebral cortex, that at norm exerted on subcortical pressor centers;
- c) depletion of adrenocortical function;
- d) genetically determined sustained decrease in renal excretory function for sodium, chloride and water;
- e) generalized hereditary defect of membrane ion pumps: calcium and sodium-potassium;
- f) genetically determined hypoproduction of mineralocorticoids.

6. Is it possible the development of arterial hypotension with overproduction of rennin?

Variants of answer:

- a) it is possible;
- b) it is impossible.

7. The mechanisms of short term hemodynamic regulation include:

Variants of answer:

- a) pressosensitive reflexes;
- b) changes in transcapillary exchange;
- c) rennin-angiotensin system;
- d) chemoreceptor reflexes;
- e) reflex of CNS to ischemia;
- f) renal monitoring system for liquid volume.

8. Specify the diseases and conditions that are accompanied by the development of systolic hypertension:

Variants of answer:

- a) aortic valve insufficiency;

- b) aortic stenosis;
- c) Graves disease;
- d) nephrosis.

9. Arterial hypotension develops at:

Variants of answer:

- a) benign corticosteroma;
- b) heart failure;
- c) malabsorption;
- d) polycystic kidney disease;
- e) postoperative shock;
- f) Simmonds cachexia;
- g) traumatic shock;
- h) cerebral ischemia.

10. Which of the following substances are included in antihypertensive system?

Variants of answer:

- a) angiotensin II;
- b) catecholamines;
- c) prostacyclin;
- d) cortisol;
- e) bradikinin;
- f) NO;
- g) endothelins;
- h) natriuretic hormone.

11. The mechanisms of long acting hemodynamic regulation include:

Variants of answer:

- a) changes in transcapillary exchange;
- b) chemoreceptor reflexes;
- c) renal monitoring system for liquid volume;
- d) vasopressin system;
- e) aldosterone system;
- f) rennin-angiotensin system.

12. Endogenous substances that reduce blood pressure by decreasing peripheral vascular resistance include:

Variants of answer:

- a) catecholamines;
- b) bradikinin;
- c) angiotensin II;
- d) prostacyclin;
- e) NO.

13. Specify the differences of essential hypertension from symptomatic hypertension:

Variants of answer:

- a) increase in blood pressure occurs in absence of significant organic lesions of internal organs;
- b) occurs as a result of primary dysfunction of kidneys and endocrine glands;
- c) hereditary predisposition is important in the development;
- d) occurs as a result of adrenal glands dysfunction;
- e) develops as a result of primary damage of receptors in the aortic arch and carotid sinus area.

14. Acute hypotension causes:

Variants of answer:

- a) microcirculatory disorders;
- b) coronary insufficiency;
- c) circulatory hypoxia;
- d) hemic hypoxia;
- e) syncope;
- f) ascites;
- g) polyuria;
- h) anuria.

15. Specify the substances produced by the kidneys, which have a direct vasodilating effect:

Variants of answer:

- a) prostaglandin F₂;
- b) kallidin;
- c) prostaglandins A, E;
- d) angiotensin II;
- e) bradikinin;
- f) rennin.

16. Increased rennin secretion is caused by:

Variants of answer:

- a) increase of perfusion pressure in the glomerular arterioles;
- b) decrease of perfusion pressure in the glomerular arterioles;
- c) hyponatremia;
- d) hypernatremia;
- e) reduction in angiotensin II blood level.

17. Chronic adrenal insufficiency is accompanied by:

Variants of answer:

- a) hypertension;
- b) hypotension;
- c) collapses;
- d) stroke.

18. Risk factors for essential hypertension are:

Variants of answer:

- a) overweight;
- b) frequent stress;
- c) excessive salt intake;
- d) hypodynamia.

19. Vasoconstrictor effect of angiotensin II is due to:

Variants of answer:

- a) direct action of AT II on smooth muscle of arterioles;
- b) sensitization of arterioles walls to vasoconstrictor agents;
- c) increase in secretion of glucocorticoids;
- d) increase in releasing of catecholamines from the vesicles of sympathetic neuron axons;
- e) stimulation of aldosterone secretion;
- f) activation of prostacyclin synthesis in endothelial cells.

20. Specify the substances having a vasodilating effect:

Variants of answer:

- a) glucocorticoids;
- b) acetylcholine;
- c) ADH;
- d) prostaglandins E;
- e) prostaglandin F₂;
- f) aldosterone;
- g) kinins;
- h) prostacyclin;
- i) adenosine.

21. Specify the diseases and conditions that are usually accompanied by an increase in blood pressure:

Variants of answer:

- a) Cushing`s syndrome;
- b) Klinefelter syndrome;
- c) Cushing`s disease;
- d) hypocortisolism;
- e) hypothyroidism;
- f) hyperthyroidism;
- g) hypercortisolism;
- h) pheochromocytoma.

22. Specify the probable causes of essential hypertension:

Variants of answer:

- a) hyperthyroidism;
- b) chronic psycho-emotional overstrain;

- c) chronic nephritis;
- d) repeated prolonged negative emotions;
- e) atherosclerotic vascular lesions;
- f) genetic defects of autonomic nervous system centers, regulating blood pressure.

23. Specify the substances with direct vasopressor effect:

Variants of answer:

- a) rennin;
- b) angiotensin II;
- c) ADH;
- d) epinephrine;
- e) histamine;
- f) norepinephrine.

24. Endocrine hypertension occurs in:

Variants of answer:

- a) total hypofunction of adrenal cortex;
- b) hyperfunction of adrenal medulla;
- c) hyperfunction of zona glomerulosa of adrenal cortex;
- d) hypothyroidism;
- e) pituitary cachexia;
- f) thyrotoxicosis.

25. The patient has increased mean of arterial pressure and decreased total peripheral resistance after appointment of drug. Probably, this drug caused:

Variants of answer:

- a) vasoconstriction and decrease in cardiac output;
- b) vasodilation and decrease in cardiac output;
- c) vasoconstriction and increase in cardiac output;
- d) vasodilation and increase in cardiac output.

26. Specify the reasons of renoprival hypertension:

Variants of answer:

- a) bilateral nephrectomy in an animal and connect it to an artificial kidney;
- b) bilateral renal artery stenosis;
- c) renal vein thrombosis;
- d) polycystic kidney disease;
- e) nephrosis;
- f) nephrosclerosis.

27. Renal hypertension is developed in:

Variants of answer:

- a) blood supply disturbance of the kidneys;
- b) pheochromocytoma;
- c) pyelonephritis;

- d) traumatic brain injury;
- e) bilateral nephrectomy.

28. Specify the types of symptomatic hypertension:

Variants of answer:

- a) hypovolemic;
- b) thyroid;
- c) portal;
- d) cerebro-ischemic;
- e) renal;
- f) essential;
- g) reflexogenic;
- h) pituitary.

29. Specify the risk factors for primary hypertension:

Variants of answer:

- a) hereditary predisposition;
- b) increase of salt in diet;
- c) atherosclerosis;
- d) hypodynamia;
- e) increase in body weight.

30. Possible mechanisms of hypertension are:

Variants of answer:

- a) activation of rennin-angiotensin system;
- b) activation of kallikrein-kinin system;
- c) attenuation of afferent impulses from the baroreceptor in aortic and carotid sinus;
- d) overproduction of glucocorticoids;
- e) overproduction of mineralocorticoids.

31. Hypernatremia promotes hypertension by:

Variants of answer:

- a) intensification of rennin formation and secretion;
- b) norepinephrine reuptake by nerve endings;
- c) development of hypovolemia;
- d) development of edema of vascular wall cells;
- e) hemoconcentration;
- f) activation of prostacyclin synthesis by endothelial cells.

32. Etiological factors of essential hypertension may be:

Variants of answer:

- a) frequent psycho emotional overstrain;
- b) hereditary defects of Na and Ca membrane ion pumps;
- c) constrictive atherosclerosis of renal artery;
- d) adrenal hyperplasia.

33. The factors of development of primary hypertension include:

Variants of answer:

- a) hyperergy of sympathoadrenal system;
- b) hyperergy of parasympathetic system;
- c) hypodynamia;
- d) hyperthyroidism;
- e) diabetes mellitus;
- f) weight loss;
- g) obesity.

34. The mechanisms of intermediate acting hemodynamics regulation include:

Variants of answer:

- a) renal monitoring system for liquid volume;
- b) changes in transcapillary exchange;
- c) chemoreceptor reflexes;
- d) rennin-angiotensin system;
- e) system vasopressin;
- f) relaxation of vascular walls straining.

35. Specify the possible outcomes of long turn hypertension:

Variants of answer:

- a) overload heart failure;
- b) cardiac hypertrophy;
- c) myocarditis;
- d) cardiosclerosis;
- e) stroke;
- f) hypoaldosteronism;
- g) arrhythmia.

36. Symptomatic hypotension develops in:

Variants of answer:

- a) gastric ulcer;
- b) myocarditis, heart defects;
- c) hyperthyroidism;
- d) hypothyroidism;
- e) cirrhosis.

37. Hypertension is called «silent killer» because:

Variants of answer:

- a) it comes without obvious symptoms;
- b) it is the Greek word for «silent killer»;
- c) people with hypertension are homicidal;
- d) none correct answers.

38. Which of the following symptoms may be expressions of orthostatic hypotension?

Variants of answer:

- a) dizziness;
- b) fatigue;
- c) headache;
- d) polyuria;
- e) chest pain in upright posture.

39. Specify the risk factors for hypertension:

Variants of answer:

- a) high bodyweight;
- b) hereditary disposition;
- c) excessive intake of sodium;
- d) weight loss;
- e) accommodation in the highlands;
- f) regular use of alcohol;
- g) smoking.

40. The concept of «hypertension» means:

Variants of answer:

- a) stable increase in blood pressure above 140 mmHg systolic and 90 mm Hg diastolic;
- b) increase in blood pressure above 140 mmHg systolic, 90 mmHg diastolic and normalize immediately after the termination of the causal factor.

41. Hypertension grade II is characterized by:

Variants of answer:

- a) 140 mmHg systolic and 90 mm Hg diastolic blood pressure;
- b) 170 mmHg systolic and 105 mm Hg diastolic blood pressure;
- c) 160 mmHg systolic and 85 mm Hg diastolic blood pressure;
- d) 190 mmHg systolic and 110 mm Hg diastolic blood pressure.

42. Hypertension in patient with pheochromocytoma is developed due to:

Variants of answer:

- a) overproduction of catecholamines;
- b) increase of peripheral vascular resistance;
- c) increase in total blood volume;
- d) overproduction of aldosterone.

43. Secondary (symptomatic) hypertension is one of the symptoms in:

Variants of answer:

- a) chronic adrenal insufficiency;
- b) gastric ulcer;
- c) primary aldosteronism;
- d) hypocorticism;
- e) scoretemia.

44. Main role in pathogenesis of reno-vascular hypertension play:

Variants of answer:

- a) activation of the rennin-angiotensin-aldosterone system;
- b) increased secretion of glucocorticoids;
- c) decreased production of depressor substances in the kidneys;
- d) increased secretion of adrenaline;
- e) increased secretion of vasopressin.

45. Orthostatic collapse occurs in:

Variants of answer:

- a) massive blood loss;
- b) crushing the pancreas;
- c) rapid decrease of oxygen in inhaled air;
- d) intestinal infections;
- e) sudden transition from horizontal to vertical position.

46. The period of stabilization of essential hypertension is characterized by:

Variants of answer:

- a) decreased production of endothelin;
- b) increased rennin secretion by the kidneys;
- c) activation of the kallikrein-kinin system;
- d) increased production of natriuretic hormone;
- e) increased production kidney prostaglandins E₁ and E₂;
- f) reduced production of nitric oxide.

47. Pressor effect has:

Variants of answer:

- a) kallikrein;
- b) endothelin I;
- c) prostaglandin E;
- d) angiotensin II;
- e) nitric oxide;
- f) atrial natriuretic hormone;
- g) adrenaline.

48. Specify the changing of brain vessels during stimulation of baroreceptors in sinocarotid reflexogenic zone:

Variants of answer:

- a) dilate;
- b) constrict;
- c) does not changed.

CARDIAC ARRHYTHMIA

Indicate all correct answers

1. Which of the following points characterize sinus tachycardia?

Variants of answer:

- a) heart rate up 100 to 180 in min;
- b) heart rate more than 200 in min;
- c) occurs during exercise;
- d) occurs when the body temperature rises;
- e) occurs when heart failure;
- f) it is characterized by marked changes in the shape of P wave;
- g) P wave may be superimposed on the T wave of the previous cycle.

2. Specify the consequences of prolonged attack of paroxysmal ventricular tachycardia:

Variants of answer:

- a) increase of cardiac output;
- b) decrease of cardiac output;
- c) decrease of coronary blood flow;
- d) increase of systolic blood pressure;
- e) increase of stroke volume;
- f) decrease of stroke volume.

3. Disturbances of which heart function can lead to cardiac arrhythmias:

Variants of answer:

- a) automatism;
- b) excitability;
- c) conductivity;
- d) contractility.

4. Which of the ECG signs correspond to sinoatrial blockade?

Variants of answer:

- a) lengthening of PQ interval;
- b) periodic loss of cardiac cycles;
- c) increase of RR interval in 2,3 or 4 times during loss of cardiac cycles;
- d) appearance escape heart rhythms.

5. Hyperkalemia causes:

Variants of answer:

- a) atrioventricular block of pulses excitation;
- b) formation of high peaked T wave on ECG;
- c) hypertension;
- d) tachycardia;
- e) bradycardia.

6. Which one of the following ECG changes is not commonly found in patients with hypokalaemia?

Variants of answer:

- a) flattened P waves;
- b) U waves;
- c) sinus tachycardia;
- d) ST depression;
- e) PR interval prolongation.

7. Intraatrial block characterized by the following ECG signs:

Variants of answer:

- a) PQ interval lengthening greater than 0.20 s;
- b) prolonged duration of P wave greater than 1 s;
- c) P wave splitting (appearance of «two-humped» P wave);
- d) deformation of QRS complex.

8. What are the ECG signs of complete left bundle branch block?

Variants of answer:

- a) increasing duration of the ventricular complex greater than 0.12 s;
- b) broadening and distortion of R wave in leads V5, 6;
- c) broadening and distortion of R wave in leads V1, 2;
- d) broadening and deformation of S wave in leads V1, 2;
- e) decrease in heart rate;
- f) lengthening interval of intrinsic deflection in leads V5, 6.

9. Atrioventricular block I degree is characterized by:

Variants of answer:

- a) progressively lengthens interval PQ with each beat;
- b) stable lengthening of PQ interval greater than 0.20 with;
- c) periodically dropped ventricular complexes (QRS);
- d) complete dissociation of atrial and ventricular rhythms.

10. Which of the following types of arrhythmias can be caused by mechanism of re-entry?

Variants of answer:

- a) atrial paroxysmal tachycardia;
- b) ventricular paroxysmal tachycardia;
- c) atrial fibrillation;
- d) sinoatrial block;
- e) premature atrial contractions;
- f) premature ventricular contractions.

11. Wenckebach's AV block is characterized by following signs:

Variants of answer:

- a) progressive prolongation of PR interval followed by a dropped QRS;
- b) progressive shortening of RR interval;

- c) incremental increments in PR interval;
- d) longest RR interval is less than twice the shortest RR interval.

12. Which of the following signs characterize the paroxysmal tachycardia from atrioventricular connection?

Variants of answer:

- a) sudden onset;
- b) heart rate is correct in most cases;
- c) P wave is negative and can merge with QRS complex;
- d) ventricular complexes are usually deformed;
- e) heart rate is not changed after the injection of atropine.

13. Which of the following statements about the ECG are true?

- a) the P wave of the ECG reflects atrial contraction;
- b) the PQ interval is normally about 0,1 s;
- c) the QRS complex reflects the start of ventricular depolarization;
- d) the peak amplitude of the R wave recorded by the limb leads is about 10 mV;
- e) the T wave reflects the repolarization of the ventricular fibres.

14. Which of the following signs characterize the ventricular fibrillation?

Variants of answer:

- a) frequency of ventricular excitation is 200 to 300 in min;
- b) frequency of ventricular excitation is 200 to 500 in min;
- c) arise from mechanism of re-entry;
- d) ventricular excitation occurs randomly;
- e) ventricular excitation is ordered;
- f) causes serious violations of systemic circulation;
- g) it is the cause of sudden death;
- h) found in acute myocardial infarction;
- i) the elements of ventricular complex in ECG can not be detected;
- j) it is characterized by regular, similar in shape and amplitude waves on ECG.

15. Premature ventricular contractions are characterized by the following ECG signs:

Variants of answer:

- a) shortening of RR interval before the extrasystole;
- b) appearance of negative P wave after the extrasystolic QRS complex;
- c) absence of P wave before the extrasystolic QRS complex;
- d) deformation and broadening of extrasystolic QRS complex;
- e) complete compensatory pause.

16. Heterotopic cardiac arrhythmias include:

Variants of answer:

- a) atrial flutter;
- b) atrial fibrillation;
- c) paroxysmal atrial tachycardia;

- d) paroxysmal ventricular tachycardia;
- e) sinus arrhythmia.

17. Which of the following points correspond to sinus bradycardia:

Variants of answer:

- a) it is nomotopic arrhythmia;
- b) it is heterotopic arrhythmia;
- c) occurs during exercise;
- d) associated with decreases in sinus node automaticity;
- e) accompanied by the occurrence of ectopic non sinus rhythm;
- f) ventricular rhythm is correct;
- g) ventricular rhythm is incorrect.

18. Left ventricular extrasystoles are characterized by the following ECG signs:

Variants of answer:

- a) absence of P wave before the ventricular complex (QRS);
- b) appearance of negative P wave after the ventricular complex (QRS);
- c) deformation and broadening of ventricular complex (QRS);
- d) interval of intrinsic deflection is greater than 0.03 sec in leads V1, 2;
- e) interval of intrinsic deflection is greater than 0.05 sec in leads V5, 6;
- f) location of ST segment and T wave of extrasystole is discordantly to main wave of ventricular complex (QRS).

19. Ventricular fibrillation is:

Variants of answer:

- a) group of premature ventricular contractions;
- b) complete dissociation of atrial and ventricular contractions;
- c) chaotic contraction of single groups of cardiomyocytes;
- d) tachycardia with rhythm 250 to 300 per minute.

20. Right ventricular extrasystole is characterized by the following ECG signs:

Variants of answer:

- a) deformation and broadening of ventricular complex (QRS);
- b) interval of intrinsic deflection is greater than 0.05 s in leads V5, 6;
- c) location of ST segment and T wave of extrasystole is discordantly to main wave of ventricular complex (QRS);
- d) appearance of positive asymmetric T wave in leads V1, 2.

21. Which of the following points correspond to atrial fibrillation?

Variants of answer:

- a) it is nomotopic arrhythmia;
- b) it is heterotopic arrhythmia;
- c) occurs during exercise;
- d) associated with decreases in sinus node automaticity;
- e) accompanied by the appearance of nonsinus ectopic rhythm;
- f) ventricular rhythm is correct;
- g) ventricular rhythm is incorrect.

22. The features to be looked for in an ECG with complete heart block are:

Variants of answer:

- a) regular PP interval;
- b) ST depression;
- c) regular RR interval;
- d) PP interval shorter than RR interval;
- e) broadening QRS complex.

23. Atrioventricular extrasystoles are characterized by the following ECG signs:

Variants of answer:

- a) shortening of RR interval;
- b) appearance of negative P wave after the extraordinary QRS complex;
- c) absence of P wave before the extraordinary complex ventricular;
- d) deformation and broadening of ventricular complex (QRS);
- e) complete compensatory pause.

24. Which of the following signs characterize the paroxysmal atrial tachycardia?

Variants of answer:

- a) it is a source of pathological impulses in atria;
- b) P wave in ECG is usually deformed;
- c) PQ interval in ECG is shortened;
- d) complex QRS is usually changed;
- e) heart rate is correct in most cases.

25. Which of the following statements regarding arrhythmias are correct?

Variants of answer:

- a) first degree heart block gives rise to an abnormally long PR interval;
- b) third degree heart block is indicated by an abnormally long QRS complex following the P wave;
- c) ECG with a saw-tooth pattern on the baseline indicates atrial fibrillation;
- d) in second degree heart block some P waves are not followed by a QRS complex.

26. Atrioventricular block II degree is characterized by:

Variants of answer:

- a) stable lengthening of PQ interval greater than 0.20 s;
- b) progressively lengthens interval PQ with each beat;
- c) periodic dropped ventricular complexes (QRS);
- d) complete dissociation of atrial and ventricular rhythms.

27. Which of the following signs characterize the ventricular flutter?

Variants of answer:

- a) frequency of ventricular excitation is 200 to 300 in min;
- b) frequency of ventricular excitation is 200 to 500 in min;

- c) it is a result of formation of circus movement excitation in myocardium (mechanism of re-entry);
- d) ventricles excitation occurs randomly;
- e) ventricular excitation is ordered;
- f) causes serious violations of systemic circulation;
- g) it is the cause of sudden death;
- h) found in acute myocardial infarction;
- i) the elements of ventricular complex in ECG can not be detected;
- j) it is characterized by regular, similar in shape and amplitude waves on ECG.

28. Select points that are typical for paroxysmal atrial tachycardia:

Variants of answer:

- a) heart rate is correct in most cases;
- b) heart rate incorrect in most cases;
- c) heart rate is usually 140 to 250 in min;
- d) P wave in ECG is deformed;
- e) QRS complex is not changed in most cases.

29. The escape heterotopic arrhythmia includes rhythms entering from:

Variants of answer:

- a) atria (outside SA node);
- b) atrioventricular node;
- c) ventricles;
- d) SA node.

30. Premature atrial contractions are characterized by the following ECG signs:

Variants of answer:

- a) presence of P wave before the extraordinary ventricular complex;
- b) deformation of extrasystolic P wave;
- c) broadening and deformation of ventricular complex;
- d) incomplete compensatory pause.

31. During atrial fibrillation the rhythm of ventricular excitation is:

Variants of answer:

- a) correct;
- b) determined by pacemaker cells of AV node;
- c) determined by ventricular ectopic foci of excitation;
- d) determined by pulses entering from atria.

32. Which of the following points correspond to sick sinus syndrome?

Variants of answer:

- a) it is heterotopic arrhythmia;
- b) SA node automaticity is reduced;
- c) can occur in acute heart diseases;
- d) can occur in chronic heart disease;

- e) is characterized by persistent sinus tachycardia;
- f) is characterized by persistent sinus bradycardia;
- g) is characterized by alternation the periods of tachycardia and bradycardia.

33. The nomotopic arrhythmias include:

Variants of answer:

- a) sinus tachycardia;
- b) sinus bradycardia;
- c) sinus arrhythmia;
- d) sick sinus syndrome;
- e) atrial flutter;
- f) paroxysmal ventricular tachycardia.

34. Which of the following points correspond to sinus bradycardia:

Variants of answer:

- a) decrease in sinus node automaticity;
- b) heart rate less than 40 in min;
- c) the rate of cell membrane depolarization in SA node is reduced;
- d) PQ interval is shortened;
- e) P wave is usually deformed;
- f) it is homotopic arrhythmia.

35. Atrioventricular block include blockade that caused by disorders of impulse conduction through:

Variants of answer:

- a) atrial conduction system;
- b) atrioventricular node;
- c) main trunk bundle of His;
- d) all branches of bundle of His;

36. Which of the following statements about the ECG are true?

Variants of answer:

- a) the QT interval varies with heart rate;
- b) in hyperkalemia the T wave is flattened;
- c) the U wave is more often seen when the heart rate is low;
- d) long QT interval is characteristic of hypocalcaemia;
- e) left axis deviation occurs in left ventricular hypertrophy.

37. Occurrence of ectopic heart rhythms may be due to:

Variants of answer:

- a) decrease in SA node automaticity;
- b) increase in cell excitability of SA node;
- c) blockade of impulse conduction through the heart conducting system;
- d) weak vagal tone.

38. Which of the following signs characterize the atrial flutter?

Variants of answer:

- a) frequency of atrial excitation is 200 to 400 in min;
- b) it is a result of formation of circus movement excitation in atria (mechanism of re-entry);
- c) ventricular complexes usually are normal shape;
- d) frequency of ventricular contractions is corresponds to atrial excitation;
- e) regular wave F is revealed in ECG.

39. Which of the following signs characterize the paroxysmal ventricular tachycardia?

Variants of answer:

- a) sudden onset;
- b) heart rate is 140 to 220 in min;
- c) heart rate is correct in most cases;
- d) it is nomotopic arrhythmia;
- e) heart rate is not changed during exercise.

40. Which of the following signs correspond to paroxysmal ventricular tachycardia?

Variants of answer:

- a) heart rate is 140 to 220 in min;
- b) heart rate is incorrect in most cases;
- c) deformed and broadened QRS complex;
- d) complete dissociation atrial and ventricular contractions.

41. Which of the following points correspond to sick sinus syndrome?

Variants of answer:

- a) it is nomotopic arrhythmia;
- b) it is heterotopic arrhythmia;
- c) occurs during exercise;
- d) associated with decreases in sinus node automaticity;
- e) accompanied by the appearance of non sinus ectopic rhythm;
- f) ventricular rhythm is correct;
- g) ventricular rhythm is incorrect.

42. The commonest tachyarrhythmia seen in the Wolf-Parkinson-White syndrome is:

Variants of answer:

- a) supraventricular tachycardia with narrow complex (no delta wave);
- b) atrial fibrillation (bizarre polymorphic QRS complexes);
- c) ventricular fibrillation;
- d) supraventricular tachycardia with aberrancy (wide complex);
- e) atrial flutter.

43. Which of the following points correspond to sinus tachycardia?

Variants of answer:

- a) it is homotopic arrhythmia;
- b) it is heterotopic arrhythmia;
- c) occurs during exercise;
- d) associated with decrease in sinus node automaticity;
- e) accompanied by the appearance of non sinus ectopic rhythm;
- f) ventricular rhythm is correct;
- g) ventricular rhythm is incorrect.

44. Wandering focus can be localized in:

Variants of answer:

- a) atria;
- b) bundle branch block;
- c) atrioventricular connection;
- d) fibers of contractile myocardium.

45. Which of the following points correspond to respiratory arrhythmia?

Variants of answer:

- a) increase in heart rate during inspiration;
- b) it is homotopic arrhythmia;
- c) associated with periodic changes of blood filling of right atrium;
- d) associated with periodic migration of pacemaker;
- e) associated with excitation of pulmonary stretch receptors;
- f) occurs mainly in young people.

46. Absence of P wave on ECG in all leads is observed at the following arrhythmias:

Variants of answer:

- a) AV rhythm (due to merger the ventricular complex and P wave);
- b) atrioventricular block III degree;
- c) atrial fibrillation;
- d) ventricular fibrillation;
- e) intraatrial blockade.

47. Which of the following factors contribute to the appearance of re-entry in myocardium?

Variants of answer:

- a) shortening the path of possible circus movement excitation;
- b) lengthening the path of possible circus movement excitation;
- c) shortening the period of myocardial refractoriness;
- d) decrease in velocity of excitation propagation.

48. Causes of inverted P waves in Lead II of the ECG include:

Variants of answer:

- a) transposed lower limb leads;

- b) junctional rhythm;
- c) hypothermia;
- d) left axis deviation;
- e) inferior myocardial infarction.

49. Which of following signs characterize the atrial fibrillation (flicker)?

Variants of answer:

- a) pulse frequency of atrial is 350 to 700 in min;
- b) P wave is absent in ECG;
- c) ventricular rate usually is correct;
- d) ventricular complexes usually is not changed;
- e) frequent irregular f wave is revealed in ECG.

50. The mechanism of re-entry can lead to the following arrhythmias:

Variants of answer:

- a) atrial fibrillation;
- b) paroxysmal tachycardia;
- c) extrasystoles by type of allodromy (bigemia, trigeminy).

PATHOPHYSIOLOGY OF EXTERNAL RESPIRATION

Indicate all correct answers

1. Specify the change of parameters that are specific to the type of obstructive ventilation disorders:

Variants of answer:

- a) FEV₁ is reduced, Tiffeneau index is reduced;
- b) peak expiratory flow rate is reduced, respiratory rate increased;
- c) all of the above.

2. Specify the conditions in which, there is inspiratory dyspnea in most of cases:

Variants of answer:

- a) narrowing of the trachea;
- b) laryngeal edema;
- c) I stage of asphyxia;
- d) compression of trachea by enlarged thyroid gland;
- e) all of the above.

3. What are the causes of periodic breathing?

Variants of answer:

- a) uremia, CNS inhibition during sleep;
- b) brain hypoxia, drug intoxication;
- c) all of the above.

4. For respiratory failure is not typical:

Variants of answer:

- a) dyspnea;
- b) tachycardia;
- c) anemia;
- d) cyanosis;
- e) hypoxia.

5. Specify the change of parameters specific to the type of restrictive ventilation disorders:

Variants of answer:

- a) FEV₁ is reduced;
- b) Tiffeneau index is not changed;
- c) respiratory rate is increased;
- d) all of the above.

6. Specify the diseases in which the violations of ventilation are usually developed by obstructive type:

Variants of answer:

- a) lobar pneumonia;
- b) pleurisy;
- c) chronic obstructive bronchitis;
- d) bronchial asthma;
- e) pulmonary atelectasis.

7. Specify the blood cells for which there are special traps in the lungs (catch trap):

Variants of answer:

- a) reticulocytes;
- b) thrombocytes;
- c) polymorphonuclear leukocytes;
- d) erythrocytes.

8. With decreasing the excitability of respiratory centre can develop:

Variants of answer:

- a) Cheyne-Stokes respiration, oligopnea, Biot's respiration;
- b) Kussmaul's respiration, polypnea, hyperpnea;
- c) polypnea, hyperpnea.

9. Specify the receptors, irritation of which can lead to dyspnea:

Variants of answer:

- a) central and peripheral chemo- and baroreceptors;
- b) deflation receptors of alveolus;
- c) juxtacapillary receptors;
- d) irritant receptors of upper airway;

- e) muscle spindles receptors of respiratory muscles;
- f) all of the above.

10. Specify the pathogenetic forms of pulmonary ventilation disorders:

Variants of answer:

- a) ventilation, diffuse, perfusion, mixed;
- b) obstructive, restrictive, regulatory, mixed;
- c) obstructive, perfusion, mixed.

11. Indicate the types of pathology, which can lead to the development of alveolar hyperventilation:

Variants of answer:

- a) exudative pleurisy;
- b) silicosis;
- c) bronchial asthma;
- d) lung tumor;
- e) overheating.

12. Breathing pattern during the expiratory dyspnea is characterized by:

Variants of answer:

- a) difficulty lengthening inhalation;
- b) difficulty lengthening exhalation;
- c) difficulty inhalation and exhalation.

13. Specify the pathogenetic factor corresponding the apneustic breathing:

Variants of answer:

- a) predominance of expiratory centre, excitation of gasping center;
- b) deprivation of inhalation and exhalation centers;
- c) inhibition of the inhalation expiratory centre;
- d) deprivation of pneumotaxic center;
- e) excitation of apneustic center.

14. The amplitude of respiration during Biot's respiration:

Variants of answer:

- a) increasing and then decreasing;
- b) constant;
- c) decreasing;
- d) increasing.

15. Specify the change of parameters specific to the restrictive and obstructive types of ventilation disorders:

Variants of answer:

- a) respiratory rate is increased;
- b) FEV₁ is reduced;
- c) all of the above.

16. Indicate the type of breathing corresponding to the periodic:

Variants of answer:

- a) Kussmaul's respiration;
- b) gasping respiration;
- c) Biot's respiration.

17. Specify to which type of breathing belongs the rapid breathing:

Variants of answer:

- a) bradipnea;
- b) tachypnea;
- c) gasping respiration;
- d) apnea.

18. The amplitude of respiration during gasping respiration:

Variants of answer:

- a) increasing and then decreasing;
- b) constant;
- c) decreasing;
- d) increasing.

19. Initial and leading pathogenic link in ARDS is:

Variants of answer:

- a) pulmonary arterial hypertension;
- b) lung edema;
- c) violation of gases diffusion;
- d) reducing the amount of surfactant;
- e) increasing the pulmonary vascular permeability for protein.

20. Specify the diseases in which the violations of ventilation are usually developed by obstructive-restrictive (mixed) type:

Variants of answer:

- a) pleurisy;
- b) pulmonary atelectasis;
- c) bronchial asthma;
- d) lung emphysema.

21. Specify the reasons for upper airway obstruction:

Variants of answer:

- a) laryngospasm, foreign bodies, compression of larynx walls by outside;
- b) ingress of fluids into the bronchial lumen, bronchioles mucosal thickening;
- c) spasm of bronchioles, reducing the lung elastance.

22. Name the types of respiratory failure according to mechanisms of ventilation disorders:

Variants of answer:

- a) ventilation, diffusion;

- b) obstructive, regulatory;
- c) obstructive, restrictive;
- d) diffusion, perfusion.

23. Specify the causes of periodic breathing:

Variants of answer:

- a) brain hypoxia;
- b) uremia;
- c) drug intoxication;
- d) all of the above.

24. Specify the pathogenic factors corresponding the Kussmaul's breathing:

Variants of answer:

- a) deprivation of pneumotaxic center;
- b) inhibition of inspiratory centre;
- c) deprivation of inspiratory and expiratory centers;
- d) predominance of expiratory centre;
- e) excitation of apneustic center.

25. Metabolic functions of lung include:

Variants of answer:

- a) conversion of angiotensin I to angiotensin II;
- b) inactivation of prostaglandins E and F;
- c) synthesis of alkaloid peptides;
- d) inactivation of bradykinin;
- e) inactivation of norepinephrine;
- f) all of the above.

26. Specify the most likely causes of tachypnea:

Variants of answer:

- a) decrease in excitability of respiratory center, hyperoxia, alkalosis;
- b) hypoxia, increase in excitability of respiratory center, hyperoxia, compensated acidosis;
- c) increased blood pressure, compensated alkalosis.

27. Specify the reasons for lower airway obstruction:

Variants of answer:

- a) ingress of fluids into the bronchial lumen;
- b) compression of larynx walls by outside;
- c) laryngospasm.

28. Specify the type of coma in diabetes mellitus accompanied by Kussmaul's respiration:

Variants of answer:

- a) hypoglycemic;
- b) hyperosmolar;
- c) ketoacidotic.

29. Indicate the type of breathing corresponding to the agonal:

Variants of answer:

- a) Cheyne-Stokes respiration;
- b) Biot's respiration;
- c) gasping respiration;
- d) undulatory respiration.

30. Specify the reasons for lower airway obstruction:

Variants of answer:

- a) ingress of fluids into the bronchial lumen;
- b) bronchioles mucosal thickening;
- c) bronchial spasm;
- d) reducing the lung elastance;
- e) all of the above.

31. Specify the factor determining the adequacy of pulmonary load level to alveolar ventilation:

Variants of answer:

- a) pulmonary vascular resistance;
- b) circulating blood volume;
- c) intraalveolar air pressure;
- d) effective work of left and right heart ventricles;
- e) all of the above.

32. Appearance of Kussmaul's respiration in a patient most likely indicates to the development of:

Variants of answer:

- a) respiratory alkalosis;
- b) metabolic alkalosis;
- c) respiratory acidosis;
- d) metabolic acidosis.

33. Specify the change of parameters specific to the type of obstructive ventilation disorders:

Variants of answer:

- a) reduction of maximum breathing capacity, flow parameters;
- b) reduction in static volumes.

34. During laryngostenosis develops:

Variants of answer:

- a) rapid shallow breathing (polypnea);
- b) rapid deep breathing (hyperpnea);
- c) rare deep breathing with difficulty exhalation;
- d) rare deep breathing with difficulty inhalation;
- e) Biot's respiration.

35. Name the types of dyspnea:

Variants of answer:

- a) expiratory, inspiratory;
- b) hyperpnea, pneumotonic;
- c) terminal respiration, periodic respiration.

36. Specify the most likely causes of bradypnea:

Variants of answer:

- a) decrease in the excitability of respiratory center;
- b) hyperoxia;
- c) increase in blood pressure;
- d) all of the above.

37. Inspiratory dyspnea is observed in the following pathological conditions:

Variants of answer:

- a) I stage of asphyxia;
- b) laryngeal edema;
- c) tracheal stenosis;
- d) all of the above.

38. Expiratory dyspnea is observed in the following pathological conditions:

Variants of answer:

- a) lung emphysema;
- b) bronchial asthma attack;
- c) all of the above.

39. Indicate the types of pathology, which can lead to the development of alveolar hyperventilation:

Variants of answer:

- a) overheating, hysteria, blood loss;
- b) lung tumor, silicosis;
- c) exudative pleurisy, bronchial asthma.

40. Main role in the pathogenesis of stenotic respiration play:

Variants of answer:

- a) decrease in excitability of respiratory center;
- b) increase in excitability of respiratory center;
- c) acceleration of Hering-Breuer reflex;
- d) delay of Hering-Breuer reflex.

41. Specify the reason for reducing lung perfusion:

Variants of answer:

- a) cardiovascular failure;
- b) heart defects;
- c) pulmonary embolism;
- d) all of the above.

42. The amplitude of respiration during Cheyne-Stokes respiration:

Variants of answer:

- a) increasing and then decreasing;
- b) constant;
- c) decreasing;
- d) increasing.

43. Specify the conditions in which, there is expiratory dyspnea in most of cases:

Variants of answer:

- a) narrowing of trachea, laryngeal edema;
- b) bronchial asthma attack;
- c) compression of trachea by enlarged thyroid gland.

44. The lobar pneumonia is characterized by:

Variants of answer:

- a) rapid deep breathing (hyperpnea);
- b) rare deep breathing;
- c) Biot's respiration;
- d) rapid shallow breathing (polypnea);
- e) Kussmaul's respiration.

45. Specify the reasons for lower airway obstruction:

Variants of answer:

- a) laryngospasm;
- b) compression of larynx walls and trachea by outside;
- c) larynx walls and trachea thickening;
- d) bronchioles mucosal thickening.

46. Specify the factors causing discrepancy between the lung ventilation and perfusion under the physiological conditions:

Variants of answer:

- a) anatomical and biophysical heterogeneity of the lung units;
- b) local differences in transpulmonary pressure, vascular and bronchial tone;
- c) gravitation;
- d) all of the above.

47. Early expiratory airway closure occurs when during exhale ... (continue):

Variants of answer:

- a) increased the resistance to airflow;
- b) increased axial pressure of airflow in bronchioles;
- c) increased the transpulmonary pressure;
- d) decreased radial pressure of airflow in bronchioles;
- e) all of the above.

48. Specify the changes of parameters that are specific to the type of obstructive ventilation disorders:

Variants of answer:

- a) maximum voluntary ventilation is reduced;
- b) respiratory minute volume is increased;
- c) breathing reserve is reduced;
- d) all of the above.

49. Specify the factor being the initial and leading link in the pathogenesis of the respiratory distress syndrome of newborn:

Variants of answer:

- a) pulmonary arterial hypertension;
- b) lung edema;
- c) reducing the amount of surfactant;
- d) increasing the pulmonary vascular permeability for protein;
- e) violation of the gases diffusion.

50. Specify the type of breathing that develops in an animal after bilateral vagotomy at neck level:

Variants of answer:

- a) rapid shallow breathing;
- b) rare deep breathing;
- c) rapid deep breathing;
- d) rare shallow breathing.

51. Specify the possible causes of respiratory failure of predominantly restrictive type:

Variants of answer:

- a) diffuse fibrosing alveolitis;
- b) extensive pneumonia;
- c) pulmonary atelectasis;
- d) pneumofibrosis;
- e) all of the above.

52. Specify the most likely causes of bradypnea:

Variants of answer:

- a) decrease in excitability of respiratory center;
- b) compensated alkalosis;
- c) increase in blood pressure;
- d) hyperoxia;
- e) all of the above.

53. Weakening of the inhibitory effect of vagus and pneumotaxic center on inspiratory neurons develops:

Variants of answer:

- a) apneustic breathing;

- b) Cheyne-Stokes respiration;
- c) gasping respiration;
- d) Biot`s respiration
- e) Kussmaul`s respiration;
- f) alternating respiration.

54. Alveolar hypoventilation can be caused by:

Variants of answer:

- a) edema of medulla oblongata;
- b) obstructive lesions;
- c) restrictive lung disease;
- d) disorders of innervations of respiratory muscles;
- e) all of the above.

55. In the development of pulmonary emphysema following pathogenetic factor plays a role:

Variants of answer:

- a) increase in excitability of cholinergic receptors;
- b) sensitization of organism;
- c) early expiratory closure of respiratory tract.

56. Specify the reasons for lower airway obstruction:

Variants of answer:

- a) laryngospasm, larynx walls and trachea thickening;
- b) ingress of fluids into the bronchial lumen;
- c) spasm of bronchioles, reducing the lung elastance.

57. Restrictive type of ventilation disorders is developed at:

Variants of answer:

- a) emphysema;
- b) chronic bronchitis, bronchial asthma;
- c) intercostal myositis, bilateral closed pneumothorax;
- d) pneumonia, dry pleurisy, pulmonary atelectasis.

58. For respiratory failure is typical:

Variants of answer:

- a) dyspnea;
- b) changes in parameters of pulmonary ventilation;
- c) changes in acid-base status;
- d) all of the above.

59. Specify the reasons for upper airway obstruction:

Variants of answer:

- a) ingress of fluids into the bronchial lumen;
- b) bronchioles mucosal thickening;
- c) laryngospasm;
- d) reducing the lung elastance.

60. Specify the disease, with inspiratory dyspnea:

Variants of answer:

- a) bronchial asthma;
- b) lung emphysema;
- c) I stage of asphyxia.

61. Specify the possible consequences of early expiratory closure of the respiratory tract (EECRT):

Variants of answer:

- a) increase in alveolar dead space;
- b) decrease in minute alveolar ventilation;
- c) lymphostasis;
- d) hypoxia;
- e) all of the above.

62. Specify the type of breathing that develops in preterm infants with violation of synergies in the work of respiratory muscles:

Variants of answer:

- a) Cheyne-Stokes respiration;
- b) gasping respiration;
- c) apneustic breathing;
- d) dissociated respiration;
- e) undulating respiration.

63. Specify the type of pathology, in which the disturbance of lung perfusion plays a role in respiratory failure:

Variants of answer:

- a) left ventricular heart failure;
- b) blood loss;
- c) pulmonary thromboembolism;
- d) all of the above.

64. During inspiratory dyspnea:

Variants of answer:

- a) difficult and lengthened exhalation;
- b) difficulty inhalation and exhalation;
- c) constant amplitude;
- d) difficult and lengthened inhalation.

65. Violations of the diffuse properties of alveolar-capillary membranes play a major role in the development of respiratory failure at:

Variants of answer:

- a) violation of surfactant synthesis;
- b) bronchial asthma;
- c) laryngeal edema;
- d) interstitial pulmonary edema, silicosis.

66. The basis of alveolar hypoventilation occurring at rapid and shallow breathing is:

Variants of answer:

- a) increase in airways resistance;
- b) violation of the diffuse properties of alveolar capillary membrane;
- c) increase in functional alveolar dead space.

67. Violation of lung perfusion plays a major role in respiratory failure at:

Variants of answer:

- a) bronchial asthma;
- b) myasthenia;
- c) pulmonary tuberculosis;
- d) left ventricular failure.

PATHOPHYSIOLOGY OF THE DIGESTIVE SYSTEM

Indicate all correct answers

1. Specify the consequences of poor chewing:

Variants of answer:

- a) decrease in reflex secretion of gastric juice;
- b) increase in secretion of gastric juice;
- c) decrease in reflex secretion of pancreatic juice;
- d) increase in secretion of pancreatic juice;
- e) possible mechanical damage of esophageal and gastric mucosa;
- f) slowing digestion in the stomach.

2. Specify the possible reasons for the decreasing of secretory activity of the pancreas:

Variants of answer:

- a) intensification of parasympathetic stimulation of pancreas;
- b) weakening of parasympathetic stimulation of pancreas;
- c) decreased production and excretion of cholecystokinin;
- d) increased production and excretion of cholecystokinin;
- e) decreased production and excretion of secretin;
- f) increased production and excretion of secretin.

3. Specify the factors that involved in the pathogenesis of heartburn:

Variants of answer:

- a) gaping cardia;
- b) gastro-esophageal reflux;
- c) esophageal spasm and antistalsis;
- d) hypoacidity;

- e) increase in content of organic acids in the stomach;
- f) decrease in receptor sensitivity of the esophagus.

4. Which states are characteristic for pancreatic achylia:

Variants of answer:

- a) polyhypovitaminosis A, D, E, K;
- b) creatorrhoea;
- c) hyporexia;
- d) stearrhea;
- e) bulimia;
- f) amyloorrhea.

5. Specify the factors involved in the pathogenesis of eructations:

Variants of answer:

- a) fermentation and putrefaction in the stomach;
- b) increase in intragastric pressure;
- c) cardiospasm;
- d) pyloric spasm;
- e) reflex contraction of the stomach and diaphragm muscles;
- f) reflex contraction of the abdominal muscles.

6. Specify the consequences of acholia:

Variants of answer:

- a) deterioration in the digestion and absorption of fats;
- b) deterioration in the absorption of water and electrolytes;
- c) deterioration in the digestion of proteins;
- d) increase in secretion of pancreatic juice and weakening of intestinal motility;
- e) weakening of intestinal motility.

7. Absence of a gastric enzymes and hydrochloric acid is called:

Variants of answer:

- a) achlorhydria;
- b) acholia;
- c) achylia.

8. Absorption of which vitamins will be worsens in acholia:

Variants of answer:

- a) vitamin A;
- b) vitamin B1;
- c) vitamin D;
- d) vitamin E;
- e) vitamin K;
- f) folic acid.

9. Specify how changes the activity of pepsin in hypoacid state:

Variants of answer:

- a) decreases;

- b) increases;
- c) no changes.

10. Which of the following digestive disorders can cause the occurrence of steatorrhea:

Variants of answer:

- a) insufficiency the digestion and absorption of carbohydrates;
- b) deficiency of pancreatic lipase;
- c) deficiency of trypsinogen in the pancreas;
- d) acholia.

11. Specify the signs that characteristic for increased secretion of gastric juice:

Variants of answer:

- a) acceleration the evacuation of food from the stomach;
- b) deceleration the evacuation of food from the stomach;
- c) large number of fasting gastric juice pH less then 2.0;
- d) lack of pepsin activity;
- e) prolonged pyloric spasm;
- f) heartburn, sour regurgitation;
- g) hypercatharsis, diarrhea.

12. Specify the reasons for violations of membrane digestion:

Variants of answer:

- a) diseases of the liver and pancreas, leading to impaired cavitory digestion;
- b) 25 % resection of the jejunum;
- c) distortion of the structure and ultrastructure in wall of the small intestine;
- d) violation of the enzyme layer on the surface of intestinal wall;
- e) violation of the intestinal microflora;
- f) violation of motor and secretory function of the small intestine.

13. Specify the main features of membrane digestion:

Variants of answer:

- a) occurs in a substantially sterile conditions;
- b) occurs with the participation of intestinal microflora;
- c) provided by enzymes fixed on intestinal brush border membrane;
- d) provides an initial hydrolysis of supramolecular aggregates and large molecules;
- e) high coupling between the digestion and absorption of food substrates;
- f) mainly effected by enzymes of the pancreas.

14. In defense of the gastric mucosa from acid peptic gastric juice aggressions play a role:

Variants of answer:

- a) Pg synthesis by mucosal cells;
- b) secretion of bicarbonate;

- c) synthesis of intrinsic factor;
- d) restriction of blood flow to the stomach wall;
- e) mucus secretion containing mucin.

15. The consequences of hypersalivation include:

Variants of answer:

- a) difficulty chewing and swallowing act;
- b) occurrence of inflammatory processes in the oral mucosa;
- c) decrease of gastric secretory function;
- d) neutralization of hydrochloric acid in gastric juice;
- e) edemas.

16. The causes of duodeno-gastric reflux can be:

Variants of answer:

- a) atony of pyloric sphincter;
- b) increased secretion of gastrin;
- c) decreased secretion of gastrin;
- d) intestinal antistalsis;
- e) hypersecretion of gastric.

17. Which changes in the stomach is caused by excessive increased tone of the parasympathetic nerves:

Variants of answer:

- a) reduction the formation of mucus;
- b) increase in secretion of gastric juice;
- c) decrease in release of histamine;
- d) increase in release of histamine;
- e) hypersecretion of hydrochloric acid.

18. Specify the reasons for malabsorption of nutrients in the intestine:

Variants of answer:

- a) inflammation caused by infectious agents;
- b) inflammation caused by the action of endotoxins (uremia);
- c) 25 % resection of the jejunum;
- d) 50 % resection of the jejunum;
- e) 75 % resection of the jejunum;
- f) atrophic processes in the mucous membrane of small intestine.

19. Specify which combinations the types of secretion and the types of gastric juice acidity are the most common:

Variants of answer:

- a) hyposecretion with low acidity;
- b) hyposecretion with high acidity;
- c) hypersecretion with low acidity;
- d) hypersecretion with high acidity.

20. The appearance of steatorrhea and a large number of muscle fibers in the stool after meat and fatty meals testify in:

Variants of answer:

- a) pancreatic achylia;
- b) acholia;
- c) hypersecretion of gastric juice;
- d) absence of gastric juice.

21. Specify the possible causes of gastric hypersecretion:

Variants of answer:

- a) excessive parasympathetic stimulation of the stomach;
- b) excessive sympathetic stimulation of the stomach;
- c) increased production and excretion of gastrin;
- d) deficiency of gastrin production;
- e) increased production and releasing of histamine in the stomach wall;
- f) increased activity of histaminase.

22. Specify the diseases with result in primary disturbance of cavitary digestion:

Variants of answer:

- a) obstructive jaundice;
- b) chronic pancreatitis;
- c) lactase deficiency;
- d) duodenitis;
- e) gluten enteropathy.

23. The hyperchlorhydria and increased secretory function of the gastric glands is characterized by:

Variants of answer:

- a) tendency to constipation;
- b) increase in pepsin activity;
- c) gaping pylorus;
- d) pyloric spasm;
- e) gastric hypomotility.

24. Specify the factors that play a significant role in the pathogenesis of dumping syndrome:

Variants of answer:

- a) rapid evacuation of food from the gastric remnant stump into the small intestine;
- b) hyperirritation of wall jejunum receptors;
- c) release of adrenaline, serotonin, formation of bradykinin;
- d) hypoglycemia alternating with hyperglycemia;
- e) dilatation and increase in permeability of mesenteric vessels;
- f) transudation of the liquid portion of blood in vessels lumen.

25. Specify the possible causes of gastric hyposecretion:

Variants of answer:

- a) excessive parasympathetic stimulation of the stomach;
- b) excessive sympathetic stimulation of the stomach;
- c) decreased production and excretion of gastrin;
- d) increased production and excretion of gastrin;
- e) decreased production and excretion of secretin;
- f) decreased secretion of cholecystokinin.

26. Specify the main causes of malabsorption syndrome:

Variants of answer:

- a) atrophy of the microvilli of small intestine;
- b) extensive resection of the small intestine;
- c) hyperacid gastritis;
- d) chronic enteritis;
- e) acholia;
- f) cholecystectomy.

27. Specify how changes the activity of pepsin in hyperacid state:

Variants of answer:

- a) decreases;
- b) increases;
- c) not changes.

28 How will change the evacuation of food mass from the stomach while reducing secretion and acidity of gastric juice?

Variants of answer:

- a) decelerate;
- b) accelerate.

29. Which of the following factors play a significant role in the pathogenesis of gastric ulcers in stress?

Variants of answer:

- a) increase in vagal tone;
- b) increase in secretion of gastric juice;
- c) increase in synthesis of PgE₂ by gastric epithelial cells;
- d) increase in mucus production;
- e) increase in vascular permeability;
- f) attenuation of epithelial regeneration.

30. Hypersecretion of gastric juice is caused by excess of:

Variants of answer:

- a) gastrin;
- b) enterogastrone;
- c) cholecystokinin;

- d) secretin;
- e) glucocorticoids.

31. Select the factors that lead to the development of dumping syndrome after gastrectomy:

Variants of answer:

- a) rapid evacuation of gastric contents;
- b) slow evacuation of gastric contents;
- c) excitation of the autonomic nervous system;
- d) rapid absorption of glucose in blood;
- e) slow absorption of glucose in blood.

32. The following factors can participate in the development of gastric and duodenal ulcers:

Variants of answer:

- a) infection;
- b) overproduction of glucocorticoids;
- c) increase in tone of parasympathetic nerves;
- d) increase in formation of mucus;
- e) increase in tone of sympathetic nerves.

33. Specify the consequences of high small intestine resection:

Variants of answer:

- a) iron deficiency in an organism;
- b) vitamin B12 deficiency;
- c) folic acid deficiency in an organism;
- d) deficiency of fat soluble vitamins A, D, E, K;
- e) decrease in absorption of bile acids;
- f) malabsorption;
- g) stearrhea;
- h) diarrhea.

34. Specify the consequences of gastric juice achlorhydria:

Variants of answer:

- a) decrease in secretin releasing by duodenal mucosa;
- b) decrease in activity of the peptic enzymes of gastric juice;
- c) slowing the evacuation of the food mass from the stomach to intestine.

35. Specify the factors leading to the hypercatharsis:

Variants of answer:

- a) achylia;
- b) acholia;
- c) decrease in excitability of the vagus center;
- d) increase in the excitability of the intestinal wall receptors;
- e) inflammation in the intestine (acute enteritis);
- f) low fiber diet.

36. Iatrogenic steroid gastrointestinal ulcers are caused by:

Variants of answer:

- a) insulin;
- b) adrenaline;
- c) mineralocorticoid;
- d) glucocorticoids;
- e) sex hormones.

37. Specify the possible causes of intestinal autointoxication:

Variants of answer:

- a) hyposecretion of gastric juice;
- b) hyposecretion of pancreatic juice;
- c) weakening of evacuation intestinal function;
- d) extensive damage of the microvilli of small intestine;
- e) acholia.

38. In what morphological and functional types of gastric secretion increased the risk of peptic ulcer:

Variants of answer:

- a) normal;
- b) hypopepsinogen secretion;
- c) hyperpepsinogen secretion;
- d) achylic;
- e) hypochlorhydria.

39. Specify the symptoms indicative on impaired digestion of carbohydrates:

Variants of answer:

- a) vomiting;
- b) heartburn;
- c) colicky pains in abdomen;
- d) meteorism;
- e) constipation;
- f) diarrhea.

40. Markers of mucus condition in the stomach are:

Variants of answer:

- a) hydrogen ions;
- b) gastromukoprotein;
- c) pepsinogen;
- d) sialic acids;
- e) glycoproteins;
- f) N-acetylneuraminic acid.

41. Following factors are reduce the ability of the gastric mucosa to regenerate and contribute to the development of ulcer disease:

Variants of answer:

- a) spastic motility of the stomach;

- b) increase in catecholamines and glucocorticoids in blood;
- c) iron deficiency in an organism;
- d) vitamin B12 and folate deficiency in an organism;
- e) duodeno-gastric reflux;
- f) smoking, alcoholism.

42. Specify the manifestations of malabsorption syndrome:

Variants of answer:

- a) meteorism;
- b) diarrhea;
- c) constipation;
- d) weight loss;
- e) hypoproteinemia;
- f) stearrhea.

43. Specify the consequences of acholia:

Variants of answer:

- a) deterioration in the digestion and absorption of fats;
- b) deterioration in the absorption of water and electrolytes;
- c) violation of the intestinal microflora activity;
- d) increase in secretion of pancreatic juice;
- e) increase in intestinal motility;
- f) weakening of intestinal motility;
- g) deterioration in the digestion of proteins;
- h) deterioration in the digestion of carbohydrates.

44. Increasing gastric secretion in the body is under the influence of:

Variants of answer:

- a) histamine;
- b) acetylcholine;
- c) epinephrine;
- d) gastrin;
- e) pepsin.

45. The factors of aggression in the pathogenesis of gastric ulcers include:

Variants of answer:

- a) glycocalyx mucus;
- b) duodeno-gastric reflux;
- c) pepsin;
- d) *Helicobacter pylori*;
- e) submucosal bicarbonate buffer.

46. Which violations of motor evacuation function of the gastrointestinal tract contribute to the development of ulcer disease?

Variants of answer:

- a) duodeno-gastric reflux;

- b) decreasing motility of the stomach;
- c) gastro-esophageal reflux;
- d) increasing motility of the stomach;
- e) decreasing motility of the duodenum;
- f) duodenostasis.

47. Specify the disorders are caused by strong meteorism:

Variants of answer:

- a) reflex increased diuresis;
- b) reflex decreased diuresis;
- c) change in blood pressure;
- d) reduction in venous pressure;
- e) difficulty in breathing.

48. What are the typical consequences of duodeno-gastral reflux?

Variants of answer:

- a) epithelial cell damage;
- b) increased production of mucus in the stomach;
- c) increased risk of gastric malignancy;
- d) weakening of the mucous barrier;
- e) metaplasia (enterolisation) of gastric epithelium;
- f) disbacteriosis.

49. Specify the consequences of low small intestine resection:

Variants of answer:

- a) iron deficiency in an organism;
- b) vitamin B12 deficiency;
- c) folic acid deficiency in an organism;
- d) deficiency of fat soluble vitamins A, D, E, K;
- e) decrease in absorption of bile acids;
- f) malabsorption;
- g) stearrhea;
- h) diarrhea.

50. In patients with Zollinger-Ellison syndrome is detected:

Variants of answer:

- a) hyperplasia of EC cells in the stomach;
- b) hyperplasia of G cell in the antrum;
- c) hyperplasia of D cell in the antrum;
- d) gastrinoma in the pancreas.

51. Tendency to atonic constipation is typical for:

Variants of answer:

- a) hypovitaminosis B1;
- b) poor nutrition;
- c) hypoacidity;

- d) lack of fiber in the diet;
- e) lack of dietary calcium and potassium salts.

52. Specify what promotes stability of *Helicobacter pylori* to the bactericidal action of gastric juice:

Variants of answer:

- a) adaptation to living under the mucus in the stomach;
- b) adaptation to living in the mucosa;
- c) ability to break down urea;
- d) presence of protective cloud of ammonium.

53. When overproduction of glucocorticoids:

Variants of answer:

- a) increased pepsinia, inhibited secretion of hydrochloric acid and mucus;
- b) decreased pepsinia, increased secretion of hydrochloric acid and mucus
- c) decreased pepsinia and secretion of hydrochloric acid and increased mucus secretion;
- d) increased pepsinia and secretion of hydrochloric acid and inhibited mucus secretion.

54. Specify the substances that contribute to the development of intestinal autointoxication:

Variants of answer:

- a) hydrogen sulphide;
- b) putrescine, cadaverine;
- c) skatole, indole;
- d) histamine, serotonin;
- e) phenol.

55. The mechanism of gastric ulcers occurrence during stress includes:

Variants of answer:

- a) mucosal ischemia;
- b) hyperemia of mucous;
- c) increase in secretion of gastric juice;
- d) increase in secretion of endorphins;
- e) inhibition of epithelial regenerative capacity.

56. Specify the signs characteristic of chronic intestinal autointoxication:

Variants of answer:

- a) headache;
- b) drop in blood pressure;
- c) anemia;
- d) reduction in pain sensitivity;
- e) weakening of heart contractions;
- f) hyposecretion of digestive enzymes;

- g) respiratory depression;
- h) development of coma.

57. Specify the manifestations of intestinal malabsorption syndrome:

Variants of answer:

- a) weight loss, asthenia;
- b) vomiting, eructation, heartburn;
- c) polyhypovitaminosis;
- d) arterial hypertension;
- e) anemia;
- f) edemas;
- g) obesity;
- h) immunodeficiency.

58. Place of gastrin production in the stomach is:

Variants of answer:

- a) chief cells of the gastric mucosa;
- b) parietal cells of the gastric mucosa;
- c) muscle cells of the stomach wall;
- d) cells of APUD system in the stomach;
- e) glycocalyx.

59. The hormones, that are factors of aggression in the pathogenesis of gastric ulcers, include:

Variants of answer:

- a) endorphins;
- b) gastrin;
- c) kinins;
- d) vasoactive intestinal peptide;
- e) somatostatin.

60. There are following types of intestinal obstruction:

Variants of answer:

- a) mechanical;
- b) metabolic;
- c) dynamic;
- d) acholic;
- e) thromboembolic.

61. Specify the factors of pathogenesis of aspirin stomach ulcers:

Variants of answer:

- a) decrease in synthesis of prostaglandin group E;
- b) increase in synthesis of prostaglandin group E;
- c) increasing the formation of mucus;
- d) reduction the formation of mucus;
- e) increasing back diffusion of H⁺ in gastric mucosa.

62. Alcohol increases the gastric acid secretion due to:

Variants of answer:

- a) local irritant;
- b) local anesthetic effect;
- c) stimulation of the vagus center;
- d) activation of the sympathetic nervous system;
- e) inhibition of mucous carboanhydrase.

63. Specify the characteristic changes in the microflora of small intestine with dysbacteriosis:

Variants of answer:

- a) increase in the number of microbes (compared to the norm);
- b) prevalence of Escherichia, Klebsiella, Lactobacilli, Enterococci;
- c) decrease or absence of Bifidobacterium;
- d) increase in Bifidobacterium.

64. Specify the factors that stimulate the secretion of gastric juice:

Variants of answer:

- a) secretin;
- b) gastrin;
- c) acetylcholine;
- d) glucagon;
- e) glucocorticoids;
- f) parathormone;
- g) somatostatin;
- h) histamine.

65. Specify the characteristic changes in the microflora of the colon with dysbacteriosis:

Variants of answer:

- a) increase in the number of microbes (compared to the norm);
- b) prevalence of Escherichia, Klebsiella, Lactobacilli, Enterococci;
- c) decrease or absence of Bifidobacterium;
- d) increase in Bifidobacterium;
- e) prevalence of E. coli, Staphylococcus, Streptococcus, Klebsiella, Proteus, yeast fungi.

66. Specify the diseases that result in primary disturbance of membrane digestion:

Variants of answer:

- a) obstructive jaundice;
- b) chronic pancreatitis;
- c) lactase deficiency;
- d) duodenitis;
- e) gluten enteropathy.

67. Specify the pathogenetic links of digestive disorders in case of dysbacteriosis:

Variants of answer:

- a) increase of pH in the intestine above the optimum;
- b) increase of toxic substances in the intestinal lumen;
- c) destruction of digestive enzymes;
- d) microbial competition for nutrients;
- e) decrease in permeability of the intestinal wall;
- f) deterioration in the liver function of detoxification;
- g) deterioration in the regeneration of the intestinal epithelium.

68. Specify the gastrointestinal hormones which excess cause pancreatic hypersecretion:

Variants of answer:

- a) gastrin;
- b) cholecystokinin;
- c) secretin;
- d) motilin.

69. Development of pancreatic collapse is associated with:

Variants of answer:

- a) excessive production of pancreatic enzymes;
- b) insufficient production of pancreatic enzymes;
- c) activation of the kallikrein-kinin system;
- d) regurgitation of pancreatic enzymes into the stomach with duodeno-gastric reflux.

70. Specify the signs characteristic of acute intestinal autointoxication:

Variants of answer:

- a) headache;
- b) drop in blood pressure;
- c) anemia;
- d) reduction in pain sensitivity;
- e) weakening of heart contractions;
- f) hyposecretion of digestive enzymes;
- g) respiratory depression;
- h) development of coma.

71. Specify the consequences of acholia:

Variants of answer:

- a) absence of bile in a duodenum;
- b) decrease in the pH in a duodenum;
- c) absence of lipase;
- d) violation of the emulsification of fats;
- e) malabsorption of fatty acids;
- f) stearrhea.

72. Which factor is usually more important in the pathogenesis of duodenal ulcer?

Variants of answer:

- a) acid-peptic aggression;
- b) decrease in the protective properties of the intestinal mucosa.

73. The stimulator of gastrin secretion is:

Variants of answer:

- a) mechanical stimulus;
- b) chemical stimulus;
- c) increase in vagal tone;
- d) hyperglycemia;
- e) hypoglycaemia.

74. The concept of duodeno-gastric reflux means:

Variants of answer:

- a) synchronous operation of the stomach and duodenum muscles;
- b) rapid gastric emptying;
- c) slow gastric emptying;
- d) regurgitation of the duodenal contents into the stomach;
- e) entering of stomach contents into the duodenum.

75. The manifestations of intestinal autointoxication include:

Variants of answer:

- a) increase in blood pressure;
- b) decrease in blood pressure;
- c) bradycardia;
- d) inhibition of central nervous system;
- e) stimulation of the secretory function of digestive glands.

76. The acholia is characterized by:

Variants of answer:

- a) pale colored stool;
- b) disbacteriosis;
- c) hypovitaminosis B1, B6;
- d) meteorism;
- e) dark colored stool.

PATHOPHYSIOLOGY OF LIVER

Indicate all correct answers

1. Which changes have been observed in dogs in the nearest hours after total liver extirpation?

Variants of answer:

- a) adynamia;
- b) hyperglycemia;
- c) muscular weakness;
- d) increased urea in blood;
- e) hypoglycaemia;
- f) decrease in blood urea.

2. Which signs are characteristic for clinically manifested parenchymal jaundice?

Variants of answer:

- a) elevated levels of direct bilirubin in the blood;
- b) elevated levels of indirect bilirubin in the blood;
- c) appearance of direct bilirubin in the urine;
- d) appearance of indirect bilirubin in the urine;
- e) decrease in stercobilinogen in feces and urine;
- f) increase in stercobilinogen in feces and urine;
- g) cholehemia.

3. Specify the skin symptoms that can occur in patients with liver disease:

Variants of answer:

- a) hyperpigmentation of palms;
- b) skin thinning on the hands and armpits;
- c) palmar erythema;
- d) hemorrhagic rash;
- e) telangiectasia;
- f) xanthoma;
- g) itchy skin.

4. Specify the signs characteristic for acholia:

Variants of answer:

- a) increase in vitamin K absorption;
- b) decrease in blood coagulation;
- c) increase in blood coagulation;
- d) scoretemia;
- e) hypercoagulability of blood proteins;
- f) meteorism.

5. Specify the factors that play an important role in the pathogenesis of ascites developing in portal hypertension:

Variants of answer:

- a) increase in hydrostatic pressure in the portal vein;
- b) decrease in lymph formation;
- c) increase in lymph formation;
- d) decrease in oncotic pressure of blood;
- e) activation of rennin-angiotensin-aldosterone system.

6. Portal hypertension can occur in:

Variants of answer:

- a) left ventricular failure;
- b) right ventricular failure;
- c) overlay of portocaval anastomosis;
- d) liver cirrhosis;
- e) hypovolemia.

7. Urobilinuria may occur in the following types of jaundice:

Variants of answer:

- a) hemolytic;
- b) hepatocellular (I stage);
- c) mechanical;
- d) no one of the above.

8. Specify the etiological factors that cause primary liver damage:

Variants of answer:

- a) Botkin`s disease viruses;
- b) circulatory failure;
- c) ionizing radiation;
- d) obesity;
- e) mechanical injury of the liver.

9. In clinically manifested stage of hepatocellular jaundice urobilinogen disappears in blood and urine because:

Variants of answer:

- a) normalized uptake and destruction of urobilinogen by hepatocytes;
- b) impaired bilirubin excretion into the intestine;
- c) decline in urobilinogen absorption in the intestine.

10. Specify the type of liver cirrhosis that more often leads to coma:

Variants of answer:

- a) hepatocellular type;
- b) enzymopathic type;
- c) shunt type.

11. Named pigment that gives a dark color to urine in obstructive jaundice:

Variants of answer:

- a) conjugated bilirubin;
- b) unconjugated bilirubin;
- c) urobilin;
- d) stercobilin.

12. Which jaundice is characterized by the appearance in the blood of hepatic transaminases:

Variants of answer:

- a) hepatocellular;
- b) hemolytic;
- c) enzymopathic;
- d) any type.

13. Select the signs that are characteristic for prehepatic jaundice:

Variants of answer:

- a) increase of unconjugated bilirubin in blood;
- b) increase of conjugated bilirubin in blood;
- c) bilirubinemia;
- d) increase of stercobilin in blood;
- e) tachycardia;
- f) decrease in blood pressure.

14. The chemical hepatotropic poisons include:

Variants of answer:

- a) organophosphorus compounds;
- b) carbon tetrachloride;
- c) arsenic compounds;
- d) organic solvents;
- e) carbon dioxide;
- f) ethanol.

15. Specify the experimental model of chronic liver failure:

Variants of answer:

- a) direct Eck fistula;
- b) reverse Eck-Pavlov fistula;
- c) onestage hepatic devascularisation;
- d) multistage devascularisation.

16. Specify the possible causes of hemolytic jaundice:

Variants of answer:

- a) viral hepatitis;
- b) hemolytic anemia;
- c) toxic hepatitis;
- d) sepsis;

- e) poisoning by hemolytic poisons;
- f) malaria.

17. Mark a signs of disorders of carbohydrate metabolism in hepatic failure:

Variants of answer:

- a) hypoglycemia during prolonged physical exertion;
- b) increased gluconeogenesis;
- c) alimentary hyperglycemia;
- d) fasting hypoglycemia.

18. Mark the possible toxic products that are formed during hepatocellular insufficiency due to impaired fat metabolism:

Variants of answer:

- a) indole
- b) butyric acid;
- c) caproic acid;
- d) valeric acid;
- e) acetone;
- f) beta hydroxybutyric acid;
- g) acetoacetic acid.

19. Specify the signs are characteristic for cholehemia:

Variants of answer:

- a) arterial hypertension;
- b) arterial hypotension;
- c) hyporeflexia;
- d) bradycardia;
- e) hyperreflexia;
- f) itchy skin.

20. Specify the signs are characteristic for mechanical jaundice:

Variants of answer:

- a) decrease in blood pressure;
- b) increase in blood pressure;
- c) reducing blood coagulation;
- d) bradycardia;
- e) tachycardia;
- f) cholehemia.

21. Specify the causes of secondary cholestasis:

Variants of answer:

- a) obturation of common bile duct by stones, tumors;
- b) concentration of bile on the background of dehydration;
- c) cholangitis (cholangiolitis);
- d) swelling of major duodenal papilla in inflammation of duodenum;
- e) infectious hepatitis;
- f) toxic hepatitis.

22. Which compounds have a significant toxic effect on the body:

Variants of answer:

- a) direct bilirubin (conjugated);
- b) indirect bilirubin (unconjugated);
- c) bile acids;
- d) urobilinogen;
- e) stercobilinogen.

23. Specify the signs are characteristic for obstructive jaundice:

Variants of answer:

- a) lemon yellow skin color;
- b) decrease of unconjugated bilirubin in blood;
- c) increase of conjugated bilirubin in blood;
- d) appearance of conjugated bilirubin in urine;
- e) itchy skin;
- f) bradycardia.

24. What is the mechanism of bradycardia during cholehemia:

Variants of answer:

- a) activation of parasympathetic influences on the heart;
- b) blockade of impulse conduction through the bundle of His;
- c) direct effect of bile acids on the sinus node;
- d) activation of re-entry mechanism in the sinus node.

25. Which signs are characteristic for disorders of protein metabolism in hepatic failure?

Variants of answer:

- a) hypoalbuminemia;
- b) dysproteinemia;
- c) decreased amino acids in blood;
- d) acidaminuria;
- e) decreased ammonia in blood;
- f) decreased urea in blood.

26. Mark the toxic products that are formed during hepatocellular insufficiency due to impaired carbohydrate metabolism:

Variants of answer:

- a) ammonia;
- b) 2,3 butylene glycol;
- c) valeric acid;
- d) acetone.

27. Which jaundice is characterized by acholia syndromes?

Variants of answer:

- a) prehepatic jaundice (hemolytic);

- b) hepatic jaundice (parenchymal);
- c) obstructive (mechanical).

28. Cholestasis syndrome is characterized by an increase in the blood:

Variants of answer:

- a) bile acids;
- b) alanine aminotransferase;
- c) cholesterol and phospholipids;
- d) 5nucleotidase;
- e) conjugated bilirubin;
- f) aspartate aminotransferase;
- g) alkaline phosphatase;
- h) gammaglutamyltranspeptidase.

29. Specify the bacteria and viruses that are etiological factors of liver damage:

Variants of answer:

- a) Botkin`s disease viruses;
- b) Epstein Barr virus;
- c) tuberculosis agent;
- d) leprosy agent.

30. Factors contributing to the development of ascites in liver cirrhosis are:

Variants of answer:

- a) decrease in hydrostatic pressure in the portal vein;
- b) hypoproteinemia;
- c) hyperproteinemia;
- d) aldosteronism;
- e) increase in hydrostatic pressure in the portal vein.

31. Specify the complications that development in animals with direct Eck fistula that feeding meat:

Variants of answer:

- a) toxemia;
- b) encephalopathy;
- c) increase of indole, skatole, putrescine, cadaverine in blood;
- d) increased urea in blood;
- e) increased ammonia in blood;
- f) hyperalbuminemia.

32. Which helminthosis more often accompanied liver injury?

Variants of answer:

- a) echinococcosis;
- b) enterobiasis;
- c) opisthorchosis;
- d) alveococcosis;
- e) diphyllbothriasis.

33. Select the signs that are characteristic for hepatic coma:

Variants of answer:

- a) oppression of consciousness;
- b) seizures;
- c) increased urea in blood;
- d) increased ammonia in blood;
- e) increased prothrombin index;
- f) appearance of false neurotransmitters.

34. Specify the hepatotropic poisons:

Variants of answer:

- a) carbon tetrachloride;
- b) berthollet salt;
- c) organophosphate insecticides;
- d) carbon monoxide;
- e) muscarine.

35. One of way to prevent the development of coma in liver failure is a restriction in the diet:

Variants of answer:

- a) carbohydrates;
- b) fats;
- c) proteins;
- d) liquid;
- e) salts.

36. Mark the most common etiologic factors of hepatocellular insufficiency:

Variants of answer:

- a) shock;
- b) Botkin`s disease;
- c) liver cirrhosis;
- d) obturation of biliary tract;
- e) poisoning by hepatotropic poisons;
- f) pneumonia.

37. Formation of ascites in liver cirrhosis is due to:

Variants of answer:

- a) hypoalbuminemia;
- b) hyperalbuminemia;
- c) secondary hyperaldosteronism;
- d) hypovitaminosis A, D, E, K;
- e) hyperfibrinogenemia;
- f) portal hypertension.

38. Specify the causes of primary cholestasis:

Variants of answer:

- a) obturation of common bile duct by stones, tumors;

- b) concentration of bile on the background of dehydration;
- c) cholangitis (cholangiolitis);
- d) swelling of major duodenal papilla in inflammation of duodenum;
- e) infectious hepatitis;
- f) toxic hepatitis.

39. Which of the following methods of experimental modeling of liver failure are used to study the detoxifying function of the liver:

Variants of answer:

- a) hepatic artery ligation;
- b) direct Eck fistula;
- c) angiostomy (by E.S. London);
- d) onestage hepatic devascularisation.

40. Saturation of bile with cholesterol is contributed to:

Variants of answer:

- a) male sex;
- b) obesity;
- c) drinking coffee;
- d) eating of refined carbohydrates;
- e) elderly age.

41. In which type of jaundice may appear unconjugated bilirubin in the urine:

Variants of answer:

- a) in hemolytic;
- b) in hepatocellular;
- c) in mechanical;
- d) no one of the above.

42. Specify the main experimental model of acute liver failure:

Variants of answer:

- a) direct Eck fistula;
- b) onestage hepatic devascularization;
- c) toxic liver injury;
- d) angiostomy (by E.S. London).

43. Specify the signs that are characteristic for total liver failure:

Variants of answer:

- a) increase of prothrombin content in the blood;
- b) fasting hypoglycemia;
- c) fasting hyperglycemia;
- d) hyperbilirubinemia;
- e) hypoproteinemia;
- f) dysproteinemia.

44. Which pigments give a dark color to urine in patients with pre-hepatic jaundice:

Variants of answer:

- a) conjugated bilirubin;
- b) unconjugated bilirubin;
- c) urobilin;
- d) stercobilin.

45. A cholestasis syndrome is characterized for:

Variants of answer:

- a) prehepatic jaundice (hemolytic);
- b) hepatic jaundice (parenchymal);
- c) obstructive (mechanical).

46. Select the signs that are characteristic for severe hepatic jaundice mixed type:

Variants of answer:

- a) increase of unconjugated bilirubin in blood;
- b) increase of conjugated bilirubin in blood;
- c) hypercholesterolemia;
- d) hypoglycemia;
- e) increased urea in blood;
- f) increase of alkaline phosphatase in blood.

47. Specify the possible causes of parenchymal jaundice:

Variants of answer:

- a) viral hepatitis;
- b) hemolytic anemia;
- c) toxic hepatitis;
- d) sepsis;
- e) poisoning by hemolytic poisons
- f) malaria.

48. In the formation of ascites in portal hypertension of hepatic origin are involved:

Variants of answer:

- a) reduction of blood proteins;
- b) increase of blood proteins;
- c) increase of hydrostatic pressure in v. porta;
- d) decrease of hydrostatic pressure in v. porta;
- e) inhibition of rennin-angiotensin-aldosterone system;
- f) activation of rennin-angiotensin-aldosterone system.

PATHOPHYSIOLOGY OF KIDNEYS

Indicate all correct answers

1. Immune nephropathies are:

Variants of answer:

- a) glomerulonephritis;
- b) polycystic kidney disease;
- c) urolithiasis;
- d) collagenous nephropathy;
- e) pyelonephritis.

2. Decrease in glomerular filtration rate is observed in:

Variants of answer:

- a) increase in tone of afferent glomerular arteriole;
- b) increase in oncotic pressure of blood;
- c) increase in intrarenal pressure;
- d) reduction of filtration area.

3. Specify the reasons for postrenal forms of acute renal failure:

Variants of answer:

- a) blockage of ureter by stone in nephrolithiasis;
- b) nephrotoxic effect of poisons;
- c) decrease in blood pressure;
- d) prostate adenoma;
- e) acute pyelonephritis.

4. Specify the pathological symptoms and syndromes that can be developed in acute oligoanuric renal failure:

Variants of answer:

- a) immunodeficiency;
- b) hypervolemia;
- c) dehydration;
- d) hyposthenuria;
- e) brain edema;
- f) acidotic coma.

5. Occurrence of acidosis in renal failure is contributed to:

Variants of answer:

- a) Krebs cycle blockade by ammonia;
- b) tachycardia and hyperpnea;
- c) decrease in reabsorption of sodium bicarbonate by kidney;
- d) inhibition of renal carbonic anhydrase;
- e) hypervolemia.

6. Specify the pathological symptoms and syndromes that can be developed in acute polyuric renal failure:

Variants of answer:

- a) immunodeficiency;
- b) hypervolemia;
- c) dehydration;
- d) hyposthenuria;
- e) brain edema;
- f) acidotic coma.

7. Factors contributing to the development of renal edema, are:

Variants of answer:

- a) hypoparathyroidism;
- b) hypoproteinemia;
- c) activation of rennin-angiotensin-aldosterone system;
- d) increase in vascular permeability;
- e) hypotension.

8. Renal azotemia may be developed due to the following reasons:

Variants of answer:

- a) decrease in systemic blood pressure;
- b) severe renal ischemia;
- c) rhabdomyolysis;
- d) intravascular hemolysis;
- e) toxic renal damage;
- f) ureteral obstruction.

9. Mark the hormones excess or deficiency of which can cause abnormalities of diuresis:

Variants of answer:

- a) FSH;
- b) ACTH;
- c) TTH;
- d) insulin;
- e) aldosterone;
- f) epinephrine;
- g) vasopressin;
- h) oxytocin.

10. Specify the extrarenal abnormal urine components:

Variants of answer:

- a) leached erythrocytes;
- b) direct bilirubin;
- c) stercobilin;
- d) urobilin;

- e) bile acids;
- f) cylinders;
- g) hemoglobin.

11. How does diuresis change with secondary hyperaldosteronism:

Variants of answer:

- a) increased;
- b) decreased;
- c) unchanged.

12. Latent stage of chronic renal failure is characterized by:

Variants of answer:

- a) severe azotemia;
- b) decrease in concentration renal function;
- c) change in results of test for diluted urine;
- d) acidosis.

13. Lack of which hormones can cause polyuria:

Variants of answer:

- a) somatotrophic;
- b) vasopressin;
- c) epinephrine;
- d) aldosterone;
- e) oxytocin;
- f) insulin.

14. Which kidney diseases are inherited:

Variants of answer:

- a) renal tuberculosis;
- b) polycystic kidney disease;
- c) glomerulonephritis;
- d) pyelonephritis;
- e) Fanconi syndrome.

15. Nephrotic syndrome is characterised by:

Variants of answer:

- a) glycosuria;
- b) proteinuria;
- c) ketonuria;
- d) urobilinuria;
- e) cylindruria;
- f) hematuria.

16. Causes contributing to a decrease in glomerular filtration are:

Variants of answer:

- a) decrease in blood pressure;

- b) decrease in oncotic pressure of blood;
- c) obstruction of urine outflow;
- d) spasm of afferent glomerular arteriolas;
- e) spasm of efferent glomerular arteriolas.

17. Specify the reasons for prerenal forms of acute renal failure:

Variants of answer:

- a) cardiogenic shock;
- b) acute glomerulonephritis;
- c) massive blood loss;
- d) thrombosis and embolism of renal vessels;
- e) acute pyelonephritis.

18. Specify the pathological urine components of renal origin:

Variants of answer:

- a) leached erythrocytes;
- b) indirect bilirubin;
- c) protein in a large amount;
- d) urobilin;
- e) bile acids;
- f) cylinders;
- g) stercobilin;
- h) ketone bodies.

19. In renal acidosis can underlie:

Variants of answer:

- a) intensification of ammoniogenesis;
- b) reduction of tubular secretion of protons;
- c) excess reabsorption of sodium ions;
- d) reduction of ammonia secretion;
- e) impaired reabsorption of HCO_3^- ;
- f) decrease in excretion of lactic acid and ketone bodies.

20. How can be changed diuresis with primary hyperaldosteronism (Conn's syndrome):

Variants of answer:

- a) increased at an early stage, reduced at a later stage;
- b) reduced at an early stage, increased at a later stage;
- c) increased at any stage;
- d) reduced at any stage.

21. Specify the possible causes of oliguria:

Variants of answer:

- a) distension of urinary bladder;
- b) venous congestion of the kidneys;

- c) hypoproteinemia;
- d) pain stimulation;
- e) cholehemia;
- f) hypovolemia;
- g) hyperglycemia;
- h) hyperadrenalinemia.

22. The most frequent cause of acute diffuse glomerulonephritis is:

Variants of answer:

- a) mycobacterium tuberculosis;
- b) staphylococci;
- c) streptococci;
- d) fungi;
- e) parasites;
- f) rickettsia.

23. Specify the links of pathogenesis of acute diffuse glomerulonephritis:

Variants of answer:

- a) fixation of complexes Ag Ab on the basal membrane of the renal corpuscles;
- b) immune inflammation in the basal membrane of the renal corpuscles;
- c) microvascular thrombosis of renal glomeruli;
- d) production of nephrocytotoxic Ab;
- e) production of antistreptococcal Ab;
- f) Streptococcus in the circulating blood;
- g) hypocoagulation;
- h) polyuria;
- i) oliguria.

24. Specify the leading links in pathogenesis of nephrotic syndrome in kidney disease:

Variants of answer:

- a) increase in permeability of the capillary walls;
- b) decrease in oncotic pressure of blood;
- c) impaired reabsorption of protein in the tubules;
- d) impaired permeability of the glomerular filter;
- e) massive proteinuria;
- f) secondary aldosteronism;
- g) hypoalbuminemia.

25. The main pathogenetic mechanisms of acute renal failure are:

Variants of answer:

- a) violation of intrarenal circulation;
- b) decreased synthesis of rennin;
- c) hypoxic damage predominantly of renal glomeruli;
- d) hypoxic damage predominantly of renal tubules.

26. At the end stage of chronic renal failure occur following changes in homeostasis:

Variants of answer:

- a) hyperkalemia;
- b) progressive azotemia;
- c) metabolic alkalosis;
- d) metabolic acidosis;
- e) hyperhydration.

27. Which of the following factors play a significant role in the pathogenesis of second stage of acute renal failure:

Variants of answer:

- a) intensification of rennin synthesis by kidneys;
- b) obturation of renal tubular by cylinder;
- c) increase in glomerular filtration;
- d) decrease in sodium reabsorption in the renal tubules;
- e) decrease in the effective filtration pressure;
- f) edema of renal parenchyma.

28. Which disorders can be caused by inherited defects in enzymes of renal tubular apparatus:

Variants of answer:

- a) hemoglobinuria;
- b) acidaminuria;
- c) hyperphosphaturia;
- d) urobilinuria;
- e) glycosuria;
- f) Fanconi syndrome.

29. Name the mechanisms of glucosuria:

Variants of answer:

- a) increase in filtration pressure in glomeruli;
- b) blocking phosphorylation enzymes in epithelium;
- c) structural damage of proximal tubules;
- d) increased permeability of glomerular capillaries;
- e) excessive blood glucose levels more than 9 mmol/l.

30. Parameters characterizing the disorders in glomerular filtration are:

Variants of answer:

- a) leucocyturia;
- b) azotemia;
- c) acidaminuria;
- d) oliguria;
- e) decline in creatinine clearance;
- f) massive nonselective proteinuria.

31. Which of the following disorders of homeostasis are characteristic for oligoanuric stage of acute renal failure:

Variants of answer:

- a) metabolic alkalosis;
- b) increasing the concentration of urea in blood;
- c) increasing the concentration of creatinine in blood;
- d) hypovolemia;
- e) hyperkalemia;
- f) increasing plasma concentrations of phosphates and sulfates.

32. Specify the factors that contribute to the development of edema in lesions of renal parenchyma:

Variants of answer:

- a) reduction in glomerular filtration;
- b) increase in Na content in tissues;
- c) activation of ADH secretion, increased sensitivity of renal tubules to it;
- d) decrease in permeability of walls of tissues microvessels;
- e) microhematuria;
- f) hypoosmolarity of blood;
- g) hyperosmolarity of blood;
- h) hypovolemia;
- i) hypervolemia.

33. Name the typical complications of acute glomerulonephritis, threatening the patient's life:

Variants of answer:

- a) acute heart failure;
- b) acute renal failure;
- c) acute liver dystrophy;
- d) massive proteinuria;
- e) encephalopathy (brain edema).

34. Specify the main factors of anemia development in chronic renal failure:

Variants of answer:

- a) effect of uremic toxins on bone marrow cells;
- b) reduce production of erythropoietin;
- c) iron deficiency in an organism;
- d) intestinal malabsorption syndrome;
- e) vitamin B₁₂ deficiency;
- f) acidosis;
- g) presence of erythropoietin inhibitors in plasma.

35. Causes contributing to a decrease in glomerular filtration are:

Variants of answer:

- a) increase in blood pressure;

- b) increase in oncotic pressure of blood;
- c) decrease in oncotic pressure of blood;
- d) increase in intrarenal pressure;
- e) reducing the number of functioning nephrons.

36. Name the typical complications of acute glomerulonephritis, threatening the patient's life:

Variants of answer:

- a) acute heart failure;
- b) acute renal failure;
- c) acute liver dystrophy;
- d) massive proteinuria;
- e) encephalopathy.

37. Which of the following parameters characterize the renal tubular dysfunction:

Variants of answer:

- a) acidaminuria;
- b) presence of leached erythrocytes in the urine;
- c) decline in creatinine clearance;
- d) isosthenuria;
- e) massive proteinuria;
- f) decrease in secretion of H⁺ ions and ammonium.

38. Infectious inflammatory kidney diseases are:

Variants of answer:

- a) glomerulonephritis;
- b) pyelonephritis;
- c) urolithiasis;
- d) renal tuberculosis;
- e) nephropathy of pregnant.

39. Specify the basic mechanisms of reduction of glomerular filtration:

Variants of answer:

- a) drop in systemic blood pressure up to 60 mm Hg;
- b) decrease in sodium reabsorption in the tubules;
- c) violation of primary urine outflow;
- d) increase in colloid osmotic pressure of blood plasma;
- e) decrease in enzyme activity of renal tubules epithelium;
- f) reducing the number of functioning nephrons.

40. Arterial hypertension in chronic diffuse glomerulonephritis is caused by:

Variants of answer:

- a) blocking of renal tubular by cylinder;
- b) activation of rennin-angiotensin-aldosterone system;

- c) reduced production of prostaglandins A and E by kidneys;
- d) reduce production of kinins by kidneys;
- e) increased production of kinins by kidneys.

41. Accumulation of ammonia in the body in renal failure cause following metabolic disorders:

Variants of answer:

- a) intensification of urea synthesis;
- b) violation of amino acids transamination;
- c) Krebs cycle blockade;
- d) intensification of cholesterol and ketone bodies synthesis;
- e) decreased urea synthesis.

42. Which factors contribute to the development of uro and nephrolithiasis:

Variants of answer:

- a) decrease of solubilizers in urine;
- b) increase of solubilizers in urine;
- c) infection of renal parenchyma and urinary tract;
- d) increasing the concentration of salt in blood;
- e) hypoproteinemia;
- f) proteinuria.

43. Azotemic stage of chronic renal failure is characterized by:

Variants of answer:

- a) hyposthenuria;
- b) increased urea in blood;
- c) polyuria;
- d) metabolic alkalosis;
- e) anemia;
- f) increased creatinine in blood.

44. Causes of reduced tubular reabsorption are:

Variants of answer:

- a) hereditary enzyme deficiency in tubules;
- b) excess of aldosterone;
- c) impaired energy metabolism in tubules;
- d) damage to the tubular epithelium;
- e) excess of antidiuretic hormone.

45. The mechanisms involved in the occurrence of polyuria include:

Variants of answer:

- a) excess of antidiuretic hormone;
- b) lack of antidiuretic hormone;
- c) glycosuria;
- d) increase in glomerular filtration;
- e) reduction in glomerular filtration .

46. The mechanisms involved in the occurrence of oliguria include:

Variants of answer:

- a) decrease in the number of functioning glomeruli;
- b) increase in glomerular filtration;
- c) reduction in glomerular filtration;
- d) reduction of H₂O reabsorption in the tubules;
- e) obstructions of urinary tract.

47. The nephrotic syndrome is characterized by:

Variants of answer:

- a) extensive edema;
- b) dehydration;
- c) high proteinuria;
- d) hyperlipidemia;
- e) arterial hypotension.

48. Hyperazotemic stage of chronic renal failure is characterized by:

Variants of answer:

- a) decrease in diuresis;
- b) hypoisosthenuria;
- c) anemia;
- d) marked leucocyturia;
- e) arterial hypertension;
- f) compensated acidosis.

49. Which signs may indicate to violations of ultrafiltration in kidneys:

Variants of answer:

- a) glycosuria;
- b) acidaminuria;
- c) proteinuria;
- d) oliguria;
- e) urobilinuria.

50. Factors that can cause anuria are:

Variants of answer:

- a) severe psychological trauma;
- b) significant pain stimuli;
- c) denervation of kidney;
- d) kink or compression of the ureters;
- e) drop in systemic blood pressure to 50 mm Hg.

51. The reasons that reduce renal glomerular filtration:

Variants of answer:

- a) spasm of efferent glomerular arteriolas;
- b) spasm of afferent glomerular arteriolas;

- c) reduction of filtration area;
- d) hypoproteinemia;
- e) immune complexes deposition in the renal glomeruli.

52. Parameters characterizing impaired in renal tubular function are:

Variants of answer:

- a) decline in creatinine clearance;
- b) azotemia;
- c) hyposthenuria;
- d) renal glucosuria;
- e) renal acidaminuria.

53. Uremic stage of chronic renal failure is characterized by:

Variants of answer:

- a) azotemia;
- b) metabolic acidosis;
- c) decline in creatinine clearance;
- d) metabolic alkalosis;
- e) gastroenteritis;
- f) development of pleurisy and pericarditis.

54. Specify the reasons for renal forms of acute renal failure:

Variants of answer:

- a) violation of urine outflow;
- b) nephrotoxic effect of poisons;
- c) decrease in blood pressure;
- d) thrombosis and embolism of renal vessels;
- e) dehydration.

55. Which of the following disorders of homeostasis are characteristic for polyuric stage of acute renal failure:

Variants of answer:

- a) increasing azotemia;
- b) dehydration;
- c) hyponatremia;
- d) development of immunodeficiency;
- e) urea concentration less than 6.6 mmol / l.

56. Pathogenetic factors of renal nephrotic edema are:

Variants of answer:

- a) hypoproteinemia;
- b) activation of rennin-angiotensin-aldosterone system;
- c) hyperproteinemia;
- d) increase in hydrostatic pressure of blood;
- e) decrease in hydrostatic pressure of blood.

57. The extrarenal disorders in renal disease are:

Variants of answer:

- a) hyperazotemia;
- b) respiratory acidosis;
- c) electrolyte imbalance;
- d) violation of water balance;
- e) hyperproteinemia.

58. Oligoanuric stage of acute renal failure is characterized by:

Variants of answer:

- a) hypovolemia;
- b) hyperazotemia;
- c) edemas;
- d) arterial hypertension;
- e) respiratory acidosis.

59. Occurrence of osteoporosis in chronic renal failure is contributed to:

Variants of answer:

- a) hypocalcemia;
- b) hypoparathyroidism;
- c) violation of vitamin D metabolism;
- d) hyperparathyroidism;
- e) hyperkalemia.

**PATHOPHYSIOLOGY OF ENDOCRINE SYSTEM.
VIOLATION OF PITUITARY AND ADRENAL GLANDS.
PATHOPHYSIOLOGY OF THYROID,
PARATHYROID GLANDS, GONADS**

Indicate all correct answers

1. Transhypophyseal regulation is the basis for:

Variants of answer:

- a) thyroid gland;
- b) medulla of adrenal glands;
- c) cortex of adrenal glands;
- d) gonads;
- e) parathyroid glands.

2. Hyperproduction of somatotropic hormone increases:

Variants of answer:

- a) mobilization of fatty acids from adipose tissue;

- b) capture of amino acids by cells and protein biosynthesis;
- c) blood glucose level;
- d) triglyceride synthesis;
- e) protein catabolism.

3. Specify the hormones to which increased probability of antibody formation:

Variants of answer:

- a) cortisol;
- b) STH;
- c) ACTH;
- d) insulin.

4. Acromegaly is manifested by:

Variants of answer:

- a) hypoglycemia;
- b) hyperglycemia;
- c) reduced tolerance to carbohydrates;
- d) increased tolerance to carbohydrates;
- e) decreased sensitivity to insulin;
- f) increased sensitivity to insulin.

5. Specify the disorders of endocrine functions, which can be caused by a violation of central regulation of endocrine glands:

Variants of answer:

- a) formation of antibodies to certain hormones;
- b) genetic defects in hormones synthesis;
- c) lack of substrates for hormones synthesis;
- d) violation of binding hormone with transport protein;
- e) damage to hypothalamus;
- f) lesion of limbic brain structures;
- g) overdose of exogenous hormones;
- h) decreased expression of hormone receptors in target cells.

6. The production of ACTH by pituitary is increased in:

Variants of answer:

- a) congenital corticogenital syndrome;
- b) Cushing's disease;
- c) Cushing's syndrome;
- d) tumor of adrenal cortex.

7. Describe the violations of water-electrolyte metabolism in acute adrenal insufficiency:

Variants of answer:

- a) increase in intracellular sodium content and reducing the extracellular potassium content;

- b) reducing the intracellular sodium content and increase in extracellular potassium content;
- c) intracellular hyperhydration;
- d) intracellular dehydration.

8. Specify the disorders of endocrine functions, which can be caused by peripheral mechanisms of violation of hormone activity:

Variants of answer:

- a) formation of antibodies to certain hormones;
- b) genetic defects in hormones synthesis;
- c) lack of substrates for hormones synthesis;
- d) violation of binding hormone with transport protein;
- e) damage to hypothalamus;
- f) lesion of limbic brain structures;
- g) overdose of exogenous hormones;
- h) decreased expression of hormone receptors in target cells.

9. Mark the hormones formed in zona glomerulosa of adrenal cortex:

Variants of answer:

- a) androgens;
- b) cortisol;
- c) estrogens;
- d) aldosterone;
- e) corticosteron.

10. Pathology of central regulatory mechanisms of endocrine glands is included:

Variants of answer:

- a) disorders of metabolism and inactivation of hormones in tissues;
- b) changes of hormone receptors in target cells;
- c) violations of the feedback system («plusminus» or «minusplus» interaction);
- d) permissive hormone deficiency;
- e) trans and parahypophyseal mechanisms of regulatory disorders;
- f) violation of binding hormone with transport protein;
- g) imbalance of statins and liberins in hypothalamus.

11. Deficiency of somatotropin leads to the development:

Variants of answer:

- a) gigantism;
- b) adrenal insufficiency;
- c) hypothyroidism;
- d) pituitary dwarfism.

12. Specify the possible causes of hyperthyroidism:

Variants of answer:

- a) intensive conversion of T4 to T3 in targets cells;

- b) poor transport connections with blood proteins;
- c) appearance of thyroidstimulating immunoglobulins;
- d) increasing the number of receptors T3, T4;
- e) parathyroid adenoma;
- f) lack of thyroliberin;
- g) excess of TSH;
- h) prolonged excess of iodine.

13. In primary hypothyroidism occurs:

Variants of answer:

- a) reduction in blood triiodothyronine;
- b) reduction in thyroidstimulating hormone;
- c) increase in thyroidstimulating hormone;
- d) absence of increasing secretion of thyroid stimulating hormone in thyroliberin injection.

14. Specify the main effects of thyroid hormones (in physiological concentrations):

Variants of answer:

- a) increased protein anabolism;
- b) permissive action on catecholamines;
- c) increase in oxygen consumption of tissues;
- d) mobilization of fat from depots;
- e) intensification of glycogen synthesis;
- f) bradycardia;
- g) increased thermogenesis.

15. Specify the violations of metabolism that are characteristic for hypothyroidism:

Variants of answer:

- a) hypercholesterolemia;
- b) hypocholesterolemia;
- c) increase of glycogen content in liver;
- d) decrease of glycogen content in liver;
- e) decrease of phosphorylase activity;
- f) increase of phosphorylase activity;
- g) tendency to hypoglycemia and increased glucose tolerance;
- h) tendency to hyperglycemia and decreased glucose tolerance;
- i) hyperketonemia.

16. Clinical manifestations of hyperthyroidism are:

Variants of answer:

- a) obesity;
- b) weight loss;
- c) tachycardia;

- d) psychoemotional lability;
- e) panhypopituitarism.

17. For hyperparathyroidism most characteristic following laboratory parameters:

Variants of answer:

- a) decrease of potassium content in plasma;
- b) increase of calcium content in plasma;
- c) increase of sodium content in plasma;
- d) decrease of phosphate content in plasma.

18. The manifestations of panhypopituitarism include:

Variants of answer:

- a) hypothyroidism;
- b) hypogonadism;
- c) hypercorticoidism;
- d) cachexia;
- e) hyperthyroidism.

19. The most probable change in sensitivity of target cells to hormones during prolonged increasing their blood levels:

Variants of answer:

- a) increase;
- b) reduction;
- c) no changes.

20. Mark the hormones formed in zona reticularis of adrenal cortex:

Variants of answer:

- a) androgens;
- b) cortisol;
- c) estrogens;
- d) aldosterone;
- e) corticosteron.

21. Parahypophyseal regulation is the basis for:

Variants of answer:

- a) medulla of adrenal glands;
- b) cortex of adrenal glands;
- c) parathyroid glands;
- d) thyroid gland;
- e) Langerhans islets.

22. Following syndromes and diseases may be developed in lesion of adrenal cortex:

Variants of answer:

- a) Conn's syndrome;

- b) Addison's disease;
- c) Cushing's syndrome;
- d) adrenogenital syndrome;
- e) Simmond's disease;
- f) pheochromocytoma.

23. *Peripheral (outside glands) mechanisms of changes in hormones activity include:*

Variants of answer:

- a) inactivation and metabolic disorders of hormones in tissues;
- b) changes of hormone receptors in target cells;
- c) violations of the feedback system;
- d) permissive hormone deficiency;
- e) trans and parahypophyseal mechanisms of regulatory disorders;
- f) violation of binding hormone with transport protein;
- g) imbalance of statins and liberins in hypothalamus.

24. *Hypocortisolism occurs at:*

Variants of answer:

- a) glucocorticoid withdrawal syndrome;
- b) Addison's disease;
- c) Cushing's syndrome;
- d) panhypopituitarism;
- e) Cushing's disease.

25. *Total failure of anterior pituitary can be caused by:*

Variants of answer:

- a) tumor metastasis to pituitary gland or surrounding areas of brain;
- b) puerperal systemic circulatory disorders;
- c) deficiency of thyroid and adrenal hormones;
- d) deficiency of adrenal, ovarian and thyroid hormones;
- e) hemorrhage in pituitary tissue;
- f) encephalitis;
- g) prolonged overeating.

26. *Overproduction of ACTH leads to increased secretion of:*

Variants of answer:

- a) androgenic corticosteroids;
- b) noradrenaline;
- c) corticosteron;
- d) aldosterone;
- e) epinephrine;
- f) cortisol.

27. Production of which hormones is decreased in total hypofunction of anterior pituitary:

Variants of answer:

- a) follicle stimulating hormone (FSH);
- b) melanotropin (MSH);
- c) somatotropin;
- d) oxytocin;
- e) prolactin;
- f) thyrotropin;
- g) vasopressin.

28. Which of the following symptoms are characteristic for Cushing's disease/syndrome:

Variants of answer:

- a) upper body obesity;
- b) decrease in blood pressure;
- c) increase in blood pressure;
- d) pink purple striae on the abdomen;
- e) overall obesity;
- f) osteoporosis.

29. Violation of biosynthesis and secretion of hormones in hypofunction of endocrine gland develops as a result of:

Variants of answer:

- a) reduce the mass of gland parenchyma (atrophy, necrosis);
- b) reduce the mass of glandular epithelium (hypoplasia, hypotrophy);
- c) deficiency of enzyme systems and cofactor of hormones biosynthesis;
- d) activation of hormone biosynthesis enzyme;
- e) blockade of hormones deposition and secretion mechanisms.

30. Specify the main manifestations of hyperthyroidism:

Variants of answer:

- a) increase in basal metabolic rate;
- b) rise in body temperature;
- c) increased catabolism of protein and fat;
- d) hypercholesterolemia;
- e) hyperglycemia.

31. Exophthalmos is a characteristic feature of:

Variants of answer:

- a) hypothyroidism;
- b) hypogonadism;
- c) diabetes insipidus;
- d) hypercortisolism;
- e) hyperthyroidism.

32. Hyperparathyroidism is characterized by:

Variants of answer:

- a) osteoporosis;
- b) decreased sensitivity of renal tubules to ADH;
- c) polyuria;
- d) tetany;
- e) development of peptic duodenal ulcer.

33. Changes of cardiovascular system in thyrotoxicosis are characterized by:

Variants of answer:

- a) tachycardia;
- b) bradycardia;
- c) increase in systolic and decrease in diastolic blood pressure;
- d) decrease in systolic and increase in diastolic blood pressure;
- e) arrhythmias.

34. Hypercortisolism is the pathogenetic basis for:

Variants of answer:

- a) Addison's disease;
- b) Cushing's syndrome;
- c) panhypopituitarism;
- d) Conn's syndrome;
- e) myxedema.

35. Manifestations of panhypopituitarism are:

Variants of answer:

- a) hypothyroidism;
- b) hypogonadism;
- c) hypercorticism;
- d) cachexia;
- e) hyperthyroidism.

36. Specify the main manifestations of Simmonds' disease:

Variants of answer:

- a) atrophy of thyroid, adrenal and sex glands, muscles;
- b) hypertrophy of thyroid, adrenal and sex glands, muscles;
- c) increase in basal metabolic rate;
- d) decrease in basal metabolic rate;
- e) hypothermia;
- f) hyperthermia.

37. Overproduction of glucocorticoids leads to the following changes in the peripheral blood:

Variants of answer:

- a) eosinopenia;
- b) eosinophilia;

- c) lymphopenia;
- d) lymphocytosis;
- e) neutropenia;
- f) neutrophilia.

38. The patient, 30 years old, went to a doctor complaining to increasing fingers, nose, lips. Over the last year twice changed shoe size to a larger. These changes are most probably caused by excessive production of:

Variants of answer:

- a) corticoliberin;
- b) ACTH;
- c) somatotropin;
- d) thyrotropin.

39. Chronic adrenal insufficiency may be a result of:

Variants of answer:

- a) excessive secretion of corticoliberin by hypothalamus;
- b) reduced ACTH production by adenohypophysis;
- c) autoimmune lesions of adrenal cortex;
- d) presence of antibodies to ACTH receptors;
- e) prolonged use of glucocorticoid drugs.

40. Partial anterior pituitary hyperfunction can lead to the next violations:

Variants of answer:

- a) early puberty;
- b) eunuchoidism;
- c) Cushing's disease;
- d) diabetes mellitus type I;
- e) dwarfism;
- f) primary hyperthyroidism.

41. Tendency to infection in hypercortisolism is due to:

Variants of answer:

- a) development of acquired immunodeficiency;
- b) decrease in phagocytosis;
- c) development of alkalosis;
- d) formation of hypernatremia.

42. Specify the changes in the production of hormones during pituitary dwarfism:

Variants of answer:

- a) increased STH synthesis;
- b) decreased STH synthesis;
- c) decreased TTH synthesis.

43. After sudden cancellation of longterm therapy with corticosteroids occurs deficiency of following hormones:

Variants of answer:

- a) parathyroid hormone;
- b) cortisol;
- c) epinephrine;
- d) noradrenaline;
- e) ACTH;
- f) aldosterone;
- g) ADH.

44. Specify the main effects of oxytocin action on uterine smooth muscles and myoepithelial cells of mammary glands:

Variants of answer:

- a) increased permeability of cell membranes to potassium and decreased excitability threshold of muscle fibers;
- b) decreased permeability of cell membranes to potassium and increased excitability threshold of muscle fibers;
- c) decrease in cholinesterase activity that promotes longer action of acetylcholine;
- d) increase in cholinesterase activity that promotes longer action of acetylcholine.

45. Production of which hormones is decreases in hypofunction of adrenal cortex:

Variants of answer:

- a) deoxycorticosterone;
- b) somatostatin;
- c) androgens;
- d) noradrenaline;
- e) aldosterone;
- f) vasopressin;
- g) cortisol;
- h) adrenaline.

46. Specify the violations of carbohydrate metabolism that are characteristic for hyperthyroidism:

Variants of answer:

- a) increase in utilization of glucose by tissues;
- b) increase in hexokinase activity;
- c) increase in glycogen content in liver;
- d) decrease in glycogen content in liver;
- e) inhibition of transition of carbohydrates into fat;
- f) intensification of transition of carbohydrates into fat;
- g) increase in basal metabolic rate;
- h) decrease in basal metabolic rate.

47. Mechanisms of increasing blood calcium in hyperparathyroidism are:

Variants of answer:

- a) increase of calcium reabsorption in kidney;
- b) increased synthesis of vitamin D3 active form and intensification of calcium absorption from intestine;
- c) activation of osteoclasts and intensification of calcium resorption from bones;
- d) increased urinary excretion of phosphate.

48. Hypothyroidism in children may be manifest by:

Variants of answer:

- a) mental retardation;
- b) severe emaciation;
- c) weakening of muscle tone;
- d) weakening immunity;
- e) hypocholesterolemia;
- f) retarded growth.

49. Hypoparathyroidism occurs at:

Variants of answer:

- a) errors in strumectomy;
- b) panhypopituitarism;
- c) chronic renal failure;
- d) excessive calcitonin secretion;
- e) Cushing's syndrome (hypercortisolism).

50. Hypothyroidism lay in basis of next diseases:

Variants of answer:

- a) endemic cretinism;
- b) sporadic cretinism;
- c) Cushing's disease;
- d) diabetes insipidus;
- e) Addison's disease;
- f) myxedema;
- g) eunuchoidism;
- h) acromegaly.

51. Primary aldosteronism occurs at:

Variants of answer:

- a) tumors of adrenal medulla;
- b) tumors of zona reticularis of adrenal cortex;
- c) increase in aldosterone secretion under the influence of angiotensin;
- d) tumors of zona glomerulosa of adrenal cortex;
- e) liver diseases.

52. Etiological factors of diabetes insipidus are:

Variants of answer:

- a) genetically determined overproduction of oxytocin;
- b) traumatic, neoplastic, infectious origin damage to front hypothalamic nuclei;
- c) hereditary inability to produce vasopressin;
- d) congenital or acquired resistance of kidney to ADH;
- e) reduction of aldosterone secretion.

53. Specify which manifestations are typical for Addison's disease:

Variants of answer:

- a) adynamia, asthenia;
- b) high levels of 17ketosteroids in urine;
- c) skin hyperpigmentation;
- d) cellular dehydration;
- e) hypotension;
- f) hyperglycemia;
- g) hypovolemia;
- h) polyuria.

54. Pituitary dwarfism (dwarfism) is manifested by:

Variants of answer:

- a) intellectual impairment;
- b) decreased STH in blood;
- c) decreased somatomedins in blood;
- d) wrinkled, «senile» skin.

55. Reduction of blood pressure in corticosteroid insufficiency is caused by:

Variants of answer:

- a) decrease in circulating blood volume;
- b) increase in circulating blood volume;
- c) bradycardia;
- d) tachycardia;
- e) weakening vasoconstrictor action of catecholamines;
- f) increased vasoconstrictor action of catecholamines.

56. Specify how change the production of hormones in acromegaly:

Variants of answer:

- a) increased STH synthesis;
- b) decreased STH synthesis;
- c) decreased TTH synthesis.

57. Specify the mechanisms of antiinflammatory action of glucocorticoids:

Variants of answer:

- a) decrease in histidine decarboxylase activity;
- b) increase in histidine decarboxylase activity;

- c) decrease in histaminase activity;
- d) increase in histaminase activity;
- e) decrease in phospholipase A2 activity;
- f) increase in phospholipase A2 activity;
- g) decrease in hyaluronidase activity;
- h) increase in hyaluronidase activity.

58. Eosinophilic pituitary adenoma arising in childhood is manifested by:

Variants of answer:

- a) increase STH level in blood;
- b) hyperglycemia;
- c) acromegaly;
- d) tendency to diabetes mellitus;
- e) negative nitrogen balance;
- f) positive nitrogen balance;
- g) gigantism.

59. Specify the factors that contribute to development of hypoglycemia in insufficient production of glucocorticoids:

Variants of answer:

- a) inhibition of gluconeogenesis;
- b) increased gluconeogenesis;
- c) inhibition of glucose absorption in intestine due to violation of ratio between sodium and potassium ions.

60. Partial anterior pituitary hypofunction can be manifested by following violations:

Variants of answer:

- a) arterial hypotension;
- b) hyperglycemia;
- c) hypoglycaemia;
- d) dwarfism;
- e) myxedema;
- f) hypogonadism.

61. The cause of secondary aldosteronism is:

Variants of answer:

- a) tumors of adrenal medulla;
- b) tumors of zona reticularis of adrenal cortex;
- c) increase in aldosterone secretion under the influence of angiotensin;
- d) tumors of zona fasciculata of adrenal cortex;
- e) tumors of zona glomerulosa of adrenal cortex.

62. Mark the hormones formed in zona fasciculata of adrenal cortex:

Variants of answer:

- a) androgens;

- b) cortisol;
- c) estrogens;
- d) aldosterone;
- e) corticosteron.

63. Specify the signs characteristic for acute total adrenal insufficiency:

Variants of answer:

- a) increased tone of skeletal muscle;
- b) arterial hypotension;
- c) decrease in circulating blood volume;
- d) hyponatremia;
- e) hyperkalemia;
- f) bradycardia;
- g) hypoglycaemia.

64. Specify the possible causes of hypothyroid conditions:

Variants of answer:

- a) blockade iodine capture and its bounding with tyrosine;
- b) congenital deficiency of peroxidase;
- c) iodine deficiency in food and water;
- d) immunoglobulin deficiency;
- e) deficiency of receptors T3, T4;
- f) autoimmune thyroiditis;
- g) excess of thyroliberin.

65. Thymicolymphatic condition is characterized:

Variants of answer:

- a) thymal hyperplasia;
- b) thymal hypoplasia;
- c) hyperplasia of lymph nodes;
- d) hypoplasia of lymph nodes;
- e) weakening body's defenses;
- f) increase in body's defenses;
- g) hypoplasia of adrenal cortex;
- h) hyperplasia of adrenal cortex.

66. Specify the violations of protein metabolism that are characteristic of hyperthyroidism:

Variants of answer:

- a) intensification of protein catabolism;
 - b) intensification of protein anabolism;
 - c) negative nitrogen balance;
 - d) increasing ammonium formation;
 - e) decrease in residual nitrogen in blood.
- 67. Specify the etiological factors**

for diabetes mellitus type 1:

Variants of answer:

- a) viral infection;
- b) decreased number of insulin receptors;
- c) genetic predisposition;
- d) overeating, accompanied by obesity;
- e) destruction of β cells by autoimmune mechanisms;
- f) decrease in sensitivity of peripheral tissues to insulin.

68. The hypothyroidism is characterized by:

Variants of answer:

- a) presence of goiter;
- b) myxedema;
- c) exophthalmos;
- d) hypothermia;
- e) bradycardia.

69. Diabetes mellitus type 2 is characterized by:

Variants of answer:

- a) occurrence of disease in middle and older age;
- b) increased tendency to ketoacidosis;
- c) significant decrease in insulin levels or absent in blood;
- d) presence of antibodies to the β -cells.

70. Hypothyroidism manifestations are:

Variants of answer:

- a) decrease in mental performance;
- b) weight loss;
- c) drowsiness;
- d) tachycardia;
- e) decrease in temperature.

71. Specify the main manifestations of pituitary dwarfism:

Variants of answer:

- a) decrease in protein synthesis, retardation of growth and development;
- b) increase in protein synthesis, intensification of growth and development;
- c) tendency to hypotension;
- d) tendency to hypertension;
- e) hypoglycemia;
- f) hyperglycemia;
- g) tendency to obesity;
- h) tendency to develop fat depletion.

72. Specify the manifestations that are characteristic for Conn's syndrome:

Variants of answer:

- a) increase in blood pressure;

- b) hyperglycemia, aggravated by excitement;
- c) hypernatremia and hypokalemia;
- d) tachycardia;
- e) hypochloremic alkalosis;
- f) decreased muscle tone until recurrent paralysis;
- g) thirst and polyuria.

73. Specify the main manifestations for diabetes insipidus:

Variants of answer:

- a) polyuria;
- b) constant thirst;
- c) dehydration;
- d) water retention;
- e) low density of urine;
- f) hypotension.

74. Mark the cases with increased secretion of aldosterone:

Variants of answer:

- a) decrease in circulating blood volume;
- b) increase in circulating blood volume;
- c) hyponatremia and hyperkalemia;
- d) hypernatremia and hypokalemia;
- e) increased activity of rennin-angiotensin system;
- f) decreased activity of rennin-angiotensin system.

75. Specify the main manifestations for Simmonds disease:

Variants of answer:

- a) hypotension;
- b) hypertension;
- c) hypoglycemia;
- d) hyperglycemia;
- e) decrease in resistance of organism;
- f) increase in resistance of organism.

76. Specify the disorders of endocrine functions, which can be caused by pathological processes in the gland:

Variants of answer:

- a) formation of antibodies to certain hormones;
- b) genetic defects in hormones synthesis;
- c) lack of substrates for hormones synthesis;
- d) violation of binding hormone with transport protein;
- e) damage to hypothalamus;
- f) lesion of limbic brain structures;
- g) overdose of exogenous hormones;
- h) decreased expression of hormone receptors in target cells.

77. Specify the change in production of hormones during gigantism:

Variants of answer:

- a) increased STH synthesis;
- b) decreased STH synthesis;
- c) decreased TTH synthesis.

78. Cause of primary aldosteronism (Conn's syndrome) is:

Variants of answer:

- a) tumors of adrenal medulla;
- b) tumors of zona reticularis of adrenal cortex;
- c) increase in aldosterone secretion under the influence of angiotensin;
- d) tumors of zona fasciculata of adrenal cortex;
- e) tumors of zona glomerulosa of adrenal cortex.

79. Eosinophilic pituitary adenoma arising in adult is characterized by following manifestations:

Variants of answer:

- a) increase STH level in blood;
- b) hyperglycemia;
- c) acromegaly;
- d) tendency to diabetes mellitus;
- e) negative nitrogen balance;
- f) positive nitrogen balance;
- g) gigantism.

80. Specify the changes in peripheral blood that are typical for Addison's disease:

Variants of answer:

- a) eosinophilia;
- b) eosinopenia;
- c) relative lymphocytosis;
- d) neutrophilia;
- e) neutropenia.

81. Manifestations of hormonally active tumors of the adenohypophysis are:

Variants of answer:

- a) acromegaly;
- b) gigantism;
- c) hypercorticism;
- d) secondary aldosteronism;
- e) primary aldosteronism (Conn's syndrome).

82. Features of secondary aldosteronism, compared with primary are:

Variants of answer:

- a) high levels of aldosterone in blood plasma;
- b) hypertension;

- c) hypernatremia;
- d) high levels of rennin and angiotensin in blood plasma;
- e) edemas.

83. Specify the signs that are characteristic for marked hypothyroidism of adults:

Variants of answer:

- a) sweating;
- b) obesity;
- c) tachycardia;
- d) bradycardia;
- e) skin dryness.

84. Tetany may develop in:

Variants of answer:

- a) normocalcaemia;
- b) hypercalcemia;
- c) hypocalcemia;
- d) decrease in blood pH.

85. Hypothyroidism manifestations are:

Variants of answer:

- a) decrease in mental performance;
- b) exophthalmos;
- c) decrease in temperature;
- d) tachycardia;
- e) drowsiness.

86. Hyperglycemia in insulin deficiency is due to:

Variants of answer:

- a) decrease in utilization of glucose by tissues;
- b) increasing hepatic glucose production;
- c) increasing muscular glucose production;
- d) all of the above factors.

87. At thyroid hormone deficiency occurs:

Variants of answer:

- a) decrease in basal metabolic rate;
- b) inhibition of protein synthesis;
- c) increase in level of acidic glycosaminoglycans (hyaluronic, chondroitin sulfuric acid) in skin, connective tissue;
- d) hypocholesterolemia.

88. Specify the etiological factors for diabetes mellitus type 2:

Variants of answer:

- a) viral infection;

- b) decreased number of insulin receptors;
- c) genetic predisposition;
- d) overeating, accompanied by obesity;
- e) destruction of β -cells by autoimmune mechanisms;
- f) decrease in sensitivity of peripheral tissues to insulin.

89. Endocrine hypertension is develops at:

Variants of answer:

- a) pheochromocytoma;
- b) removing kidneys;
- c) traumatic brain injury;
- d) climax;
- e) thyrotoxicosis.

90. Hypogonadism in men is manifested by:

Variants of answer:

- a) obesity;
- b) increasing length of limbs;
- c) tachycardia;
- d) increase in voice timbre;
- e) hyperthermia.

**PATHOPHYSIOLOGY OF NERVOUS SYSTEM.
TYPICAL PATHOLOGICAL PROCESS.
PATHOLOGY OF NEURONS. PATHOPHYSIOLOGY
OF HIGHER NERVOUS ACTIVITY. NEUROSIS**

Indicate all correct answers

1. Specify the neurotropic viruses and bacterial toxins:

Variants of answer:

- a) streptococcal exotoxin;
- b) tetanotoxin;
- c) diphtherin;
- d) botulinum toxin;
- e) herpes virus;
- f) poliovirus;
- g) rabies virus.

2. The main reason for Wallerian degeneration of the distal segment of transected peripheral axon is:

Variants of answer:

- a) blockade of nerve impulses;

- b) circulatory disorders of nerve;
- c) Schwann cell death;
- d) violation of axoplasmatic current.

3. Neurotropic toxic effects have:

Variants of answer:

- a) aldosterone;
- b) mercury compounds;
- c) lead compounds;
- d) magnesium compounds;
- e) alcohol;
- f) narcotics;
- g) adenosine;
- h) strychnine.

4. Traumatic interruption of axons of lower motor neurons is accompanied by:

Variants of answer:

- a) Wallerian degeneration of distal axon segment;
- b) retrograde degeneration of motor neurons;
- c) degenerative changes in the higher motor neurons;
- d) atrophy of corresponding muscles.

5. Franked denervation syndrome develops as a result of:

Variants of answer:

- a) dissociation of central autonomic nervous system and peripheral neurons;
- b) partial decortication;
- c) dissociation of nervous system with organs and tissues;
- d) dissociation of cerebral cortex with subcortical centers.

6. Peripheral neuropathy is characterized by:

Variants of answer:

- a) loss of reflex and voluntary movements;
- b) weakening of muscle tone;
- c) muscle atrophy;
- d) appearance of sarcoplasmic enzymes in blood;
- e) appearance of spontaneous electrical activity in muscles.

7. Central paralysis typically manifested by:

Variants of answer:

- a) maintenance of voluntary movements;
- b) lose of voluntary movements;
- c) increased tendon reflexes;
- d) absent of tendon reflexes;
- e) appearance of pathological reflexes;
- f) muscle atrophy;
- g) increase in muscle tone.

8. The following symptoms, which associated with death of higher motoneurons, are positive:

Variants of answer:

- a) depletion or loss of voluntary movement;
- b) muscular weakness;
- c) appearance of pathological reflexes;
- d) increased tendon reflexes.

9. The sympathicotonia is characterized by:

Variants of answer:

- a) increase in blood pressure;
- b) decrease in blood pressure;
- c) ergotropic effect;
- d) trophotropic effect;
- e) paralysis.

10. Loss of functions of nervous system can occur in:

Variants of answer:

- a) significant damage to nerve centers;
- b) insignificant damage to nerve centers;
- c) deep inhibition of nerve centers;
- d) superficial inhibition of nerve centers;
- e) epileptic fit.

11. Specify the changes in a nerve after violation of its integrity:

Variants of answer:

- a) peripheral part of it regenerates;
- b) proximal part of it regenerates;
- c) distal part of it degenerates;
- d) proximal part of it degenerates.

12. The most frequent cause of monoparesis that caused by death of higher motor neurons in humans is:

Variants of answer:

- a) damage to cerebral cortex;
- b) hemorrhage into internal capsule;
- c) damage to pyramidal tract at medulla oblongata level;
- d) damage to pyramidal tract at spinal cord level.

13. In contrast to physiological, the pathological pain is characterized by:

Variants of answer:

- a) appearance at damage, excessive irritation or destruction of nerves and /or receptor;
- b) appearance at damage or irritation of thalamic areas of NS;
- c) reduced resistance of organism to pathogenic influences;

- d) usually transient nature;
- e) usually continuous sensation of it;
- f) usually precise local sensation;
- g) usually spilled or radiates character.

14. The algescic agents are:

Variants of answer:

- a) potassium ions;
- b) sodium ions;
- c) chlorine ions;
- d) serotonin;
- e) bradykinin;
- f) histamine.

15. The most frequent cause of hemiparesis in humans is:

Variants of answer:

- a) damage to cerebral cortex;
- b) hemorrhage into internal capsule;
- c) damage to pyramidal tract at medulla oblongata level;
- d) damage to pyramidal tract at spinal cord level.

16. Specify which clinical manifestations correspond to pyramidal hyperkinesis:

Variants of answer:

- a) chorea;
- b) clonic seizures;
- c) athetosis;
- d) clonic seizures;
- e) tremor;
- f) fibrillation of muscles.

17. Specify the movement disorders that characterize damage of cerebellum:

Variants of answer:

- a) asynergia;
- b) hypermetric;
- c) hypometria;
- d) shaking muscle tremor at rest;
- e) disidiadochokinesia (inability to make rapid alternating reciprocating motion);
- f) weakening of muscle tone.

18. Name the characteristic manifestations of neurosis:

Variants of answer:

- a) pathomorphological changes in cerebral cortex;
- b) locomotor and sensory disturbances;
- c) neurotrophic disorders;

- d) disorders of autonomic functions;
- e) peripheral paralysis;
- f) phase states.

19. Tetanus toxin has the following properties:

Variants of answer:

- a) penetrates into central nervous system, moving along the trunks of peripheral nerves;
- b) depresses the processes of central inhibition;
- c) increases the excitability of central neurons;
- d) increases the excitability of skeletal muscle;
- e) causes convulsive muscle contractions.

20. Specify which clinical manifestations correspond to extrapyramidal hyperkinesia:

Variants of answer:

- a) chorea;
- b) clonic seizures;
- c) athetosis;
- d) clonic seizures;
- e) tremor;
- f) fibrillation of muscles.

21. Primary deficit of inhibition or disinhibition develops due to:

Variants of answer:

- a) overstimulation of nervous system;
- b) violations of structure and function of inhibitory synapses;
- c) violations of structure and function of excitatory synapses;
- d) violations of synthesis of inhibitory mediators;
- e) deficiency of descending inhibitory effects at destruction of nervous system areas.

22. Which of the following spinal cord injuries lead to predominance loss of pain and temperature sensitivity:

Variants of answer:

- a) dorsal columns;
- b) dorsolateral parts of lateral columns;
- c) ventrolateral parts of lateral columns;
- d) ventral columns.

23. The following symptoms, which associated with death of higher motoneurons, are negative:

Variants of answer:

- a) depletion or loss of voluntary movement;
- b) muscular weakness;

- c) appearance of pathological reflexes;
- d) increased tendon reflexes.

24. *Botulinum intoxication is characterized by:*

Variants of answer:

- a) muscular weakness;
- b) intestinal paresis;
- c) presence of antibodies to acetylcholine receptor;
- d) decrease in release of acetylcholine from motor nerve endings.

25. *Pain impulses are conducted by following types of peripheral nerve fibers:*

Variants of answer:

- a) fiber Aalpha;
- b) fiber Abeta;
- c) fiber Agamma;
- d) fiber Adelta;
- e) fiber group C.

26. *Spinal shock is characterized by:*

Variants of answer:

- a) irreversible loss of reflexes;
- b) reversible loss of reflexes;
- c) violation of reflexes above the interruption of brain;
- d) deficiency of activating influences;
- e) activation of inhibitory effects by brain.

27. *Cerebellar damage may be accompanied by:*

Variants of answer:

- a) muscular asthenia;
- b) acholia;
- c) ataxia;
- d) astasia;
- e) hyperkinesia;
- f) aphasia.

28. *The hypokinesia include:*

Variants of answer:

- a) clonic seizures;
- b) paresis;
- c) triplegiya;
- d) paralysis;
- e) chorea.

29. *Specify which clinical manifestations correspond to spinal cord hyperkinesia:*

Variants of answer:

- a) chorea;

- b) clonic seizures;
- c) athetosis;
- d) clonic seizures;
- e) tremor;
- f) fibrillation of muscles.

30. Violations in brain stem accompanied by:

Variants of answer:

- a) clonic seizures;
- b) tonic seizures;
- c) chorea;
- d) tremor;
- e) sensitive ataxia.

31. Neurosis by pathogenesis can be directly linked with following diseases:

Variants of answer:

- a) stomach ulcer;
- b) Cushing's disease;
- c) diffuse glomerulonephritis;
- d) hypotension;
- e) hepatitis;
- f) arterial hypertension.

32. Violations in extrapyramidal system are accompanied by:

Variants of answer:

- a) clonic seizures;
- b) tonic seizures;
- c) chorea;
- d) tremor;
- e) sensitive ataxia.

33. Central paralysis is characterized by:

Variants of answer:

- a) loss of voluntary movements;
- b) absence of reflexes;
- c) increase of muscle tone;
- d) muscle atonia;
- e) increased tendon reflexes;
- f) muscle dystrophy and atrophy;
- g) absence of muscle atrophy;
- h) change in electroexcitability of muscles;
- i) decreased skin reflexes;
- j) change in muscle sensitivity to mediators and poisons;
- k) appearance of pathological reflexes.

34. Disturbances in motor cortex of brain are accompanied by:

Variants of answer:

- a) clonic seizures;
- b) tonic seizures;
- c) chorea;
- d) tremor;
- e) sensitive ataxia.

35. After transection of lateral half of spinal cord disappears following types of sensitivity on the side of transection:

Variants of answer:

- a) pain;
- b) temperature;
- c) tactile;
- d) proprioceptive.

36. The damage of one dorsal root of spinal cord is characterized by impaired sensitivity:

Variants of answer:

- a) segmental type;
- b) segmental type with maintaining deep sensitivity;
- c) distal type;
- d) in affected side;
- e) in opposite side.

37. Mediators of antinociceptive system are:

Variants of answer:

- a) metenkephalin;
- b) leukenkephalin;
- c) endorphins;
- d) dynorphin;
- e) substance P;
- f) serotonin.

38. The denervated structures is characterized by:

Variants of answer:

- a) loss of function;
- b) violation of trophism;
- c) decrease in sensitivity to BAS and mediators in blood;
- d) increase in sensitivity to BAS and mediators in blood.

39. The zone of primary hyperalgesia on skin is characterized by following signs:

Variants of answer:

- a) detected in area of hyperemia;

- b) detected outside area of hyperemia;
- c) associated with increased excitability of nociceptors;
- d) excitability of nociceptors is not changed;
- e) associated with increased excitability of secondary nociceptor neurons.

40. In which cases fall out all types of sensitivity:

Variants of answer:

- a) full transverse spinal cord injury;
- b) half lateral spinal cord injury;
- c) injury of peripheral nerve trunk;
- d) pathological processes in thalamus area;
- e) cells damage of posterior horns of spinal cord;
- f) injury of posterior columns of spinal cord.

41. The zone of secondary hyperalgesia on skin is characterized by following signs:

Variants of answer:

- a) detected in area of hyperemia;
- b) detected outside area of hyperemia;
- c) associated with increased excitability of nociceptors;
- d) excitability of nociceptors is not changed;
- e) associated with increased excitability of secondary nociceptor neurons.

42. The hyperkinesia include:

Variants of answer:

- a) clonic seizures;
- b) paresis;
- c) triplegiya;
- d) paralysis;
- e) chorea.

43. Parkinson's disease (syndrome) is characterized by following signs:

Variants of answer:

- a) tremor of skeleton muscles at rest;
- b) increase in tone of skeleton muscles;
- c) death in significant part of substantia nigra neurons of brain;
- d) elevated levels of dopamine in striatum;
- e) relief of symptoms after systemic administration of LDOPA.

44. Interruption of fibers conducting deep sensitivity, is accompanied by:

Variants of answer:

- a) clonic seizures;
- b) tonic seizures;
- c) chorea;
- d) tremor;
- e) sensitive ataxia.

45. At myasthenia gravis can be detected:

Variants of answer:

- a) appearance of antibodies to acetylcholine receptor;
- b) tumor of thymus;
- c) increased muscle fatigue;
- d) decrease in number of acetylcholine receptors at neuromuscular connection;
- e) excessive accumulation of acetylcholine in synaptic cleft.

46. Damage of sensitive fibers of peripheral nerves is characterized by disturbance of sensitivity at:

Variants of answer:

- a) segmental type;
- b) segmental type with maintaining deep sensitivity;
- c) distal type;
- d) in affected side;
- e) in opposite side.

47. Peripheral paralysis is characterized by:

Variants of answer:

- a) lose of voluntary movements;
- b) absence of reflexes;
- c) increase of muscle tone;
- d) muscle atonia;
- e) increased tendon reflexes;
- f) muscle dystrophy and atrophy;
- g) absence of muscle atrophy;
- h) change in electroexcitability of muscles;
- i) decreased skin reflexes;
- j) change in muscle sensitivity to mediators and poisons;
- k) appearance of pathological reflexes.

48. Violations in subcortical centers of motor analyzer are accompanied by:

Variants of answer:

- a) clonic seizures;
- b) tonic seizures;
- c) chorea;
- d) tremor;
- e) sensitive ataxia.

49. Physiological pain is characterized by:

Variants of answer:

- a) inadequate to action;
- b) adequate to strength and character of action;
- c) disorganize the body;
- d) mobilizes protective-adaptive reactions;

- e) lasting;
- f) stops at elimination of stimulus;
- g) occurs without pathogenic stimulus.

50. Analgesia is caused stimulation of following brain parts:

Variants of answer:

- a) dorsal columns of spinal cord;
- b) periaqueductal grey matter;
- c) raphe nuclei of medulla oblongata;
- d) somatosensory cortical areas.

51. Parkinson's disease (syndrome) is characterized by:

Variants of answer:

- a) rhythmic muscle tremor at rest;
- b) elevated levels of dopamine in striatum;
- c) increase in muscle tone;
- d) difficulty of voluntary motion;
- e) degeneration of nigrostriatal neurons.

52. The damage of dorsal root of first segment of spinal cord is characterized by impaired sensitivity at:

Variants of answer:

- a) segmental type;
- b) segmental type with maintaining deep sensitivity;
- c) distal type;
- d) in affected side;
- e) in opposite side.

53. Which disease is characterized by the following triad of symptoms: muscle tremor at rest, increased muscle tone (rigidity), difficulty in performing voluntary movements:

Variants of answer:

- a) Parkinson's disease;
- b) Alzheimer disease;
- c) epilepsy;
- d) damage to cerebellum;
- e) damage to motor cerebral cortex.

54. Lesion in half of the spinal cord (Brown Sequard syndrome) is characterized by:

Variants of answer:

- a) violation of deep sensitivity only;
- b) violation of surface sensitivity only;
- c) violation of deep sensitivity on affected side only;
- d) violation of sensitivity on opposite side only;
- e) violation of surface sensitivity on opposite side only.

55. Segmental disorders of autonomic nervous system are observed in lesions of:

Variants of answer:

- a) spinal cord;
- b) nerve plexuses and nodes;
- c) reticular formation;
- d) hypothalamus;
- e) cortex.

56. Violation of acetylcholine releasing from motor nerve endings cause the following myasthenic syndromes:

Variants of answer:

- a) botulinum toxin poisoning;
- b) Eaton Lambert syndrome;
- c) myasthenia gravis;
- d) hypocalcemia.

57. Peripheral paralysis is characterised by:

Variants of answer:

- a) increased spinal reflexes;
- b) appearance of pathological reflexes;
- c) muscle hypotrophy;
- d) muscular hypotonia;
- e) muscle hypertonicity;
- f) hypoareflexia.

58. Suprasegmental disorders of autonomic nervous system are observed in lesions of:

Variants of answer:

- a) spinal cord;
- b) nerve plexuses and nodes;
- c) reticular formation;
- d) hypothalamus;
- e) cortex.

59. Violation of energy metabolism in nervous tissue may be due to:

Variants of answer:

- a) brain hypoxia;
- b) hypoglycemia due to insulin overdose;
- c) insufficient intake of glucose by brain tissue as a result of reducing the permeability of histogematogenous barrier for it;
- d) Vitamin B12 deficiency;
- e) nicotinic acid deficiency.

60. Alzheimer's disease is characterized by:

Variants of answer:

- a) appearance of fibrillary tangles inside brain neurons;
- b) amyloid accumulation around the brain vessels;
- c) decrease in acetylcholine content in cerebral cortex and hippocampus;
- d) decrease in glutamic acid content in brain.

61. The vagotonia is characterized by:

Variants of answer:

- a) increase in blood pressure;
- b) decrease in blood pressure;
- c) ergotropic effect;
- d) trophotropic effect;
- e) paralysis.

62. Pathological pain is characterised by:

Variants of answer:

- a) inadequate to action;
- b) adequate to strength and character of action;
- c) disorganize the body;
- d) mobilizes protective adaptive reactions;
- e) lasting;
- f) stops at elimination of stimulus;
- g) occurs without pathogenic stimulus.

63. To eliminate the pain associated with pelvic injury may be employed:

Variants of answer:

- a) transection of dorsolateral tracts of lateral columns of spinal cord;
- b) transection of ventrolateral tracts of lateral columns of spinal cord;
- c) irritation of the periaqueductal grey matter;
- d) irritation of raphe nuclei of medulla oblongata;
- e) injection of morphine.

STANDARD OF ANSWERS TO THE TEST TASKS

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
PATHOPHYSIOLOGY OF CARDIOVASCULAR SYSTEM. PATHOLOGY OF HEART FUNCTION							
1	a, b, d, e	14	b, d, e	27	a	40	a, c, d, f
2	a, c, e	15	a, d, e	28	b	41	b, c, f
3	d	16	c, d	29	b, c	42	a, d, e, f
4	b, c, e	17	b, c, f	30	a, b, c, d, e	43	a, c, e
5	a, d, e, h	18	a, c	31	a, d, e	44	b, c
6	a, c, d	19	b	32	b, e	45	b, c, d
7	b, c, d	20	a, b, d, e	33	c	46	c, d
8	a	21	a, b, d, f	34	a, b, d, e	47	b, c, d, e
9	a, b, c, d	22	a, b, c	35	b, d, f	48	e
10	a	23	a, b, d	36	b	49	a, c, d
11	a	24	a, b, c, d	37	b, c	50	c
12	a, c, d, e	25	a, c, d	38	a, b, d		
13	b, c, e, f	26	a, b, c, e	39	a, b, d, f		
PATHOPHYSIOLOGY OF CARDIOVASCULAR SYSTEM. VASCULAR DISORDERS							
1	b, c	13	a, c	25	d	37	a
2	a, b, c	14	a, b, c, e, h	26	a, d, f	38	a, b, e
3	b, c, e, g	15	b, c, e	27	a, c, e	39	a, b, c, f, g
4	a, c, e, f	16	b, c	28	b, d, e, g, h	40	a
5	a, b, d, e	17	b, c	29	a, b, c, d, e	41	b
6	a	18	a, b, c, d	30	a, c, d, e	42	a, b
7	a, d, e	19	a, b, d, e	31	b, c, d	43	c
8	a, c	20	b, d, g, h, i	32	a, b	44	a
9	b, c, e, f, g	21	a, c, f, g, h	33	a, c, e, g	45	e
10	c, e, f, h	22	b, d, f	34	b, d, f	46	b, f
11	c, d, e	23	b, c, d, f	35	a, b, d, e, g	47	b, g
12	b, d, e	24	b, c, d, f	36	a, b, d	48	a
CARDIAC ARRHYTHMIA							
1	a, c, d, e, g	14	b, c, d, f, g, h, i	27	a, c, e, f, g, h, j	40	a, c, d
2	b, c, f	15	a, c, d, e	28	a, c, d, e	41	a, d, g
3	a, b, c	16	a, b, c, d	29	a, b, c	42	a
4	b, c, d	17	a, d, f	30	a, b, d	43	a, c, f
5	a, b, e	18	a, c, d, f	31	d	44	a, b, c, d
6	a	19	c	32	b, c, d, f, g	45	a, b, c, f
7	b, c	20	a, b, c, d	33	a, b, c, d	46	a, c, d
8	a, b, d, f	21	b, e, g	34	a, c, f	47	b, c, d
9	b	22	a, c, d	35	b	48	b
10	a, b, c, e, f	23	a, b, c	36	c, d	49	a, b, d, e
11	a, b, d	24	a, b, e	37	a, c	50	a, b, c
12	a, b, c, e	25	a, d	38	a, b, c, e		
13	b, c, e	26	a, b, c	39	a, b, c, e		

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
PATHOPHYSIOLOGY OF EXTERNAL RESPIRATION							
1	c	18	c	35	a	52	e
2	e	19	e	36	d	53	a
3	c	20	d	37	d	54	e
4	c	21	a	38	c	55	c
5	d	22	c	39	a	56	b, c
6	c, d	23	d	40	d	57	c, d
7	c	24	a	41	d	58	d
8	a	25	f	42	a	59	c
9	f	26	b	43	b	60	c
10	b	27	a	44	d	61	e
11	e	28	c	45	d	62	d
12	b	29	c	46	d	63	d
13	e	30	e	47	e	64	d
14	b	31	e	48	d	65	d
15	c	32	d	49	c	66	c
16	c	33	a	50	b	67	d
17	b	34	d	51	e		
PATHOPHYSIOLOGY OF THE DIGESTIVE SYSTEM							
1	a, c, e	20	a, b	39	c, d, f	58	d
2	b, c, e	21	a, c, e	40	d, e, f	59	b
3	a, b, c, e	22	a, b, d	41	a, b, c, d, e, f	60	a, c, e
4	a, b, d, f	23	a, b, d	42	a, b, d, e, f	61	a, d, e
5	a, b, d, e, f	24	a, b, c, e, f	43	a, c, f, g, h	62	a, c
6	a, c, e	25	b, c	44	a, b, d	63	a, b
7	c	26	a, b, d, e	45	b, c, d	64	b, c, e, f, h
8	c, d, e	27	b	46	a, b, e, f	65	c, e
9	c	28	b	47	b, c, e	66	c, e
10	b, d	29	a, b, f	48	a, c, d, e, f	67	b, d, f, g
11	b, c, e, f	30	a, e	49	b, d, e, g, h	68	b, c
12	a, c, d, e, f	31	a, c, d	50	b, d	69	c
13	a, c, e	32	a, b, c, e	51	a, b, d, e	70	b, d, e, g, h
14	a, b, e	33	a, c, f, g, h	52	a, c, d	71	a, b, d, e, f
15	d	34	a, b	53	d	72	a
16	a, d	35	a, d, e	54	a, c, d, e	73	a, b, c
17	a, b, d, e	36	d	55	a, e	74	d
18	a, b, d, e, f	37	b, c, d, e	56	a, c, f	75	b, c, d
19	a, d	38	c	57	a, c, e, f, h	76	a, b, d
PATHOPHYSIOLOGY OF LIVER							
1	a, c, e, f	13	a, b, d, e	25	a, b, d, e	37	a, c, f
2	a, b, c, e, g	14	a, b, c, d, f	26	b, d	38	b, c, e, f
3	b, c, d, e, f, g	15	a, d	27	b, c	39	b, c
4	b, d, f	16	b, d, e, f	28	a, c, d, e, g, h	40	b, d, e
5	a, c, d, e	17	a, c, d	29	a, c	41	d

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
6	b, d	18	b, c, d, e, f, g	30	b, d, e	42	b, c
7	a, b	19	b, c, d, f	31	a, b, c, e	43	b, d, e, f
8	a, e	20	a, c, d, f	32	a, c, d	44	c, d
9	b	21	a, d	33	a, b, d, f	45	b, c
10	c	22	b, c	34	a, c, e	46	a, b, d, f
11	a	23	c, d, e, f	35	c	47	a, c
12	a	24	a, c	36	a, b, c, d, e	48	a, c, f
PATHOPHYSIOLOGY OF KIDNEYS							
1	a, d	16	a, c, d	31	b, c, e, f	46	a, c, e
2	a, b, c, d	17	a, c	32	a, b, c, f, i	47	a, c, d
3	a, d	18	a, c, f	33	a, b, e	48	b, c, e, f
4	a, b, d, e, f	19	b, d, e, f	34	a, b, g	49	c, d
5	a, c, d	20	b	35	b, d, e	50	a, b, d, e
6	a, c, d	21	a, b, d, f, h	36	a, b, e	51	b, c, e
7	b, c, d	22	c	37	a, d, e, f	52	c, d, e
8	b, c, d, e	23	a, b, c, d, e	38	b, d	53	a, b, c, e, f
9	b, c, d, e, f, g	24	b, c, d, e, f, g	39	a, c, d, f	54	b, d
10	b, d, e, g	25	a, d	40	b, c, d	55	b, c, d
11	b	26	a, b, d	41	b, c, d, e	56	a, b, d
12	b, c	27	a, b, d, e, f	42	a, c, d, f	57	a, c, d
13	b, d, f	28	b, c, e, f	43	a, b, c, e, f	58	b, c, d
14	b, e	29	b, c, e	44	a, c, d	59	a, c, d
15	b, e, f	30	b, d, e, f	45	b, c, d		
PATHOPHYSIOLOGY OF ENDOCRINE SYSTEM. VIOLATION OF PITUITARY AND ADRENAL GLANDS. PATHOPHYSIOLOGY OF THYROID, PARATHYROID GLANDS, GONADS							
1	a, c, d	24	a, b, d	47	a, b, c, d	70	a, c, e
2	a, b, c	25	a, b, e, f	48	a, c, d, f	71	a, c, e, g
3	b, c, d	26	a, c, d, f	49	a	72	a, c, e, f, g
4	b, c, e	27	a, c, e, f	50	a, b, f	73	a, b, c, e, f
5	e, f	28	a, c, d, f	51	d	74	a, c, e
6	a, b	29	a, c, e	52	b, c, d	75	a, c, e
7	b, d	30	a, b, c, e	53	a, c, d, e, g, h	76	b, c
8	a, d, g, h	31	e	54	b, c, d	77	a
9	d	32	a, b, c, e	55	a, c, e	78	e
10	c, e, g	33	a, c, e	56	a	79	a, b, c, d, f
11	d	34	b	57	a, d, e, g	80	a, c, e
12	a, b, c, d, g	35	a, b, d	58	a, b, d, f, g	81	a, b, c
13	a, c	36	a, d, e	59	a, c	82	d, e
14	a, b, c, d, g	37	a, c, f	60	a, c, d, e, f	83	b, d, e
15	a, c, e, g, i	38	c	61	c	84	c
16	b, c, d, e	39	b, c, d, e	62	b, e	85	a, c, e
17	b, d	40	a, c	63	b, c, d, e, g	86	a, b
18	a, b, d	41	a, b	64	a, b, c, e, f	87	a, b, c

№ question	Correct answers	№ question	Correct answers	№ question	Correct answers	№ question	Correct answers
19	b	42	b, c	65	a, c, e, g	88	b, c, d, f
20	a, c	43	b, e, f	66	a, c, d	89	a, d, e
21	a, c, e	44	a, c	67	a, c, e	90	a, b, e
22	a, b, c, d	45	a, c, e, g	68	a, b, d, e		
23	a, b, d, f	46	a, b, d, e, g	69	a		
PATHOPHYSIOLOGY OF NERVOUS SYSTEM. TYPICAL PATHOLOGICAL PROCESS. PATHOLOGY OF NEURONS. PATHOPHYSIOLOGY OF HIGHER NERVOUS ACTIVITY. NEUROSIS							
1	b, c, d, e, f, g	17	a, b, c, e, f	33	a, c, e, g, k	49	b, d, f
2	d	18	b, c, d, f	34	a	50	a, b, c
3	b, c, d, e, f, h	19	a, b, c, e	35	c, d	51	a, c, d, e
4	a, b, d	20	a, c, e	36	a, d, e	52	b, d
5	c	21	b, d, e	37	a, b, c, d, f	53	a
6	a, b, c, e	22	c,	38	a, b, d	54	c, e
7	b, c, e, g	23	a, b	39	a, c	55	a, b
8	c, d	24	a, b, d	40	a, c, d	56	a, b, d
9	a, c	25	d, e	41	b, d, e	57	c, d, f
10	a, c, e	26	b, d	42	a, e	58	c, d, e
11	b, c	27	a, c, d	43	a, b, c, e	59	a, b, d, e
12	a	28	b, c, d	44	e	60	a, b, c
13	a, b, c, e, g	29	f	45	a, b, c, d	61	b, d
14	a, d, e, f	30	d	46	c, d	62	a, c, e, g
15	b	31	a, d, f	47	a, b, d, f, h, j	63	a, c, d, e
16	a, b, d	32	c, d	48	b		

LITERATURE

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