Ministry of Science and Higher Education of the Russian Federation
Ministry of Education and Science of the Kyrgyz Republic

Interstate Educational Organization of Higher Education
Kyrgyz-Russian Slavic University named after the first President of the Russian Federation B.N. Yeltsin

FUND OF ASSESSMENT TOOLS (FAT)
for the discipline "ENDOCRINOLOGY"

Level of Higher Education: SPECIALIST

Field of Study:
Code: 31.05.01 – RF, 560001 – KR
Name: General Medicine (for international students)
Qualification: Physician
Total workload: 2 credit units (72 hours)
Course, semesters: 3th year, 5th semester
Year of commencement of training: 2023
Duration of education: 5 years

The Fund of Assessment Tools is designed to control students' knowledge in the field of study (specialty) PHYSICIAN in the discipline "ENDOCRINOLOGY"

The Fund of Assessment Tools was reviewed and approved at the meeting of the department of
THERAPY-1 OF PEDIATRICS AND DENTAL SPECIALTIES

Protocol No. 1 dated 27.08.2024

Head of Department
Therapy-1 of Pediatrics and Dental specialties _ _ Suranova G.Zh.

Executors
Candidate of Medical Sciences, Associate Professor _ _ Suranova G.Zh.

1. PROFESSIONAL COMPETENCIES (PC)

PC-5: Ready to collect and analyze patient complaints, anamnesis data, results of examination, laboratory, instrumental, pathological and other studies to recognize the condition or establish the fact of presence or absence of disease

Stage	Know	Able to	Master	Types of Assessment Tools
Level 1	Semiotics of diseases and variants of their clinical manifestation; methods of anamnesis collection (disease, life, epidemiological); indications and contraindications for clinical and paraclinical diagnostic methods	Identify and analyze patient complaints; collect anamnesis data; perform physical examination (inspection, palpation, percussion, auscultation)	Skills in objective examination of patients; techniques of anamnesis collection and analysis; interpretation of basic functional diagnostic methods	Block A: Tests on knowledge of etiology and pathogenesis
Level 2	Structure and regulatory requirements for medical documentation; principles of medical record keeping in outpatient and inpatient settings	Interpret results of laboratory and instrumental investigations; fill in medical records (outpatient card, inpatient history) for adults and children	Skills in documentation of medical records; prescribing necessary laboratory and instrumental examination methods	Block A: Tests on knowledge of etiology and pathogenesis
Level 3	Etiopathogenesis, clinical presentation and diagnostic criteria of basic diseases; differential diagnostic features	Correlate clinical data with paraclinical findings; formulate preliminary and clinical diagnoses	Skills in comprehensive examination of patients; conducting necessary diagnostic measures	Block B: Situational tasks on developing a treatment plan
Level 4	Algorithms of diagnostic search; principles of evidence-based medicine in clinical diagnostics	Systematize diagnostic data; determine diagnostic significance of clinical and paraclinical findings	Skills in clinical reasoning; diagnostic algorithm application	Block C: Practice-oriented tasks — simulation scenarios of patient management
Level 5	—	Integrate data from multiple diagnostic sources; verify diagnostic hypotheses	—	Block D: Certification questions on comprehensive patient management

Stage	Know	Able to	Master	Types of Assessment Tools
Level 6	—	Determine indications and contraindications for additional diagnostic procedures based on clinical presentation	—	Block D: Certification questions on comprehensive patient management

PC-8: Able to apply modern information on population health indicators at the level of healthcare facility

Stage	Know	Able to	Master	Types of Assessment Tools
Level 1	Demographic and statistical indicators of population health; methods of medical and statistical data collection; structure and functions of healthcare facility	Collect and analyze data on population health indicators; apply medical-statistical methods of analysis	Skills in working with medical-statistical information; methods of data collection and processing	Block A: Tests on knowledge of healthcare organization
Level 2	Regulatory documentation on quality assessment of medical care; standards of healthcare delivery at facility level	Use health information for planning healthcare facility activities; evaluate quality of medical care provided	Skills in analysis of population health indicators; quality assessment techniques	Block A: Tests on knowledge of healthcare organization
Level 3	Principles of healthcare resource management; epidemiological analysis methods at population level	Apply data for organizational and managerial decisions; conduct comparative analysis of health indicators	Skills in applying health data for healthcare facility organization	Block B: Situational tasks on healthcare management
Level 4	—	Develop recommendations for improving healthcare delivery based on health indicators analysis	—	Block C: Practice-oriented tasks — simulation scenarios of healthcare management
Level 5	—	Integrate population health data into clinical practice and preventive programs	—	Block D: Certification questions on comprehensive healthcare management

PC-14: Able to establish diagnosis based on results of biochemical and clinical investigations considering the course of pathology in organs, systems and organism as a whole

Stage	Know	Able to	Master	Types of Assessment Tools
Level 1	Normal values of biochemical parameters of blood, urine and other biological fluids; clinical significance of laboratory deviations; principles of clinical biochemistry	Interpret results of biochemical investigations; interpret results of clinical analyses; correlate laboratory data with clinical presentation	Skills in clinical and laboratory analysis; techniques of laboratory data interpretation	Block A: Tests on knowledge of clinical biochemistry and laboratory diagnostics
Level 2	Pathophysiology of organ and system disorders; patterns of pathological process development; ICD-10 structure and coding principles	Correlate laboratory findings with pathological changes in organs and systems; formulate diagnosis considering organ, system and organism-level pathology	Skills in differential diagnosis; methods of functional state assessment of organs and systems	Block A: Tests on knowledge of clinical biochemistry and laboratory diagnostics
Level 3	Complex diagnostic approaches; integration of clinical and paraclinical data; nosological classification systems	Synthesize clinical and laboratory data for diagnostic conclusions; apply ICD-10 coding for diagnosis formulation	Skills in complex diagnostic analysis; clinical-laboratory correlation	Block B: Situational tasks on diagnostic reasoning
Level 4	—	Evaluate diagnostic significance of biochemical markers in various pathological conditions	—	Block C: Practice-oriented tasks — simulation scenarios of diagnostic process
Level 5	—	Apply complex laboratory panels for differential diagnosis of systemic diseases	—	Block D: Certification questions on comprehensive diagnostics

PC-15: Able to analyze patterns of functioning of individual organs and systems, use knowledge of anatomical and physiological features, basic methods of clinical and laboratory examination and assessment of functional state of organism of adults and children for timely diagnosis of diseases and pathological processes

Stage	Know	Able to	Master	Types of Assessment Tools
Level 1	Anatomical and physiological features of organs and systems; age-related characteristics of organism in adults and children; methods of functional diagnostics	Analyze functioning of individual organs and systems; apply anatomical and physiological knowledge in clinical diagnostics	Skills in functional diagnostics; methods of organ and system state assessment	Block A: Tests on knowledge of anatomy, physiology and functional diagnostics
Level 2	Techniques of clinical and laboratory examination; methods of organism functional state assessment; pathophysiological mechanisms of organ dysfunction	Apply clinical and laboratory examination techniques; assess functional state of organism of adults and children	Skills in functional state assessment; techniques of clinical and laboratory investigation	Block A: Tests on knowledge of anatomy, physiology and functional diagnostics
Level 3	Patterns of pathological process development in organs and systems; early diagnostic markers; principles of timely diagnosis	Identify early signs of organ and system dysfunction; recognize pathological processes at preclinical stages	Skills in early diagnosis of diseases and pathological processes; timely detection techniques	Block B: Situational tasks on early diagnosis
Level 4	—	Integrate functional assessment data for comprehensive evaluation of patient condition	—	Block C: Practice-oriented tasks — simulation scenarios of functional assessment
Level 5	—	Develop individual monitoring plans based on functional state assessment	—	Block D: Certification questions on comprehensive patient assessment

PC-16: Able to use algorithm of diagnosis establishment (primary, concomitant, complications) considering ICD, perform basic diagnostic measures for detection of emergency and life-threatening conditions

Stage	Know	Able to	Master	Types of Assessment Tools
Level 1	Algorithm of diagnosis establishment; structure of primary, concomitant diagnosis and complications; ICD-10 coding principles and structure; criteria for emergency and life-threatening conditions	Apply algorithm of diagnosis establishment considering ICD-10; formulate primary, concomitant diagnosis and complications; identify emergency and life-threatening conditions	Skills in clinical diagnosis formulation; ICD-10 coding; recognition of emergency conditions	Block A: Tests on knowledge of diagnostic algorithms and emergency medicine
Level 2	Basic diagnostic measures for emergency conditions; algorithms of emergency diagnostics; principles of triage	Perform basic diagnostic measures for detection of emergency conditions; apply diagnostic algorithms in urgent situations	Skills in emergency diagnostics; methods of rapid assessment of life-threatening conditions	Block A: Tests on knowledge of diagnostic algorithms and emergency medicine
Level 3	Differential diagnosis of emergency conditions; prioritization in diagnostic search; integration of diagnostic data in time-limited settings	Differentiate between emergency conditions; determine diagnostic priorities; establish diagnosis under time constraints	Skills in differential diagnosis of emergency conditions; algorithmic thinking in urgent situations	Block B: Situational tasks on emergency diagnostics
Level 4	—	Manage diagnostic process in polytrauma and multiple organ failure; coordinate diagnostic team in emergency settings	—	Block C: Practice-oriented tasks — simulation scenarios of emergency care
Level 5	—	Apply advanced diagnostic protocols for life-threatening conditions; integrate point-of-care diagnostics	—	Block D: Certification questions on comprehensive emergency management

STRUCTURE OF ASSESSMENT TOOLS BLOCKS

Block	Content	Competencies
Block A	Tests on knowledge of clinical diagnostics, laboratory medicine, functional diagnostics, emergency medicine and healthcare organization	PC-5 (L1–L2), PC-8 (L1–L2), PC-14 (L1–L2), PC-15 (L1–L2), PC-16 (L1–L2)
Block B	Situational tasks on diagnostic reasoning, interpretation of laboratory data, functional assessment and emergency diagnostics	PC-5 (L3), PC-8 (L3), PC-14 (L3), PC-15 (L3), PC-16 (L3)
Block C	Practice-oriented tasks — simulation scenarios of patient examination, diagnostic process, emergency care and healthcare management	PC-5 (L4), PC-8 (L4), PC-14 (L4), PC-15 (L4), PC-16 (L4)
Block D	Certification questions on comprehensive diagnostics, patient management and emergency medicine	PC-5 (L5–L6), PC-8 (L5), PC-14 (L5), PC-15 (L5), PC-16 (L5)

DISTRIBUTION BY SEMESTERS

Semester	Type of Control	Used Blocks	Competencies
8	Current control (passes by sections)	Block A	PC-5 (L1), PC-8 (L1), PC-14 (L1), PC-15 (L1), PC-16 (L1)
8	Intermediate control (testing + situational tasks)	Block A, Block B (partially)	PC-5 (L1–L3), PC-8 (L1–L3), PC-14 (L1–L3), PC-15 (L1–L3), PC-16 (L1–L3)
8	Practical control (simulation scenarios)	Block C	PC-5 (L4), PC-8 (L4), PC-14 (L4), PC-15 (L4), PC-16 (L4)
8	Final certification (differentiated pass/exam)	Block A (final), Block B, Block C, Block D	PC-5 (L1–L6), PC-8 (L1–L5), PC-14 (L1–L5), PC-15 (L1–L5), PC-16 (L1–L5)

TECHNOLOGICAL MAP OF THE DISCIPLINE

Module	Name	Control	Form of Control	Min	Max	Week
Module 1	No. 1 Diabetology	Current	Frontal survey, testing, practical skills (examination of endocrine patient), attendance, RSW	2	4	2–4
		Boundary	Oral/written survey, situational task, practical skills	6	10	4
Module 2	No. 2 Other endocrine diseases in adults	Current	Frontal survey, testing, practical skills, interpretation of analyses, attendance, RSW	2	4	5–7
		Boundary	Oral/written survey, situational task, practical skills	6	10	8
TOTAL for semester				40	70	
Intermediate control (pass)				20	30	8
Semester rating				60	100	

TYPICAL CONTROL TASKS

Block A: Reproductive Level (Knowledge)

Time: 30 minutes

Oral Questions (1–10)

DIABETES MELLITUS

1. Epidemiology and classification of diabetes mellitus
2. Type 1 diabetes mellitus: etiology, pathogenesis, clinic, diagnosis
3. Type 2 diabetes mellitus: etiology, pathogenesis, clinic, diagnosis
4. Risk factors of type 2 diabetes; diagnosis of carbohydrate metabolism disorders in risk groups
5. Principles of treatment of type 2 diabetes mellitus: hypoglycemic oral drugs
6. Indications for insulin therapy in type 2 diabetes mellitus

COMPLICATIONS OF DIABETES MELLITUS

7. Macrovascular complications of diabetes mellitus: etiology, pathogenesis, classification; features of CHD in diabetic patients
8. Microvascular complications of diabetes mellitus: etiology, pathogenesis, classification
9. Diabetic retinopathy: classification, principles of diagnosis and treatment
10. Diabetic nephropathy: classification, principles of diagnosis and treatment
11. Diabetic neuropathy: classification, principles of diagnosis and treatment

ACUTE COMPLICATIONS OF DIABETES MELLITUS

12. Diabetic ketoacidosis and coma: etiology, pathogenesis, clinical variants, diagnosis, treatment
13. Hyperosmolar hyperglycemic states: diagnosis, principles of treatment
14. Hypoglycemia and hypoglycemic coma: etiopathogenesis, clinic, diagnosis, emergency care
15. Lactic acidosis: diagnosis, principles of treatment
16. Differential diagnosis of comatose states in diabetes mellitus

THYROID DISEASES

17. Diffuse toxic goiter (Graves' disease): etiology, pathogenesis, clinic, diagnosis, principles of treatment
18. Hypothyroidism: classification, etiology, pathogenesis, clinic, diagnosis, treatment; features of secondary hypothyroidism
19. Thyroiditis: classification, diagnosis, principles of treatment
20. Iodine deficiency diseases: classification; role of iodine in the human body; endemic and sporadic goiter — diagnosis and treatment
21. Prevention of iodine deficiency disorders: mass, group, individual; risk groups

PARATHYROID DISEASES

22. Hypoparathyroidism: diagnosis, principles of treatment
23. Hyperparathyroidism: diagnosis, principles of treatment

ADRENAL DISEASES

24. Chronic adrenal insufficiency: etiology, pathogenesis, clinic, principles of diagnosis and treatment
25. Differential diagnosis of primary and secondary adrenal insufficiency
26. Acute adrenal insufficiency, Addisonian crisis: principles of diagnosis and treatment
27. Itsenko-Cushing's disease: etiopathogenesis, clinic, principles of diagnosis and treatment
28. Differential diagnosis of Itsenko-Cushing disease and syndrome

HYPOTHALAMIC-PITUITARY DISEASES

29. Acromegaly: etiopathogenesis, clinic, principles of diagnosis and treatment
30. Diabetes insipidus: etiopathogenesis, clinic, principles of diagnosis and treatment
31. Hypopituitarism: etiopathogenesis, clinic, principles of diagnosis and treatment
32. Somatotropic insufficiency: etiopathogenesis of anterior pituitary diseases

OBESITY

33. Obesity: etiopathogenesis, classification, clinical manifestations; obesity as risk factor of other diseases
34. Prevention and treatment of obesity

GENERAL/COMPREHENSIVE QUESTIONS

35. Main etiological factors of type 1 and type 2 diabetes mellitus
36. Pathogenesis of hyperglycemia in diabetes mellitus
37. Clinical manifestations of diabetes mellitus
38. Micro- and macrovascular complications of diabetes mellitus
39. Classification of comas in diabetes mellitus
40. Pathogenesis of thyrotoxicosis and hypothyroidism
41. Clinical signs of hypocorticism and hypercorticism
42. Main diseases of hypothalamic-pituitary area and their clinical picture
43. Methods of diagnosing thyroid and adrenal diseases
44. Principles of curating and managing patients with endocrine pathology

Test Tasks (20 items)

Section 1: Diabetology (10 tests)

1. Which type of diabetes develops more often in childhood?
   - a) Type 1
   - b) Type 2
   - c) Gestational
   - d) Secondary
   - **Correct answer: a**
2. Main mechanism of hyperglycemia in type 1 diabetes:
   - a) Insulin resistance
   - b) Insulin deficiency
   - c) Increased glucose absorption
   - d) Accelerated glycogen breakdown
   - **Correct answer: b**
3. Typical microangiopathies in diabetes include:
   - a) Diabetic nephropathy
   - b) Myocardial infarction
   - c) Stroke
   - d) Atherosclerosis
   - **Correct answer: a**
4. Main symptom of ketoacidotic coma:
   - a) Bradycardia
   - b) Polydipsia and polyuria
   - c) Decreased temperature
   - d) Skin rash
   - **Correct answer: b**
5. Which drug is used for type 2 diabetes?
   - a) Metformin
   - b) Insulin NPH
   - c) Glucagon
   - d) Cortisone
   - **Correct answer: a**
6. Main criterion for diabetes control:
   - a) Fasting blood glucose
   - b) Blood pressure
   - c) Pulse
   - d) Cholesterol
   - **Correct answer: a**
7. Diabetic retinopathy is:
   - a) Macrovascular complication
   - b) Microvascular complication
   - c) Metabolic syndrome
   - d) Thyrotoxic syndrome
   - **Correct answer: b**
8. Diabetic foot syndrome is associated with:
   - a) Microangiopathy and neuropathy
   - b) Hypothyroidism
   - c) Hypercorticism
   - d) Hypoparathyroidism
   - **Correct answer: a**
9. Main test for assessing long-term diabetes compensation:
   - a) Fasting glucose

- b) Glycated hemoglobin (HbA1c)
- c) C-peptide
- d) Cholesterol
- **Correct answer: b**

10. Emergency care for hypoglycemia includes:
    - a) Insulin administration
    - b) Fast carbohydrates
    - c) Corticosteroids
    - d) Diuretics
    - **Correct answer: b**

Section 2: Other Endocrine Diseases (10 tests)

11. Main symptom of thyrotoxicosis:
- a) Dry skin –
b) Tachycardia
- c) Hypotension
- d) Polydipsia –

Correct answer: b

12. Hypothyroidism is characterized by:
    - a) Increased activity
    - b) Weakness, bradycardia
    - c) Tremor
    - d) Sweating
    - **Correct answer: b**
13. Addison's disease is:
    - a) Hypercorticism
    - b) Chronic adrenal cortex insufficiency
    - c) Hypothyroidism
    - d) Hypoparathyroidism
    - **Correct answer: b**
14. Main method of diagnosing hypocorticism:
    - a) Thyroid ultrasound
    - b) Determination of cortisol and ACTH
    - c) ECG
    - d) Blood glucose
    - **Correct answer: b**
15. Hypercorticism (Cushing's syndrome) manifests:
    - a) Weakness, hypotension
    - b) Central obesity, hypertension
    - c) Tachycardia and sweating
    - d) Polydipsia
    - **Correct answer: b**
16. Primary hyperparathyroidism manifests:
    - a) Hypercalcemia
    - b) Hypocalcemia
    - c) Hyperglycemia
    - d) Hypertension
    - **Correct answer: a**

17. Diffuse toxic goiter is associated with:
    - a) Autoimmune thyrotoxicosis
    - b) Adrenal infection
    - c) Diabetes
    - d) Hypocorticism
    - **Correct answer: a**
18. Main principle of hypothyroidism therapy:
    - a) Replacement therapy with levothyroxine
    - b) Insulin therapy
    - c) Metformin
    - d) Diuretics
    - **Correct answer: a**
19. Clinical sign of acromegaly:
    - a) Enlargement of hands and feet, coarse facial features
    - b) Polyuria and polydipsia
    - c) Bradycardia
    - d) Anemia
    - **Correct answer: a**
20. Main prevention of endocrine diseases includes:
    - a) Healthy lifestyle, weight control
    - b) Antibiotics intake
    - c) Insulin therapy
    - d) Antiviral vaccines **Correct answer: a**

Block B: Reconstructive Level (Application)
Situational Tasks Time: 60 minutes
Task 1: Patient with hyperglycemia and polydipsia

- Questions:
    1. Determine the syndrome and preliminary diagnosis (5 points)
        - **Answer:** Type 1 diabetes mellitus, hyperglycemic syndrome
    2. Prescribe necessary laboratory and instrumental studies (5 points)
        - **Answer:** Fasting blood glucose, HbA1c, C-peptide, urine for ketones
    3. Justify the choice of examination methods (10 points)
        - **Answer:** The choice is based on the need to identify insulin deficiency and complications (microangiopathy, ketoacidosis)

Task 2: Patient with tachycardia, sweating, weight loss

- Questions:
    1. Determine the syndrome (5 points)
        - **Answer:** Thyrotoxic syndrome
    2. Prescribe diagnostic methods (5 points)
        - **Answer:** Thyroid ultrasound, analysis for TSH, T3, T4
    3. Develop a treatment plan (10 points)
        - **Answer:** Beta-blockers, antithyroid drugs, endocrinologist observation

Task 3: Patient with hypotension, skin hyperpigmentation, weakness

- Questions:
    1. Determine the syndrome (5 points)
        - **Answer:** Addison's disease
    2. Prescribe diagnostic methods (5 points)
        - **Answer:** Determination of cortisol, ACTH, electrolytes, stress test
    3. Develop a treatment plan (10 points)
        - **Answer:** Replacement therapy with glucocorticoids and mineralocorticoids, electrolyte monitoring

Block D: Certification Level (Comprehensive Assessment)
Time: 120 minutes
Certification Questions (Tickets)

Ticket No. 1
1. Diabetes mellitus syndrome: subjective and objective signs, research methods (30 points)
2. Practical skill: glucose measurement, insulin therapy control, treatment plan development (40 points)
3. Analytical task: interpretation of HbA1c, electrolytes and ketone bodies; assessment of ketoacidosis risk (30 points)

Ticket No. 2
1. Thyrotoxicosis syndrome: clinical picture, diagnosis, treatment (30 points)
2. Practical skill: palpation of thyroid gland, determination of size and consistency (40 points)
3. Analytical task: interpretation of ultrasound and laboratory data, therapy plan development (30 points)

Ticket No. 3
1. Hypocorticism: etiology, clinical picture, diagnosis, treatment (30 points)
2. Practical skill: determination of indications for laboratory tests and prescription of replacement therapy (40 points)
3. Analytical task: assessment of cortisol and ACTH dynamics, treatment correction (30 points)

Ticket No. 4
1. Hypercorticism syndrome: clinical picture, diagnosis, differential diagnosis, therapy (30 points)
2. Practical skill: patient examination, interpretation of laboratory data (40 points)
3. Analytical task: development of individual treatment and condition monitoring plan (30 points)

Ticket No. 5
Topic: Thyroid Pathology — Graves' Disease
1. Thyrotoxicosis syndrome: clinical manifestations, differential diagnosis with other hyperthyroidism causes (30 points)
2. Practical skill: examination of thyroid gland, interpretation of thyroid function tests (TSH, free T3, free T4, antibodies), prescription of antithyroid therapy (40 points)
3. Analytical task: assessment of patient with exophthalmos, tachycardia and weight loss; interpretation of hormone levels; management plan including complications prevention (30 points)

Ticket No. 6
Topic: Acute Complications of Diabetes — Diabetic Ketoacidosis
1. Pathogenesis, clinical stages and diagnostic criteria of diabetic ketoacidosis and hyperosmolar hyperglycemic state (30 points)
2. Practical skill: algorithm of emergency care in diabetic coma, calculation of fluid replacement and insulin dosage, monitoring of treatment effectiveness (40 points)
3. Analytical task: analysis of blood gas, electrolyte imbalance and anion gap; differential diagnosis between ketoacidotic and hyperosmolar coma; prevention of cerebral edema (30 points)

Ticket No. 7

Topic: Adrenal Insufficiency — Addison's Disease and Crisis

1. Chronic adrenal insufficiency: etiology, clinical picture, laboratory diagnostics; features of primary and secondary forms (30 points)
2. Practical skill: diagnosis of Addisonian crisis, emergency management algorithm, hydrocortisone therapy calculation and administration, fluid and electrolyte correction (40 points)
3. Analytical task: interpretation of ACTH stimulation test, cortisol and ACTH levels; assessment of patient with hypotension, hyperpigmentation and hyponatremia; long-term hormone replacement strategy (30 points)

Ticket No. 8

Topic: Diabetic Nephropathy and Retinopathy

1. Microvascular complications of diabetes: classification, pathogenesis, screening methods and diagnostic criteria of diabetic nephropathy and retinopathy (30 points)
2. Practical skill: assessment of albuminuria, interpretation of glomerular filtration rate, fundus examination description, prevention and treatment prescription (40 points)
3. Analytical task: analysis of progressive renal dysfunction in diabetic patient; interpretation of creatinine, urea, urine microalbumin/creatinine ratio; staging of chronic kidney disease; nephroprotection strategy (30 points)

Ticket No. 9

Topic: Hypothyroidism and Myxedema Coma

1. Hypothyroidism: etiology, classification, clinical manifestations in adults and children; features of secondary hypothyroidism (30 points)
2. Practical skill: interpretation of thyroid function tests in hypothyroidism, levothyroxine therapy initiation and titration, management of myxedema coma (40 points)
3. Analytical task: assessment of patient with bradycardia, constipation, cold intolerance and cognitive decline; interpretation of lipid profile and thyroid antibodies; differential diagnosis with depression and dementia (30 points)

Ticket No. 10

Topic: Itsenko-Cushing's Disease/Syndrome

1. Hypercorticism: etiopathogenesis, clinical picture (obesity, hypertension, glucose intolerance, osteoporosis), laboratory and instrumental diagnostics (30 points)
2. Practical skill: interpretation of dexamethasone suppression test, 24-hour urinary free cortisol, ACTH levels; differential diagnosis between pituitary, adrenal and ectopic forms (40 points)
3. Analytical task: assessment of patient with central obesity, purple striae and muscle weakness; analysis of comorbidities (diabetes, hypertension, osteoporosis); treatment selection (surgery, medication, radiation) (30 points)

Ticket No. 11

Topic: Acromegaly and Hypopituitarism

1. Acromegaly: pathogenesis, characteristic clinical features, diagnostic criteria, complications (cardiovascular, metabolic, oncological) (30 points)
2. Practical skill: interpretation of glucose suppression test for growth hormone, IGF-1 levels, pituitary MRI; hypopituitarism hormone replacement therapy (40 points)
3. Analytical task: assessment of patient with progressive enlargement of hands and feet, headache and visual field defects; analysis of multiple hormone deficiencies; comprehensive management plan including transsphenoidal surgery indications (30 points)

Ticket No. 12

Topic: Diabetes Insipidus and Syndrome of Inappropriate ADH Secretion

1. Pathophysiology of water metabolism disorders: central and nephrogenic diabetes insipidus, SIADH; etiology, clinical picture, diagnostic methods (30 points)
2. Practical skill: water deprivation test interpretation, differentiation between central and nephrogenic forms, desmopressin therapy calculation and administration (40 points)
3. Analytical task: analysis of polyuria-polydipsia syndrome; interpretation of plasma and urine osmolality, sodium levels; emergency management of severe hyponatremia and hypernatremia (30 points)

Ticket No. 13

Topic: Obesity and Metabolic Syndrome

1. Obesity: classification (by BMI and waist circumference), etiopathogenesis, role as risk factor for type 2 diabetes, cardiovascular disease, malignancies; metabolic syndrome criteria (30 points)
2. Practical skill: calculation of BMI, waist-to-hip ratio, basal metabolic rate; lifestyle modification prescription, indications for pharmacotherapy and bariatric surgery (40 points)
3. Analytical task: comprehensive assessment of patient with obesity, hypertension, dyslipidemia and impaired fasting glucose; calculation of cardiovascular risk; development of individualized weight management and comorbidity prevention plan (30 points)

PRACTICAL SKILLS FOR CERTIFICATION

Note: This section contains a list of practical skills tested within Block D (certification level) and intermediate certification. Skills are assessed separately or as part of a comprehensive ticket.

No.	Skill	Competency	Block	Time (min)
1	Collection of complaints and anamnesis from patient with endocrine pathology (diabetes mellitus, thyroid diseases, adrenal glands)	GPC-5, PC-4	D (Sections 1–2)	10
2	Assessment of anthropometric data: height, body weight, body mass index, waist circumference, waist/hip ratio	PC-4	D (Sections 1–2)	10
3	Examination of skin, mucous membranes, hair and nails for signs of endocrine pathology (hypo-/hyperfunction syndrome of thyroid gland, diabetic skin, obesity)	PC-4	D (Sections 1–2)	10
4	Palpation of thyroid gland and assessment of size, consistency, mobility, presence of nodes	PC-4	D (Section 2)	10
5	Examination and palpation of peripheral lymph nodes (cervical, submandibular, axillary)	PC-4	D (Section 2)	5
6	Percussion and auscultation of heart and lungs in endocrine pathology (heart failure, diabetes complications)	GPC-5	D (Sections 1–2)	15

No.	Skill	Competency	Block	Time (min)
7	Assessment of pulse, pressure and cardiovascular system	GPC-5	D (Sections 1–2)	5
8	Measurement of temperature, blood pressure, heart rate, respiration	GPC-5	D (Sections 1–2)	5
9	Conducting simple laboratory tests and interpretation of results: glucose level, urine analysis for glucose/ketones	PC-4	D (Section 1)	10
10	Assessment of diabetes mellitus complication signs: diabetic foot, edema, skin changes	PC-4	D (Section 1)	10
11	Determination of hypo- and hyperthyroidism signs: body weight, skin, hair, pulse, temperature, reflexes	PC-4, GPC-7	D (Section 2)	10
12	Development of examination plan for patient with endocrine pathology based on anamnesis and examination	PC-4, GPC-5	D (Sections 1–2)	15
13	Formulation of preliminary clinical diagnosis and recommendations for additional studies (laboratory, instrumental)	PC-4, GPC-5	D (Sections 1–2)	15
14	Conducting brief demonstration consultation on self-control and patient education with type 1 and 2 diabetes mellitus	PC-4	D (Section 1)	10

LABORATORY-INSTRUMENTAL SKILLS

No.	Skill	Competency	Block	Time (min)
1.	Glycemic monitoring: capillary blood glucose measurement, insulin dose calculation	PC-4	D (Section 1)	15
2.	Development of rational nutrition plan for diabetes with calculation of bread units	PC-4	D (Section 1)	10
3.	Conducting cortisol level test and interpretation of result	GPC-7	D (Section 2, Adrenals)	10
4.	Performing functional diagnostic tests (glucose tolerance test, thyroid hormone tests)	PC-4, GPC-5	D (Sections 1 and 2)	15

No.	Skill	Competency	Block	Time (min)
5.	Determination of symptoms and syndromes of acute endocrine conditions: hypoglycemia, ketoacidosis, thyrotoxic crisis	GPC-7	D (Sections 1 and 2)	15
6.	Management and documentation of medical history of patient with endocrine pathology	PC-4	D (Sections 1 and 2)	15
7.	Conducting primary and secondary prevention of endocrine diseases: lifestyle, diet, physical activity recommendations	GPC-5	D (Sections 1 and 2)	10

ASSESSMENT METHODOLOGICAL MATERIALS
100-Point Assessment Scale

Activity Type	Pass Minimum	Pass Maximum	% of Final Grade	Note
Current control (Module 1 + Module 2)	4	8	20%	Frontal survey, testing, practical skills, attendance, RSW
Boundary control (Module 1 + Module 2)	12	20	50%	Oral/written survey, situational tasks, practical skills
Total for semester	**16**	**28**	**70%**	Sum of current and boundary control for 2 modules
Intermediate control (Pass)	12	20	30%	Final assessment for the discipline
Semester rating for discipline	**60**	**100**	**100%**	Cumulative assessment of all types of control

Assessment Criteria by Levels of Mastery

Level	Characteristic	Points	Grade	Types of Assessment Tools
Reproductive	Reproduction of facts, definitions, algorithms without errors	60-69	Satisfactory (E)	Block A: Tests on knowledge of etiology and pathogenesis
Reconstructive	Application of knowledge in standard	70-84	Good (C, D)	Block B: Situational tasks on developing a treatment plan

Level	Characteristic	Points	Grade	Types of Assessment Tools
	situations, solving typical tasks			
Practice-oriented	Solving professional tasks, mastery of practical skills	85-94	Excellent (B)	Block C: Practice-oriented tasks — simulation scenarios of patient management in clinic
Creative	Complex analysis of non-standard situations, making reasoned decisions	95-100	Excellent (A)	Block D: Certification questions on comprehensive patient management; analytical tasks on assessing therapy effectiveness

Practical Skills Assessment Criteria (Detail)

Comprehensive Patient Examination (maximum 40 points):

Criterion	Excellent (36-40)	Good (28-35)	Satisfactory (20-27)	Unsatisfactory (0-19)
Anamnesis collection technique	Complete, structured anamnesis without omissions, correct questions	Complete anamnesis, minor inaccuracies in formulations	Main sections of anamnesis collected, requires leading questions	Incomplete anamnesis, incorrect questions
Physical examination technique	Ideal technique, adherence to sequence	Minor violations of technique	Makes errors in technique, requires correction	Gross errors in technique
Data interpretation	Correct, with identification of pathology	Correct, minor inaccuracies	Partially correct, missed details	Erroneous interpretation
Documentation	Competent, according to standard	Minor violations of formatting	Requires corrections	Does not meet standard

Practical Skills Assessment Criteria:

- Technique of execution — 40%
- Interpretation of results — 30%
- Adherence to asepsis and antisepsis — 15%
- Communication with patient (ethics, tact) — 15%

APPENDIX 1
Medical History (Practical Work on Patient Curation)

1. General Provisions

- Medical history — mandatory work of each student in the discipline
- Student independently curates a patient (inpatient: 3–5 days, outpatient: 2–3 visits)
- Work includes: collection of anamnesis, examination, diagnosis formulation, examination and treatment plan
- Submission deadline: no later than 2 weeks before pass/exam

Goal: assess student skills in data collection, examination, diagnosis and treatment planning

2. Work Execution Algorithm

Stage	Action	What to focus on	Teacher control
Stage 1. Preparation (1 day)			
	Obtain referral from department	Practice schedule, patient list	Signature in journal
	Familiarize with medical documentation	Medical history, outpatient card, examination results	Permission from head of department
	Study theory on disease profile	Textbooks, clinical guidelines, protocols	Oral survey
Stage 2. Data Collection (1–2 days)			
	Collection of complaints and anamnesis	Survey algorithm (Appendix 1.1)	Teacher observation
	General examination	OS methodology (Appendix 1.2)	Technique correction and presence during examination
	Physical examination	Percussion, auscultation, palpation	Checking correctness of symptom identification
	Analysis of laboratory and instrumental data	Norms and interpretation methods	Control of interpretation correctness
Stage 3. Documentation (1–2 days)			
	Filling title page	Medical history form MZ	Checking requisites

Stage	Action	What to focus on	Teacher control
	Writing medical history sections	Sample formatting (Appendix 1.3)	Checking structure and terminology
	Formulating preliminary diagnosis	ICD-10, syndromal approach	Checking correspondence to clinical picture
	Developing examination plan	Standards and algorithms	Assessment of appointment validity
	Developing treatment plan	Clinical guidelines	Checking consideration of contraindications
	Keeping observation diaries	Rules of keeping dynamics	Daily control
Stage 4. Defense			
	Preparing brief report	Structure: complaints → diagnosis → treatment → dynamics	—
	Oral defense	Question checklist (Appendix 1.4)	Assessment by criteria (Appendix 1.5)

3. Assessment and Verification of Medical History

3.1 Assessment Structure (100 points)

Medical History Section	Points	What to focus on when assessing
Title page, header	5	Correctness of full name, date of birth, admission date, department, history number, code
Complaints	10	Completeness (subjective + objective), chronology, significant negations
Life anamnesis	10	Systematicity: allergic, epidemiological, hereditary, professional, living conditions, harmful habits (quantity, duration)
Disease anamnesis	15	Logic of presentation: cause, onset, dynamics, treatment before admission
Objective examination	20	Completeness: general condition, skin/mucous, lymph nodes, respiratory organs, CVS, GIT, urinary, nervous system; correctness of terminology
Instrumental and laboratory methods data	10	Correctness of interpretation, connection with clinical picture, comparison with norm

Medical History Section	Points	What to focus on when assessing
Preliminary diagnosis	15	Formulation according to ICD-10, syndromal decoding, diagnosis justification
Differential diagnosis	10	Logic, comparative , justification of exclusion of alternatives
Examination plan	10	Validity, consideration of contraindications, cost-effectiveness
Treatment plan	10	Correspondence to standards, consideration of comorbidities and contraindications
Observation diaries (≥3)	5	Dynamics of condition, correction of diagnosis and treatment, date and signature
TOTAL	**100**	

3.2 Assessment Criteria by Levels

Level	Points	Work Characteristic	Teacher Action
Unsatisfactory	<60	Gross errors in diagnosis or treatment, incomplete curation, plagiarism	Return for revision, new curation or correction with consultation
Satisfactory (E)	60-69	Main sections completed, inaccuracies present, formal approach	Accept with indication of shortcomings, recommendations for independent work
Good (C-D)	70-84	Complete structure, correct diagnosis, justified treatment, insufficient analysis depth	Accept, recommendations for developing clinical thinking
Excellent (B)	85-94	Completeness, correctness, literacy, critical analysis, consideration of patient features	Accept, encouragement, possible recommendation for publication or exhibition
Excellent (A)	95-100	All criteria of B + original observations, independent analysis of complex case	Accept, recommendation for scientific work, conference

3.3 Verification Procedure (step-by-step for teacher)

1. **Acceptance of work (5 min)**
   - Check presence of all sections (11 sections)
   - Check signatures of head of department and supervisor
   - Check curation periods (≥3 days in diaries)
2. **Superficial check (10 min)**
   - Originality (anti-plagiarism)
   - Formatting (GOST/Ministry of Health order)
   - Terminology (medical dictionary)
3. **Deep check (20-30 min)**
   - Complaints: chronology, negations
   - Life anamnesis: harmful habits quantitatively
   - Objective examination: completeness, logic of description
   - Diagnosis: syndromal decoding
   - Treatment plan: specific doses and schemes
   - Diaries: dynamics, correction, signatures
4. **Oral defense (15-20 min)**
   - Verification of material knowledge
   - Verification of clinical thinking
   - Verification of practical skills mastery (simulator)
5. **Grade assignment (5 min)**
   - Filling assessment form
   - Teacher signature
   - Informing student of result and improvement recommendations

3.4 Actions for Low Grade

Situation	Cause	Solution
<60 points	Gross errors, incomplete curation, plagiarism	Consultation, revision with new patient, new topic in case of plagiarism
60-69 points	Formal approach	Indication of shortcomings, recommendations for independent work, pass with remark

APPENDIX 2
Control and Assessment of Students' Independent Work (SIW)
SIW Topics in the Discipline "Endocrinology"

Section 1. Diabetology (Diabetes Mellitus)

1. Introduction to endocrinology. Diabetes mellitus: classification, etiology, pathogenesis, clinical picture, diagnosis, treatment.
2. Micro- and macrovascular complications of diabetes mellitus.
3. Comas in diabetes mellitus.
4. Curation of patient with diabetes mellitus.
5. Treatment of type 1 and 2 diabetes mellitus, lifestyle changes, principles of insulin therapy, oral hypoglycemic drugs.
6. Self-control and patient education in type 1 and 2 diabetes mellitus, calculation of insulin therapy and nutrition by bread units.
7. Diabetic retinopathy, nephropathy, neuropathy, features of IHD in diabetes mellitus.
8. Diabetic neuropathy and diabetic foot syndrome.
9. Acute complications of diabetes mellitus: ketoacidosis, hypoglycemia, hyperosmolar states, lactic acidosis, principles of emergency care and treatment.

Section 2. Other Endocrine Diseases in Adults

1. Thyroid diseases: thyrotoxicosis syndrome, etiopathogenesis, classification, clinical picture, diagnosis, treatment methods.
2. Hypothyroidism syndrome and iodine deficiency diseases: epidemiology, clinical picture, diagnosis, treatment, prevention.
3. Hypocorticism syndrome: etiopathogenesis, clinical picture, diagnosis, treatment.
4. Hypercorticism syndrome: etiopathogenesis, clinical picture, diagnosis, differential diagnosis, treatment principles.
5. Hypothalamic-pituitary area diseases: etiopathogenesis, clinical picture, diagnosis, treatment.
6. Diffuse toxic goiter, hypothyroidism, iodine deficiency diseases, sporadic and endemic goiter: clinical picture, diagnosis, treatment, prevention.
7. Thyroiditis.
8. Parathyroid gland diseases: hyperparathyroidism, hypoparathyroidism, etiopathogenesis, clinical picture, diagnosis, treatment.
9. Hyperparathyroidism as part of endocrine syndromes.
10. Chronic adrenal cortex insufficiency: Addison's disease, secondary insufficiency, acute insufficiency, diagnosis, treatment.
11. Acromegaly, diabetes insipidus, hypopituitarism: clinical picture, diagnosis, differential diagnosis, treatment.
12. Growth disorders in children and adults, somatotropic insufficiency.
13. Obesity, epidemiology, prevention, metabolic syndrome, healthy lifestyle.

1. General Provisions

- Student performs independent work on a topic or section of the course.
- Work may include: information collection, data analysis, report/essay/paper formatting and oral presentation preparation.
- Submission deadlines are set by the teacher.

2. Work Assessment Criteria (100 points)

Criterion	Points	Details
Relevance and goal setting	10	Clear goal, correspondence to topic, task choice justification
Content and depth of coverage	30	Material completeness, logic of presentation, systematicity
Scientific nature and critical analysis	20	Use of sources, comparison of opinions, analytical approach
Practical significance	15	Connection with practice, application of knowledge, decision justification
Formatting and style	15	Literacy, structuring, formatting of references and figures
Defense of work	10	Oral presentation, answers to questions, argumentation

3. Assessment Scale

- 95–100 points — Excellent (A)
- 85–94 points — Excellent (B)
- 70–84 points — Good (C–D)
- 60–69 points — Satisfactory (E)
- <60 points — Unsatisfactory

4. Teacher's Work Verification Procedure

1. **Acceptance of work**
   - Check presence of all work parts: title page, content, main part, reference list.
   - Check submission deadlines and signatures if necessary.
2. **Superficial check**
   - Assessment of formatting and structure.
   - Originality check (anti-plagiarism).
   - Terminology and correctness of formulations check.
3. **Deep check**
   - Check of topic coverage completeness.
   - Assessment of analysis and information interpretation.
   - Comparison with normative sources and methodological recommendations.
4. **Oral defense (if provided)**
   - Brief work presentation (5–7 minutes).
   - Answers to teacher's questions (5 minutes).
   - Answers to other students' questions (3 minutes).
   - Assessment of ability to argue, analyze and apply knowledge.
5. **Final grade assignment**
   - Teacher assigns points for each criterion.
   - Signature and date are placed on assessment form.
   - Recommendations for revision if necessary.

5. Actions for Low Grade

Situation	Cause	Action
<60 points	Gross errors or non-compliance with requirements	Consultation, work revision, resubmission/defense
Plagiarism >30%	Unaccep copying	Work returned without grade, new topic required
Partial non-submission or formal approach	Insufficient topic coverage	Recommendations for revision, resubmission with corrections

Retake Procedure

1. **Retake of boundary control:** Within 2 weeks after main date at specially allotted time. Maximum score at retake — 80% of maximum.
2. **Retake of pass:** Within established retake periods. Grade not higher than "satisfactory."
3. **Retake of exam:** According to examination session schedule.