

**FEDERAL STATE BUDGET EDUCATIONAL  
HIGHER EDUCATION INSTITUTION  
"ROSTOV STATE MEDICAL UNIVERSITY"  
MINISTRY OF HEALTH OF THE RUSSIAN FEDERATION**

**FACULTY OF TREATMENT AND PREVENTION**

Appraisal Fund  
in the discipline "Radiation diagnostics"

Specialty 05/31/01 General Medicine

**1. Form of intermediate certification: test.**

**2. Type of intermediate certification:** based on the results (results) of current control (current certification).

**3. List of competencies formed by the discipline or in formation which discipline is involved**

***professional (PC)***

Code and name of professional competencies	Indicator(s) of professional achievement competencies
PK-6 Maintaining medical records and organizing activities at the disposal of nursing staff	Maintaining medical records, including in electronic form Work with patients' personal data and information, constituting medical confidentiality Fill out the medical documentation, including in electronic form

**4. Stages of developing competencies in process of mastering the discipline**

Sections of the discipline	Codes generated competencies
	PC6
Section 1	+
Section 2	+
Section 3	+
Section 4	+
Section 5	+
Section 6	+

**5. Types of assessment materials in accordance with the competencies being developed**

Name achievement indicator (ID) competence	Types of assessment materials
	Current certification
PC ID - 6	Tests Situational tasks Questions for control Types of SRS: Essay Oral survey

**6. Current control**

**PC - 6:**

**Interview, oral questioning**

1. Radiation diagnostic methods: ionizing, non-ionizing. Basic, additional, special methods.
2. Principles of radiation protection. Groups of critical organs.
3. Radiation symptoms and syndromes of skeletal damage: changes in the position, shape and size of bones; changes in bone structure, changes in the periosteum.
4. Radiation symptoms and joint damage syndromes.
5. Bone fractures: basic and additional research methods, age characteristics, radiological signs of fractures, types of fracture displacement.
6. Normal fracture healing and pathological fracture healing.
7. Osteomyelitis: types, stages, forms, radiation picture.
8. Syphilis of bones.
9. Tuberculous bone lesion: radiation picture
10. Degenerative-dystrophic processes in bones.
11. Bone tumors.
12. Methods of radiation diagnostics of the respiratory system. Radiation anatomy.
13. Syndromes of lung diseases.
14. Acute pneumonia. Types of complications, outcomes.
15. Radiation diagnosis of pulmonary tuberculosis: classification, radiographic picture of forms.
16. Radiation diagnosis of lung cancer: classification, radiographic picture of forms.
17. Radiation picture of bronchial obstruction.
18. Radiation diagnostics of pneumo- and hydrothorax.
19. Radiation examination of the esophagus is normal. X-ray semiotics of diseases of the gastrointestinal tract.
20. Esophageal diverticulum. Esophageal atresia.
21. Dyskinesia of the esophagus. Esophagitis and esophageal ulcers.
22. Achalasia of the esophagus. Hiatal hernia.
23. Radiation examination of the stomach and 12 PC are normal. Gastritis.
24. Gastric ulcer and 12 PCs. Complications.
25. Radiation examination of the intestine is normal. Intestinal obstruction.
26. Nonspecific ulcerative colitis.
27. Benign tumors of the gastrointestinal tract.
28. Malignant tumors of the gastrointestinal tract.
29. Damage to a hollow organ. Diagnosis of foreign bodies.
30. Radiation study of cardiac function: echocardiography, ventriculography, radionuclide angiocardiology, perfusion scintigraphy. Research methodology, indications and contraindications.
31. Radiation symptoms and heart damage syndromes.
32. Radiation picture of types of stagnation in the pulmonary circulation.
33. IHD, MI: diagnostic methods, radiation signs.
34. Mitral defects (MV insufficiency, MV stenosis): diagnostic methods, radiation signs.
35. Aortic defects (CA insufficiency, AV stenosis): diagnostic methods, radiation signs.
36. Pericarditis: diagnostic methods, radiation signs.
37. Stages of development of clinical angiography.
38. Routes of administration of contrast agents. Types of contrast agents.

39. Types of angiographic studies.
40. Angiographic semiotics of vascular lesions.
41. X-ray endovascular interventions.
42. Radiation anatomy. Methods for diagnosing the urinary system: sonography, plain radiography, excretory urography, ascending pyelography, antegrade pyelography, CT, MRI - methods, indications and contraindications.
43. Radiation picture of inflammatory diseases, ICD.
44. Kidney injury; bladder injury.
45. Tumors and cysts of the kidneys.
46. Developmental anomalies: types, radiographic picture.
47. Radiation anatomy and physiology of the thyroid gland. Diffuse goiter. Toxic nodular goiter.
48. Benign nodules of the thyroid gland. Malignant mass formations of the thyroid gland.

### Test control

Enlarged panoramic radiographs of the upper and lower jaws in direct projection are informative for assessing the \_\_\_\_\_ parts of the jaws

- A. rear
- B. average
- C. frontal
- D. front
- E.

In what year did V.K. Did X-ray discover the radiation that was later named after him?

- A. in 1890
- B. in 1895
- C. in 1900
- D. in 1910

What region of the electromagnetic spectrum does X-ray radiation occupy?

- A. between gamma radiation and ultraviolet radiation;
- B. between radio waves and magnetic field;
- C. between infrared and ultraviolet radiation; between
- D. ultraviolet radiation and visible light.

What organs and tissues of the human body need priority protection from ionizing radiation?

- A. breast
- B. bone marrow and gonads
- C. skin and muscles
- D. heart and brain

Choose the most accurate definition of the term "radiography"?

- A. method of obtaining images of organs and systems on an X-ray screen;
- B. method of obtaining images of organs and systems on x-ray film; method of
- C. obtaining images of organs and systems on thermal paper; planar image of
- D. organs and systems on x-ray film in direct and lateral projection.

What is X-ray tomography?

- A. synonym for radiography;
- B. anatomical (morphological) sections in the axial plane; a term
- C. that unites all digital methods of radiation diagnostics; method of
- D. obtaining layer-by-layer images of the area under study.

What methods of human research are classified as radiation?

- A. X-ray methods;
- B. radionuclide methods;
- C. ultrasonic methods;
- D. Magnetic resonance imaging;

An example of real-time research is?

- A. scintigraphy;
- B. radiography;
- C. fluoroscopy;
- D. fluorography.

For artificial contrast in radiology the following are used:

- A. gases (oxygen, nitrous oxide, carbon dioxide).
- B. barium sulfate.
- C. organic iodine compounds. all
- D. of the above

What type of radiation is used in CT?

- A. Alpha radiation
- B. X-rays Ultrasound
- C. radiation Magnetic field
- D.

1	2	3	4	5	6	7	8	9	10
WITH	B	A	B	B	D	A	C	D	B

**Situational tasks**

Questions:

1. Determine the type of research and projection?
2. Determine the localization of pathological changes?

3. Identify the leading radiological syndrome.
4. Describe the radiographic picture of pathological changes.
5. What is your expected diagnosis?
6. Additional tactics of radiation examination (as necessary)?

**Task 1.**

A 63-year-old patient complains of fatigue, slight shortness of breath, and weight loss of up to 7 kg over the past month. On physical examination there is a pulmonary sound, and on auscultation there is vesicular breathing. To clarify the diagnosis, an X-ray examination was prescribed.



Standard answer.

1. X-ray of the chest organs in direct projection
2. Middle lobe of the right lung
3. Round shadow syndrome
4. On the right, at the border of the upper and middle lobes, there is limited darkening, round in shape, of medium intensity, with uneven contours. From the formation towards the root of the lung there are areas of stringy tissue.
5. Peripheral cancer of the right lung.
6. No need.

**Task 2.**

Male 35 years old. At the time of the study, there was fever, severe shortness of breath, and dizziness. On physical examination, dullness of percussion sound is diffuse on the left, breathing on the left is not audible. To clarify the diagnosis, an X-ray examination was prescribed.



Standard answer.

1. X-ray of the chest organs in direct projection

2. Left lung
3. Blackout syndrome.
4. On the right, there is a subtotal darkening syndrome with the highest intensity of the shadow in the lower parts and medium intensity in the paracostal region. There is a clear horizontal line at the border of the darkening and the upper parts of the right lung.
5. Subtotal hydrothorax on the left.
6. Dynamic radiography.

### Task 3.

Patient, 58 years old, car mechanic, 40 years old. Complaints of cough mixed with pus in the sputum, pain in the right side, fever.



Standard answer.

1. X-ray of the chest organs in direct projection
2. Right lung
3. Shading with horizontal liquid level.
4. In the lower lobe of the right lung there is a rounded formation measuring 10.5\*11 cm, of heterogeneous intensity: the highest density of darkening from below and clearing from above, separated by a horizontal level of liquid.
5. Abscess of the lower lobe of the right lung
6. Dynamic radiography.

### Abstract topics.

1. Methods diagnostics reproductive systems: metrosalpinography, sonography, CT, MRI.
2. Methods of radiation examination of the breast: mammography, ductography.
3. Radiation study of heart function: echocardiography, ventriculography, radionuclide angiocardiology, perfusion scintigraphy. Research methodology, indications and contraindications.
4. Routes of administration of contrast agents. Types of contrast agents.
5. Types of angiographic studies.
6. Angiographic semiotics of vascular lesions.
7. X-ray endovascular interventions.

## 8. Degenerative-dystrophic processes in bones.

9. Gastrointestinal tract tumors.

10. Inflammatory diseases of the gastrointestinal tract: acute and chronic.

11. Bone tumors.

### 7. Description of indicators and criteria for assessing competencies at the stages of their formation, description of assessment scales

Criteria	Levels of competency development		
	<i>Threshold</i>	<i>Sufficient</i>	<i>High</i>
	Competence formed. Demonstrated threshold, satisfactory sustainable level practical skill	Competence formed. Demonstrated enough level independence, sustainable practical skill	Competence formed. Demonstrated high level independence, high adaptability practical skill

### Competency assessment indicators and rating scales

Grade "unsatisfactory" (not accepted) or lack of maturity competencies	Grade "satisfactorily" (passed) or satisfactory (threshold) level of development competencies	Rated "good" (passed) or sufficient level development competencies	Excellent rating (passed) or high level development competencies
failure to student on one's own demonstrate knowledge when solving assignments, lack independence in application of skills. Absence availability confirmation formation	student demonstrates independence in application of knowledge skills and abilities to solve educational tasks in full According to sample given teacher, by tasks, solution	student demonstrates independent application of knowledge, skills and abilities when deciding tasks, tasks similar samples that confirms Availability	student demonstrates ability to full independence in choosing a method solutions non-standard assignments within disciplines with using



competencies indicates negative development results academic discipline	of which there were shown teacher, it should be considered that competence formed on satisfactory level.	formed competencies for higher level. Availability such competence on sufficient level indicates sustainable fixed practical skill	knowledge, skills and skills, received as in development progress of this discipline, and adjacent disciplines should count competence formed on high level.
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### Evaluation criteria for the test

Mark	Descriptors		
	strength of knowledge	ability to explain the essence of phenomena, processes, do conclusions	logic and subsequence answer
passed	solid knowledge of the basic processes of the studied subject area, the answer differs in depth and completeness of the topic; possession terminological apparatus	ability to explain essence, phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples	logic and subsequence answer
not accepted	insufficient knowledge subject matter being studied areas, unsatisfactory disclosure of the topic; weak knowledge of the basic issues of theory. Allowed serious mistakes in content of the answer	weak analysis skills phenomena, processes, events, inability give reasoned answers given the examples are wrong	lack of logic and consistency answer

### Criteria for evaluating forms of control:

#### *Interviews:*

Mark	Descriptors		
	strength of knowledge	ability to explain the essence of phenomena, processes, do conclusions	logic and subsequence answer
Great	strength of knowledge, knowledge of basic processes subject matter being studied areas, the answer differs in depth and completeness disclosure of the topic; possession	high skill explain the essence phenomena, processes, events, draw conclusions and generalizations, give reasoned	high logic and subsequence answer

	terminological apparatus; logic and consistency answer	answers, give examples	
Fine	solid knowledge of the basic processes of the studied subject area, differs in depth and completeness of the topic; possession terminological apparatus; free mastery of monologue speech, but one or two inaccuracies in the answer are allowed	ability to explain essence, phenomena, processes, events, draw conclusions and generalizations, give reasoned answers, give examples; however one or two inaccuracies in the answer are allowed	logic and subsequence answer
satisfactory really	satisfactory process knowledge subject matter being studied areas, answer, different insufficient depth and completeness of the topic; knowledge of basic theoretical issues. Several are allowed errors in content answer	satisfactory ability to give reasoned answers and provide examples; satisfactorily formed analysis skills phenomena, processes. Several are allowed errors in content answer	satisfactory logic and subsequence answer
will not satisfy really	poor knowledge of the subject area being studied, shallow opening Topics; poor knowledge basic theoretical issues, poor analysis skills phenomena, processes. Serious errors in content answer	inability to give reasoned answers	lack of logic and consistency answer

**Test control grading scale:**

percentage of correct answers	Marks
91-100	Great
81-90	Fine
71-80	satisfactorily
Less than 71	unsatisfactory

**Situational tasks:**

Mark	Descriptors			
	understanding Problems	analysis situations	skills solutions situations	professional thinking
Great	complete implication problems. All	high benefit analyze	high benefit select method	high level professional thoughts

	requirements, submitted to adania, completed	situation, draw conclusions	solutions problems faithful solution skills situation	
Fine	complete implication problems. All requirements, submitted to adania, completed	benefit analyze situation, draw conclusions	benefit select method solutions problems faithful solution skills situation	residual level professional thoughts. drops one or two precision in the answer
satisfactory really	astatic implication problems. majority requirements declared to adania, completed	satisfactory 1st ability analyze situation, draw conclusions	satisfactory e skills solutions situation	residual level professional thoughts. falls more a bunch of inaccuracies in reply
will not satisfy really	misunderstanding problems. legs requirements, submitted to I hope not completed. No Tveta. Did not have experiments to solve hello	izkaya benefit analyze situation	insufficient solution skills situation	missing

### Report

Mark	Descriptors			
	Disclosure Problems	Performance	Decor	Answers to questions
Great	Problem revealed fully. Analysis carried out problems with involving additional literature. conclusions justified.	Represented information systematized consistent and logically connected. Used more than 5 professional terms.	Necessary and sufficient usage information technologies for visibility representation information. None errors in represented information.	Answers to complete questions haunted examples and/or explanations.
Fine	Problem revealed. Analysis carried out no problems attracting additional literature. Not all conclusions made and/or	Represented information systematized and consistent. Used more than 2 professional terms.	Necessary and sufficient usage information technologies for visibility representation information. Not more than 2 errors in	Answers to complete questions and/or partially full

	justified.		represented information	
Satisfactorily	Problem not disclosed fully. <small>The conclusions are not</small> made and/or <small>conclusions are not</small> justified.	Represented no information systematized and/or not consistent. Used 1-2 professional term.	Insufficient usage information technologies for visibility representation information. Accepted 3-4 errors in represented information.	Only answers on elementary questions.
Unsatisfactory	The problem is not revealed. None <small>conclusions.</small>	Represented information logically not connected.	Insufficient usage information technologies for visibility representation information. More allowed 4 errors in represented information.	No answers to questions.

CHECK LIST for the second (commission) retake

No.	Examination event*	Score/points
1	Interview	80
2	Solving situational problems	20
Total arithmetic average estimate		100