EXAMINATION QUESTIONS ON RADIOLOGY AND RADIOTHERAPY (5 semester)

1. The properties of x-ray used for reception of x-ray images.
2. The basic methods of radiological researches. Kinds, the characteristic.
3. Conventional tomography, computerized tomography — methods of radiological researches. The characteristic.
4. Radiographic contrast agents. Indications to application.
5. Possible complications with radiographic contrast agents (principles of preventive maintenance and treatment).
6. The properties of ultrasonic wave used for reception of the ultrasonic image.
7. The basic methods of ultrasonic researches. Kinds, the characteristic.
8. Doppler method its diagnostic opportunities.
9. Bases of reception of the ultrasonic image and its feature.
10. The kinds of radiations used in nuclear medicine.
11. Definition of radiopharmaceutical preparation. Requirements to radiopharmaceutical preparation. Ways of leading radiopharmaceutical preparation to object for research.
12. The basic in vivo methods of nuclear medicine.
13. The characteristic of methods static and dynamic nuclear medicine studies.
14. The characteristic of a method: radiografy.
15. The characteristic of a method: fluoroscopy.
16. The characteristic of a method: a x-ray computerized tomography.
17. Principles of radiating safety in medical radiology.
18. The basic features of biological action ionizing radiations.
19. Stages of interaction ionizing radiations with cells and tissues of an organism.
20. Critical postbeam endocellular structures.
21. Critical postbeam processes in cells and tissues of an organism.
22. Kinds of fields and the wave used in a magnetic resonance imaging.
23. Principles of reception of images and its features at a magnetic resonance imaging.
24. Concept of radiosensitivity. The major factors determining radiosensitivity of a cell.
25. Ways of updating of radiosensitivity of healthy and malignant cells.
26. Linear(conventional) tomography. A principle. Opportunities. Indications.
27. Preventive photoroentgenography. A principle. Opportunities. Indications.
28. Remote gamma - therapy (telegammatherapy). A principle. Opportunities. Indications.
29. Brahytherapy. A principle. Opportunities. Indications. Contra-indications.
30. The combined radiotherapy. A principle. Opportunities. Indications. Contra-indications.
31. Complex radiotherapy. A principle. Opportunities. Indications. Contra-indications.
32. Radical, palliative, symptomatic radiotherapy.
33. Physical principles of protection from ionizing radiations.
34. Postbeam processes at fractionation an irradiation.
35. Sources electromagnetic ionizing radiations for radiotherapy.
36. Sources corpuscular ionizing radiations for radiotherapy.
37. Dosimetric rating of absorption of energy of radiation in a body of the person at brake radiation high энергий.
38. Dosimetric rating of absorption of energy of radiation in a body of the patient at telegammatherapy (^{60} Co).
39. Dosimetric rating of absorption of energy of radiation in a body of the person at beam therapy fast electrons (β-rays).
40. Dosimetric rating of absorption of energy of radiation in a body of the person at beam therapy high liner transfer energy radiations.
41. Indications to radiotherapy of malignant tumours.

42. Contra-indications to radiotherapy of malignant tumours.
43. The factors determining radiosensitivity of a tumour. Radiosensitive and radioresistant tumours.
44. Modes fractionation of dozes at radiotherapy of malignant tumours.
45. Definition of biological effect of beam therapy at various fractionation of dozes ($TTD_{5/5}$).
46. Principles of radiotherapy of malignant tumours.
47. Postoperative radiotherapy. A principle. Indications. Contra-indications.
48. Complex radiotherapy. Variants of carrying out. Features fractionation of dozes of complex radiatherapy.
49. The basic radiological sizes used in medical radiology: an equivalent doze, an effective doze.
50. The radiological terms used in radiotherapy: a doze of radiation absorbed, units of the absorbed doze and unit of a radio-activity.
51. Stochastic radiation injuries in radiology.
52. The determined radiation injuries in medical radiology.
53. The general radiation reactions at carrying out of radiotherapy (diagnostics, preventive maintenance, treatment).
54. Local radiation reactions of a skin at carrying out of radiotherapy (diagnostics, preventive maintenance, treatment).
55. Local radiation reactions of mucous membranes at carrying out of beam therapy (diagnostics, preventive maintenance, treatment).
56. Late local radiation damages (diagnostics, preventive maintenance, treatment).
57. Early local radiation damages (diagnostics, preventive maintenance, treatment).

Chief of Department  Alexandrovich A.S.
31/08/2022

EXAMINATION QUESTIONS ON RADIOLOGY AND RADIOTHERAPY (6 semester)

1. Roentgenology, nuclear medicine, ultrasonic, magnetic resonance methods at research of musculoskeletal system.
2. The order of the analysis of roentgenograms of musculoskeletal system. Age features.
3. The basic roentgenology symptoms at damages of bones and joints.
4. The basic radiological symptoms of diseases of bones and joints.
5. Radiological researches at inflammatory diseases of bones and joints.
6. Radiological researches at malignant tumours of a skeleton and soft tissues.
7. Roentgenology attributes of a deforming arthrosis.
8. Roentgenology attributes of an osteochondrosis of a backbone.
9. Methods of a X-ray inspection of lung. A diagnostic minimum.
10. Technique of the analysis of roentgenograms of a thorax.
11. Technique of the analysis of shadows on roentgenograms of thorax.
12. Indications to roentgenography, fluoroscopy, roentgenophotography of lungs.
13. Indications to a computerized tomography of lungs and mediastinum.
14. The basic radiological syndromes at diseases and damages of lung.
15. Differential radiological diagnostics the total or subtotal shadow of pulmonary fields.
16. Differential radiological diagnostics at a round shadow in a pulmonary field.
17. Differential radiological diagnostics at a ring shadow in a pulmonary field.
18. Roentgenology attributes of an acute pneumonia (lobar a pneumonia, bronchopneumonia, streptococcal and staphylococcal pneumonia).
19. Roentgenology attributes of a chronic bronchitis and chronic pneumonia.
20. Roentgenology attributes of an primary pulmonary tuberculosis and tuberculosis of intrachest lymph nodes
21. Roentgenology attributes of hematogenously disseminated tuberculosis of lung.
22. Roentgenology a focal tuberculosis of lung.
23. Roentgenology features of infiltration-pneumonic tuberculosis of lung and tuberculoma.
24. Roentgenology features of a pleuritis.
25. Roentgenology features of cavernous and fibrosis- cavernous tuberculosis of lung.
26. Radiological attributes of a central lung cancer.
27. Radiological attributes of a peripheric lung cancer.
28. Role of radionuclid researches of organs of breath at diagnostics of lung diseases (an inhalation and perfused scintigraphy, a positive scintigraphy).
29. Roentgenology methods of a X-ray inspection of heart and blood vessels (a roentgenography, a computerized tomography, an angiocardiography, an arteriography).
30. Radiological methods of visualization of lymph nodes.
31. Methods of ultrasound research of heart and vessels and their diagnostic opportunities.
32. Indications to application, clinical value and bases of the analysis radionuclide (nuclear medicine) researches of cardiovascular system (nuclear myocardial perfusion imaging).
33. Methods of roentgenology investigation of gastrointestinal tract (fluoroscopy, roentgenography, computerized tomography).
34. Methods of ultrasonic of a liver and pancreas, basis of ultrasonic anatomy, diagnostic opportunities.
35. Radiological attributes of pathological processes in a liver: a trauma, a cyst, a tumour.
36. Radiological attributes of pathological processes in a liver: a hepatitis acute and chronic, a cirrhosis of a liver.
37. Radiological attributes of obstruction of bile ducts.
38. Radiological attributes of an acute cholecystitis, cholelithiasis.

39. Radiological attributes of an acute and chronic pancreatitis, cancer of a pancreas.
40. Methods of nuclear medicine researches for a liver. A principle, clinical value.
41. Radiological indications of a perforated stomach ulcer and acute coliform obstruction (X-ray inspections at acute belly catastrophes)
42. Radiological attributes of a stomach and duodenum ulcer.
43. Radiological attributes of a malignant and benign tumours of a gastrointestinal tract.
44. Kinds of radionuclide researches of a status of kidneys (radiorenography, dynamic nephroscintigraphy, angyonephroscintigraphy).
45. Ultrasonic researches of urinary tract (a principle, opportunities, indications, contraindications).
46. Roentgenology methods of diagnostics of urinary tract (survey X-ray film, intravenous urography, retrograde ureteropyelography, cystography, computerized tomography).
47. Radiological attributes of a pyelonephritis, glomerulonephritis, urolithiasis.
48. Radiological attributes renal cysts, renal cells carcinoma.
49. Radiological attributes of renal trauma.
50. Ultrasonic research of adrenal glands, thyroid and parathyroid glands. Opportunities, indications and contra-indications.
51. Methods of nuclear medicine researches of thyroid gland. Preparation, opportunities, indications and contra-indications.
52. General semiotics of diseases of thyroid glands (adenoma of thyroid – endemic goiter– , tumours, cysts, , thyroiditis, thyrotoxicosis).

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