**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 "Occupational diseases"

Specialty 05/31/01 General Medicine

2023

1. List of competencies formed by the discipline (in full or partially)*

professional (PC)

Code and name of professional competencies	Indicator(s) of professional achievement competencies
PK-16	Readiness for educational activities to eliminate risk factors and developing healthy lifestyle skills

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

Name competencies	Types of assessment materials	number of tasks **for 1 competency**
PK-16	Closed tasks	25 with sample answers
	Open type tasks: Situational tasks Interview questions Add-on tasks	75 with sample answers

PK-16

Task 1. Instructions: Choose one correct answer. The first

class of working conditions is:

1) elimination of adverse effects on the worker's body;

2) exposure to harmful production factors not exceeding hygienic ones standards,

3) exposure to harmful production factors exceeding hygienic ones standards and have an adverse effect on the worker's body and (or) his offspring;

4) exposure to harmful production factors during a work shift (or its parts), creating a threat to life, a high risk of developing acute occupational injuries, including severe forms.

Response standard: 4. exposure to harmful production factors during a work shift (or part of it) creates a threat to life, a high risk of developing acute occupational injuries, including severe forms.

Task 2. Instructions: Choose one correct answer.

Maximum permissible concentrations are:

1) exceeding permissible concentrations;

2) concentrations that do not cause disease;

3) concentrations that do not affect the health of workers;

4) concentrations that, with daily (except weekends) 8-hour work (but no more than 41 hours per week) during the entire working period cannot cause diseases or deviations in the state of health, detected by modern research methods, during work or in distant periods of life, both present and future generations.

*Sample answer:*4. concentrations that, with daily (except weekends) 8-hour work (but not more than 41 hours a week) throughout the entire working experience, cannot cause diseases or health abnormalities detected by modern research methods, during work or during distant periods of life, both present and future generations.

Task 3. Instructions: Choose one correct answer. List of occupational diseases:

1) this is a list of occupational diseases;

2) this is a list of harmful and dangerous production factors;

3) this is a list of work-related diseases;

4) this is the main document that is used to make a diagnosis occupational disease, its connection with the work performed or profession, when resolving issues of examination of work ability, medical and labor rehabilitation, as well as consideration of issues related to compensation for damage caused to an employee by damage to health.

*Sample answer:*4. This is the main document that is used when establishing a diagnosis of an occupational disease, its connection with the work or profession performed, when resolving issues of examination of work ability, medical and labor rehabilitation, as well as consideration of issues related to compensation for damage caused to an employee by damage to health.

Task 4. Instructions: Choose one correct answer. Occupational health risk for workers is the probability of: 1) the occurrence of an occupational disease

2) damage to health

3) the occurrence of complications of an occupational disease

4) damage (loss) to health; or death of the insured associated with fulfillment of his duties under an employment agreement or contract.

*Sample answer:*4. damage (loss) to health; or the death of the insured associated with the performance of his duties under an employment agreement or contract.

Task 5. Instructions: Choose one correct answer.

The second class of working conditions is:

1) elimination of adverse effects on the worker's body;

2) exposure to harmful production factors not exceeding hygienic ones standards;

3) the presence of harmful production factors exceeding hygienic ones standards and have an adverse effect on the worker's body and (or) his offspring;

4) exposure to harmful production factors during a work shift (or its parts), creating a threat to life, a high risk of developing acute occupational injuries, including severe forms

*Sample answer:*2. exposure to harmful production factors that do not exceed hygienic standards;

Task 6. Instructions: Choose one correct answer.

The purpose of the preliminary medical examination upon entry to work is: 1)

medical selection of persons resistant to the effects of adverse production factors;

2) prevention of common diseases;

3) prevention of occupational diseases;

4) all of the above.

*Sample answer:*4. all of the above.

Task 7. Instructions: Choose one correct answer.

"Insured" means:

1) a legal entity of any organizational and legal form;

2) an individual subject to compulsory social insurance from occupational diseases and injuries;

3) Social Insurance Fund of the Russian Federation;

4) a person's ability to perform work of a certain qualification, volume and quality.

*Sample answer:*2. an individual subject to compulsory social insurance against occupational diseases and injuries

Task 8. Instructions: Choose one correct answer.

Syndrome characteristic of vibration disease from the action of general vibration: 1)

osteoporosis of the wrist bones;

2) angiodystonic;

3) myofasciitis of the forearms;

4) deforming arthrosis of the shoulder joints.

*Sample answer:*2. Angiodystonic.

Task 9. Instructions: Choose one correct answer.

A pronounced degree of vibration disease is not characterized by the development of: 1. sensorimotor polyneuropathy;

2. generalized acroangiospasm;

3. thrombophlebitis;

4. cerebral angiodystonic syndrome5. dystrophic changes musculoskeletal system.

*Sample answer:*3. thrombophlebitis.

Task 10. Instructions: Choose one correct answer. Complex treatment of vibration disease includes everything except: 1. B vitamins;

2. vasodilators;

3. balneotherapy;

4. complexones.

*Sample answer:*4. complexones.

Task 11. Instructions: Choose one correct answer.

For patients with grade 2 vibration disease who have had no effect from treatment, the following is recommended:

1. continuation of work under conditions of dispensary medical observation and treatment;

2. temporary employment through VK;

3. permanent rational employment, referral to BMSE;

4. treatment on sick leave;

5. permanent employment through VK.

*Sample answer:*3. permanent rational employment, referral to BMSE. Task 12.

Instructions: Choose one correct answer.

For silicotuberculosis the following statement is true: 1) bacilli are characteristic;

2) bacilli are extremely rare;

3) bacilli are not typical.

*Sample answer:*2. bacilli are extremely rare. Task 13.

Instructions: Choose one correct answer.

Metalloconiosis, in which there is no relationship between the dose of the active substance and the effect of the action, includes:

1) siderosis;

2) berylliosis;

3) aluminosis.

*Sample answer:*2. Beryllium.

Task 14. Instructions: Choose one correct answer.

The most effective medications for lead intoxication include:

1) glucose;

2) B vitamins;

3) complexons;

4) magnesium sulfate;

5) iron supplements.

*Sample answer:*3. complexons.

Task 15. Instructions: Choose one correct answer. The group of hemolytic anemias is distinguished from lead anemia by: 1) reticulocytosis;

2) anemia;

3) basophilic granularity of erythrocytes;

4) splenomegaly.

*Sample answer:*3. basophilic granularity of erythrocytes.

Task 16. Instructions: Choose one correct answer. The classic triad of mercury intoxication:

1) tremor, erethism, stomatitis;

2) tremor, hyperhidrosis, erethism;

3) tremor, mercurialentis, periodontal disease. *Sample answer:*

1. tremor, erethism, stomatitis. Task 17. Instructions: Choose one correct answer.

The main clinical manifestations of intoxication with organophosphate pesticides are determined by:

1) anticholinesterase effect;

2) contact action;

3) nephrotoxic effect.

*Sample answer:*1. anticholinesterase effect. Task 18.

Instructions: Choose one correct answer.

When treating acute intoxication with pesticides, the following can be used:

1) gastric lavage;

2) siphon enemas;

3) infusion therapy;

4) forced diuresis;

5) all of the above.

*Sample answer:*6. all of the above.

Task 19. Instructions: Choose one correct answer.

Specific treatments for chronic intoxication with organomercury compounds:

1) unithiol;

2) thetacine-calcium;

3) atropine;

4) glucose.

*Sample answer:*1. unithiol.

Task 20. Instructions: Choose one correct answer.

Specific antidote therapy for intoxication with organophosphorus compounds involves the administration of:

1) unitiol;

2) thetacine-calcium;

3) atropine;

4) pyridoxine.

*Sample answer:*3. atropine.

Task 21. Instructions: Choose one correct answer.

If poison gets on the conjunctiva, it is necessary to thoroughly rinse the affected areas with copious amounts of:

1) alcohol;

2) clean water;

3) 3% hydrocarbonate solution;

4) kerosene.

*Sample answer:*3. 3% hydrocarbonate solution. Task 22.

Instructions: Choose one correct answer.

To prevent disturbances in electrolyte metabolism, the use of osmotic diuretics must be combined with the administration of saline solutions:

1) glucose;

2) dextran;

3) Ringer-Locke solution;

4) complexones.

*Sample answer:*3. Ringer-Locke solution.

Task 23. Instructions: Choose one correct answer.

In a specialized clinic, more effective methods of neutralizing and removing pesticides are used:

1) hemodialysis;

2) peritoneal dialysis;

3) hemosorption;

4) all of the above.

*Sample answer:*4. all of the above.

Task 24. Instructions: Choose one correct answer.

What medications are used to treat pneumoconiosis: 1) bronchodilators;

2) biostimulants;

3) anti-tuberculosis;

4) sulfonamides;

5) alkaline inhalations.

*Sample answer:*1.bronchodilators.

Task 25. Instructions: Choose one correct answer.

Which drugs most often cause occupational diseases among medical workers:

1) atropine;

2) strophanthin;

3) analgin;

4) caffeine;

5) antibiotics.

*Sample answer:*5.antibiotics.

Task 26.

An occupational disease is a chronic or acute disease resulting from exposure to _____ and resulting in temporary or permanent loss of professional ability to work.

*Sample answer:*harmful production factor. Task 27.

Mercury is a thiol poison that blocks _____ tissue proteins.

Sample answer: sulfhydryl groups. Task 28.

The second class of working conditions is exposure to hazardous production _____ factors, standards.

Sample answer: not exceeding hygienic standards.

Task 29.

Local vibration is most often transmitted through _____ (With motors) or non-motorized (without motors) tools.

Sample answer: worker's hands from manual to mechanized.

Task 30.

Pneumoconiosis is a group of lung diseases caused and characterized by _____ chronic diffuse aseptic pneumonia with the development of pneumofibrosis.

Sample answer: prolonged inhalation of industrial dust. Task 31.

Silicosis is a pneumoconiosis caused by inhalation of dust with a high content of _____ characterized by an often progressive course.

Sample answer: silicon dioxide.

Task 32.

The leading role in the pathogenesis of saturnism belongs to biosynthesis disorders _____ .

Sample answer: porphyrins and heme. Task 33.

The basis of drug therapy for chronic lead intoxication are medications belonging to the group _____ , whose action specifically targeted at thiol poisons.

Sample answer: antidotes.

Task 34.

Working conditions - a combination of factors _____ , affecting the performance and health of the employee

Sample answer: production environment and labor process.

Task 35.

DipyridamoleOinfluences both primary and secondary *Sample* _____.

answer: platelet aggregation. Task 36.

An electric locomotive driver, 48 years old, with 15 years of harmful work experience, work associated with psycho-emotional stress and general vibration, was diagnosed with arterial hypertension.

What group of diseases does arterial hypertension belong to? *Sample answer:*Arterial hypertension is a common disease. Task 37.

An electrician in a mechanical assembly shop, 47 years old, with 18 years of work experience, has harmful factors in the workplace: dust (mineral dust), noise, and unfavorable microclimate. 10 years later, chronic bronchitis was diagnosed. In the obtained sanitary and hygienic characteristics, the level of dust content is no more than 4 cm^3 (MPC of inorganic dust 4 cm^3). Class of working conditions in accordance with the hygienic classification of labor (in terms of harmfulness and danger of factors in the working environment, severity and intensity of the labor process) - acceptable conditions (class 2).

Is it possible to establish a connection between the disease and the profession?

*Sample answer:*Considering that dust levels are not exceeded, compliance MPC and permissible working conditions (2nd class) in accordance with the hygienic classification of labor (in terms of harmfulness and danger of factors in the working environment, severity and direction of the labor process), the connection of the disease with the profession in this case is impossible.

Task 38.

A worker at a mercury plant received acute moderate mercury vapor poisoning while cleaning a boiler. Delivered to the toxicology department of the emergency hospital.

What situation arose at this enterprise?

*Sample answer:*An industrial accident occurred at this enterprise. Task 39.

A storekeeper at a pesticide warehouse, having come to work healthy, at the end of the working day felt general malaise, weakness in the limbs, abdominal pain, and nausea. Objectively: blood pressure = 130/80 mm Hg. Art., pulse - 92 beats per minute, rhythmic. The pupils are constricted, general hyperhidrosis, hypersalivation. Complete blood and urine analysis - no pathology, decreased serum cholinesterase activity.

Preliminary diagnosis: intoxication with organophosphorus compounds. According to the nature of development, what occupational disease does this nosology belong to?

*Sample answer:*This nosology refers to acute occupational disease - acute intoxication with organophosphorus compounds.

Task 40.

The patient worked at a chemical plant for 15 years in contact with substances of the benzene naphthalene series. Then he switched to working without contact with benzene-naphthalene substances. He continued to undergo medical examinations with mandatory cystoscopy. Ten years later, the patient was diagnosed with bladder cancer.

Can the disease be considered occupational?

*Sample answer:*This disease can be considered occupational, since in The list of occupational diseases includes bladder tumors (cancer) from exposure to benzene and naphthalene.

Task 41.

Bus driver S., 33 years old, was sent by the driver's commission for consultation to resolve the issue of the connection between the disease and the driver's work. Complaints of irritability, headache in the occipital region, accompanied by nausea and sometimes vomiting, poor sleep, fatigue.

For the last 8 years, the patient has been working on the city excursion bus "Ikarus" (diesel fuel). Three months ago he hit a drunk pedestrian. The traffic police investigation did not prove the driver's guilt. Since that time, my sleep has worsened, headaches have appeared, I began to smoke a lot, and a feeling of fear and uncertainty appeared when driving.

Objectively: pulse 98 beats/min, rhythmic, blood pressure 150/100 - 145/100 mm Hg. Art., heart sounds are increased. No pathology was detected from the respiratory system or digestive system. Neurological status: cranial innervation is not impaired, tendon and periosteal reflexes are high, uniform, abdominal reflexes are uniform, tremor of the fingers of outstretched arms, severe general hyperhidrosis, persistent bright dermographism.

Blood test is normal. There are traces of protein in the urine. The ECG shows a normal variant. The fundus of the eye is not changed. Aschner test 6 - 4.26, clinostatic reflex -4, -8, -2, orthostatic reflex +12, +16, +14.

What group of diseases does arterial hypertension belong to? *Sample answer:*Arterial hypertension is a common disease. Task 42.

During the next periodic examination, silicosis was suspected in a line shop puncher. The patient was sent to the occupational pathology center for an in-depth examination.

The sanitary and hygienic characteristics contained the following information: works for 11 years as a cast iron hammer in contact with industrial dust.

Is the content of the sanitary and hygienic characteristics sufficient to resolve the connection between the disease and the profession?

*Sample answer:*Not enough, lack of quality (character of dust) and quantitative (maximum permissible concentration) assessment of industrial dust, description of other harmful factors.

Task 43.

The patient is 50 years old. Works as a coal mine miner with 10 years of experience. At the next periodic medical examination in a municipal clinic, vibration disease of the II (second) degree from exposure to local vibration was initially diagnosed. Syndrome of vegetative-sensory polyneuropathy of the upper extremities with vegetative-trophic disorders of the hands is an occupational disease.

What is the fundamental mistake in primary diagnosis?

Which institutions have the right to diagnose an occupational disease?

*Sample answer:*Primary diagnosis of occupational diseases is not carried out in general health care institutions. It can be carried out at the Center for Occupational Pathology, Research Institute of Occupational Pathology and at the Department of Occupational Diseases, in specialized departments at Regional Clinical Hospitals.

Task 44.

Chronic bronchitis was suspected during a regular periodic medical examination of a longwall miner. The patient was sent to the Occupational Pathology Center for an in-depth examination.

Where will the issue of professional attribution of chronic bronchitis be decided?

What documents will be required to make a decision?

*Sample answer:*Question about professional affiliation of chronic bronchitis is decided on the CEC in the presence of the following documents: a certified copy of the work book, sanitary and hygienic characteristics of working conditions, data from preliminary and periodic medical examinations, a detailed, certified extract from the patient's outpatient record, additionally available clinical and laboratory data.

Task 45.

Patient M., 43 years old, has been working as a miner in a mine for 18 years; During the next periodic medical examination, changes in the form of strengthening and moderate deformation of the pulmonary pattern in the middle and

lower parts of both lungs. In the basal sections, the transparency of the pulmonary fields is increased. The roots of the lungs are not changed.

He did not present any active complaints, but upon detailed questioning he noted a periodic non-productive cough. There was no history of respiratory illness in the past. Smokes moderately.

Objectively: the mobility of the pulmonary edges is not limited, the percussion sound over the lungs is not changed, breathing is harsh, single intermittent dry rales are heard. The boundaries of the heart are not changed, the tones are clear and pure. The abdomen is soft and painless on palpation. The sizes of the liver and spleen are not increased. There are no dysuric disorders.

Indicators of external respiration function: vital capacity 82% of normal, Tiffno test 76%. ECG without abnormalities. Blood and urine tests are unremarkable.

1. Formulate and justify the diagnosis.
2. Are additional studies needed to confirm the diagnosis?
3. Perform MSE.

*Sample answer:*1. Stage I anthracosis, interstitial form, chronic dust bronchitis. Moderately severe pulmonary emphysema without impairment of external respiration function.

2. To clarify the diagnosis, bronchoscopy may be recommended.

3. The patient must be provided with work outside the mine on the surface, not related to with exposure to industrial dust, substances that have an irritating effect, as well as exposure to adverse weather conditions. As a preventive measure, the patient is shown breathing exercises.

Task 46.

Patient S., 34 years old, contacted the medical unit. She has been working as a polisher on sanding wheels for 8 years. Complaints of pain in the distal parts of the arms, whitening of the terminal phalanges of the fingers of the upper extremities, which appear during general cooling, especially in the cold season. She has been ill for about 2 years and has not consulted a doctor.

Objectively, no changes were detected in the internal organs. The hands are cold to the touch, the fingertips are slightly swollen and cyanotic, there is a “lace pattern” of the hands, a positive “white spot” symptom. There are no trophic disturbances.

1. Establish a preliminary diagnosis.
2. Draw up a plan for additional examination of the patient necessary for final diagnosis.
3. Make a treatment plan.

*Sample answer:*1. Vibration disease of the I-II degree (angiodystonic syndrome with attacks of vasospasm of peripheral vessels against the background of autonomic-sensory polyneuropathy of the upper extremities).

2. To confirm the diagnosis, pallesthesiometry, algesimetry, thermoesthesiometry, cold test, radiography of the hands and cervical spine.

3. Treatment: 1. Vasodilator (spasmolytic) myotropic drugs actions: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

Task 47.

Patient K., 30 years old, has been working as a riveter for 6 years. Considers himself sick for about a year. I am worried about sharp pains in the shoulder girdle, especially at night, my fingers go numb and turn white when cold, and I have become irritable.

Objectively: the hands are swollen, cold, cyanotic. The fingertips on the palmar surface look like pads. All types of sensitivity (pain, temperature, vibration) are sharply reduced, similar to long gloves. During a cold test, there is a symptom of “dead fingers,” especially the second and fourth fingers of both hands turn white. There is weakness in the adductor muscles of the fifth finger; adduction of the fifth finger on the right hand is limited. Tendon and periosteal reflexes are alive. On palpation, a significant compaction of the myofasciculitis type is determined in the suprascapular muscles and muscles of the forearm. The muscles are painful on palpation, and there is crepitus in the places where they pass into the tendons.

On radiographs, there are small areas of bone compaction in the small bones of the hands. Capillaroscopy revealed pronounced changes on both hands with

the predominance of the spastic-atonic state of the capillaries. According to plethysmography, arterial inflow was significantly reduced.

There are no features from the internal organs. An increase in the noise perception threshold at high frequencies was detected.

1. Formulate and justify the diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1.Vibration diseaseII degree, caused by exposure to local vibration (peripheral angiodystonic syndrome of the upper extremities with frequent angiospasms of the fingers, autonomic-sensory polyneuropathy syndrome of the upper extremities with dystrophic disorders of the arms and shoulder girdle). 2. Treatment: 1. Vasodilator (antispasmodic) drugs with myotropic action: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

For the period of treatment, it is necessary to remove the patient from work associated with exposure to vibration, cooling of the hands, and heavy physical exertion.

Task 48.

Patient B., 29 years old, has been working as a stone cutter with pneumatic tools for 4 years. Vibration is transmitted more to the left hand holding the firing pin.

During the next medical examination, he complained of whitening of the fingers of his left hand, which had appeared over the past year. She does not feel pain in her arms. The whitening of the fingers began with the little finger, then, as it cooled, the third and fourth fingers began to turn white. After bouts of whitening, unpleasant paresthesias appear, and sometimes swelling of the wrist joint

Objectively: mild hyposthesia only on the terminal phalanges of the fourth and fifth fingers; muscles are not changed; according to capillaroscopy, there is a slight tendency to spasm. During a cold test, the fourth and fifth fingers of the left hand show whiteness.

1. Formulate and justify the diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1. Vibration disease of the first degree, caused by exposure to local vibration (peripheral angiodystonic syndrome of the upper extremities).

2. Treatment: 1. Vasodilator (spasmolytic) myotropic drugs actions: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

Temporary transfer to work that does not involve exposure to vibration, cools hands and does not require great physical stress.

Task 49.

Patient V., 38 years old, has been working for 10 years as an engine tester at a machine-building enterprise, where the noise at the workplace reaches 95-110 dB, mainly at high frequencies. History of gastric ulcer and pneumonia; there were no other diseases.

In the last 3 years, he began to notice increased irritability, fatigue, and periodic headaches. Subsequently, during the next periodic medical examination, a decrease in periosteal tendon reflexes in the arms and legs, tremor of the fingers of outstretched arms, instability in the Romberg position, general hyperhidrosis, and persistent red dermographism were discovered. At the same time, I began to notice a decrease in hearing.

No changes were found in the otoscopic picture. Audiometry revealed an increase in hearing thresholds in the area of perception of speech frequencies within the range of 21-30 dB, at 400 Hz - up to 65 (±20) and a decrease in hearing for the perception of whispered speech up to 2 m (+1 m).

1. Formulate and justify the diagnosis.

2. Prescribe treatment.

*Sample answer:*Cochlear neuritis with moderate hearing loss (III degree), caused by exposure to industrial noise; asthenovegetative syndrome.

2. Treatment: symptomatic, taking into account the state of the cardiovascular and nervous systems. General strengthening agents, hardening, a rational regime of work and rest, therapeutic exercises, good nutrition with a sufficient content of vitamins.

Task 50.

Patient Ya., 40 years old, has been working in conditions of noise exposure for 6 years as a metal casting trimmer. During the next medical examination, an audiometric study revealed an increase in perception thresholds at sound frequencies of 500, 1000, 2000 Hz and 10 dB, and at a frequency of 4000 Hz - up to 50 dB. Perception of whispered speech - 5 m. The patient complains of a mild, periodically occurring headache in the forehead, noise and ringing in the ears. Otoscopy data are unremarkable. Blood pressure 125/80 mm Hg. Art. There are no features from the internal organs.

1. Establish and justify the diagnosis.

2. What are the preventive measures in this case?

*Sample answer:*Conclusion: taking into account the criteria for assessing auditory function, the patient There are isolated signs of noise exposure. There is no data on the presence of cochlear neuritis.

2. The enterprise administration should raise the issue of reducing the level noise in the workplace to the maximum permissible level.

Task 51.

Patient N., 43 years old, was sent to the anti-tuberculosis dispensary for consultation. In the past, he worked as a chopper for 13 years, and 2 years ago he was diagnosed with stage I silicosis. During the next examination in the medical unit, increased shortness of breath, increased coughing, and the appearance of pain in the subscapular areas were detected. Percussion sound over the lower parts of the lungs has a boxy tint, the mobility of the lower edges of the lungs is limited. Breathing is weakened, harsh, isolated dry rales are heard. Heart sounds are muffled, rhythmic, heart rate 72 per minute. Blood pressure 130/80 mm Hg.

The radiograph shows diffuse enhancement and deformation of the pulmonary pattern, against which there are multiple nodular shadows measuring 2 - 4 mm in diameter. Consolidation of the interlobar pleura on the right. The roots are chopped off with eggshell-type calcified lymph nodes.

1. Formulate and justify a preliminary diagnosis.

2. Indicate what additional studies should be carried out to confirm diagnosis.

3. Prescribe treatment.

*Sample answer:*1. Silicosis stage II, nodular form. Chronic dust bronchitis. Emphysema. Compared with the previous examination, there is progression of the pneumoconiotic process. A differential diagnosis with silicotuberculosis should be carried out (tuberculin tests are required). To resolve the issue of work ability, conduct a study of external respiration function.

3. Treatment: use of long-acting bronchodilators such as M-anticholinergic blocker tiotropium, beta-agonists formoterol, olodoterol or a fixed combination of an M-anticholinergic blocker and beta-2 agonist tiotropium/olodoterol; oxygen therapy; chest massage. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid.

Task 52.

Patient E., 44 years old, has been working in the production of silicon alloys for 10 years. He had no other contacts with adverse production factors. Complains of a dry cough, occasional chest pain, and increased fatigue. Objectively: the percussion sound over the lungs is not changed; on auscultation, breathing is vesicular. BH 18/min. No deviations were identified from other organs and systems. The function of external respiration is not impaired. Blood and urine tests are normal.

On the radiograph, the transparency of the pulmonary fields is not changed, the pulmonary pattern is moderately enhanced and deformed on both sides. In the upper lobe of the right lung, polymorphic focal shadows are detected. Small pleurodiaphragmatic adhesions on the right.

1. Formulate and justify the diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1. Silicotuberculosis (stage I silicosis, interstitial form; focal pulmonary tuberculosis, inactive phase).

2. Treatment: breathing exercises are recommended. Needs rational employment away from contact with industrial dust and irritating substances.

Task 53.

Patient G., 32 years old, has been working in a weaving industry for 11 years, where she has contact with cotton dust. No history of illness noted. He makes no complaints.

During a periodic medical examination, an X-ray of her lungs revealed a slight increase in the pulmonary pattern in the lower parts of the lungs and the presence of small-spotted shadows on both sides, as well as enlargement and hardening of the lymph nodes of the roots of the lungs. Objectively: percussion sound over the lungs is not changed, auscultation of vesicular breathing, no wheezing. BH 17/min.

The function of external respiration is not changed. Blood and urine tests are normal.

1. Formulate and justify the diagnosis.

2. What additional studies should be performed to confirm the diagnosis?

3. Prescribe treatment and perform MSE.

*Sample answer:*1. Presumptive diagnosis based on the clinical and radiological picture: stage II sarcoidosis.

2. To clarify the diagnosis, bronchoscopy with biopsy and lavage is recommended bronchial tree and examination of lavage fluid.

3. No special treatment is currently required. Working in contact with industrial dust, substances with irritating and sensitizing effects are contraindicated.

Task 54.

Patient M., 30 years old, has been working as a nurse for 3 years in the treatment room of a clinic. He suffers from bronchial asthma, for which he was referred for consultation to an occupational pathologist to establish (or exclude) a connection between the disease and his profession. About a year ago I noticed that upon contact with penicillin, a sore throat, sneezing, and later a paroxysmal cough appeared, and then attacks of suffocation began to occur. The attacks passed soon after taking theophedrine tablets or inhaling salbutamol, and occasionally injections of aminophylline were required. In recent months the attacks have become much more severe, but still only occur when exposed to penicillin. History of rare acute respiratory diseases. She and her immediate family had no allergic diseases and did not receive antibiotics.

Among the presented medical documentation, there are conclusions about the patient having typical attacks of bronchial asthma that appear when performing penicillin injections, as well as positive results of skin and conjunctival tests with a penicillin solution.

1. Determine whether the data provided is sufficient to resolve the communication issue the patient's existing bronchial asthma with her profession. If insufficient, please indicate what additional information is needed.

*Sample answer:*1. Occupational bronchial asthma. The data presented is sufficient to make a diagnosis.

Task 55.

Patient Shch., 38 years old, has a “dust” experience as a chopper for 16 years. The dust concentration at his workplace exceeds the maximum permissible concentration by 8-10 times. During a periodic medical examination, he complained of a cough, mostly dry, occasionally with a small amount of mucous sputum, which began to bother him about 2-3 years ago. He did not seek medical help. There were no previous respiratory diseases. I do not smoke.

Objectively: percussion sound in the lower parts with a boxy tint, the mobility of the lower edges of the lungs is not changed, breathing is harsh, intermittent scattered dry rales are heard. Heart sounds are muffled, rhythmic, heart rate 78 per minute. Blood pressure 135/80 mm Hg. Art.

Fluorograms of the lungs without deviations from the norm. External respiration function: vital capacity is 90% of vital capacity, Tiffno test is 81%. Blood test is normal.

Establish a preliminary diagnosis and outline an examination plan to confirm the diagnosis.

*Sample answer:*Preliminary diagnosis: chronic dust bronchitisStage I in remission phase. Respiratory failure 0-1 degree. To clarify the diagnosis, dynamic observation, chest x-ray, repeated examination of external respiratory function, sputum analysis, and consultation with an otolaryngologist are necessary.

Task 56.

During a periodic medical examination of one of the lead plate spreaders working at the battery plant, the following peripheral blood parameters were found: Hb 14.8 g/l, erythrocyte count 4.2*10 /l, Color index 0.98, leukocyte count 5 .8*10$_9$/l, reticulocytes 20‰, erythrocytes with basophilic granularity 38‰. 0.08 mg/l of lead was found in the urine. The worker does not make any complaints; objectively, there are no peculiarities in the internal organs.

1. Establish a preliminary diagnosis.

2. Make a plan for additional examination. What data do you need to obtain? additionally?

*Sample answer:*1. Preliminary diagnosis: initial form of chronic lead intoxication (reticulocytosis, increased number of red blood cells with basophilic granularity in the peripheral blood).

2. To clarify the diagnosis, data on the length of service as a spreader, about concentrations of lead compounds in the air of the working room, as well as urine testing for the content of deltaminolevulinic acid and coproporphyrin.

Task 57.

Patient A., 45 years old, is involved in the manufacture of batteries. He was taken to the hospital by ambulance due to severe abdominal pain.

Before working at the battery factory, he suffered from duodenal ulcer. Over the next 22 years, there were no exacerbations, which was confirmed by the results of the examinations.

Upon admission to the hospital, he complained of sharp, cramping pain in the abdomen.

Objectively: the abdomen is retracted, diffuse pain on palpation is predominantly localized in the middle and lower half of the abdomen and especially around the navel. The onset of pain was preceded by an unpleasant taste in the mouth, nausea, drooling, insomnia, and constipation. The patient had no stool, although he was taking laxatives. In the lungs, the percussion sound is not changed, breathing is vesicular, the boundaries of the heart are not changed, the tones are clear and pure. Blood pressure 160/90 mm Hg. Art. In the blood test, red blood cells with basophilic granularity in the amount of 66‰, ESR 12 mm/h.

1. Formulate a diagnosis.

2. What additional research is needed?

3. Prescribe treatment.

*Sample answer:*1. Chronic lead intoxication, severe form (lead colic, anemia). Concomitant disease: duodenal ulcer in remission.

2. It is recommended to additionally examine urine for content deltaminolevulinic acid, coproporphyrin and lead.

3. Treatment: complex therapy (calcium thetacine, pentacin); for cupping attacks of abdominal pain - local heating pads, warm baths, novocaine blockade, atropine injections.

Task 58.

Patient L., 43 years old, works as a truck driver on a state farm. Often he has to carry out repair work on a car, and his hands are usually contaminated with lubricants, motor fuel, and sometimes nitro paint. There was no history of illness, with the exception of a head injury in childhood without any consequences.

15 years after starting work in rural areas, I began to notice the appearance of headaches in the form of migraine-type crises, dizziness, sleep disturbances (light sleep, insomnia, does not fall asleep for a long time). Subsequently, irritability, a feeling of fear, the sensation of hair in the mouth, insects crawling over the body, and nightmares appeared.

1. Formulate and justify the diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1. Diagnosis: chronic tetraethyl lead intoxication, stage I (initial).

2. Treatment: sedatives, intravenous glucose with ascorbic acid,
sleeping pills from the group of barbiturates at night. Work in contact with tetraethyl lead and other substances that have a toxic effect is contraindicated. The patient needs treatment and observation by a neurologist, rational employment.

Task 59.

Patient F., 42 years old, has been working for 21 years as a laboratory assistant in a chemical laboratory of a plant, having constant contact with metallic mercury. During a periodic medical examination, she complained of widespread headache, memory impairment, irritability, tearfulness, decreased performance, sleep disturbance, and trembling of fingers.

Upon examination, a uniform revival of tendon reflexes according to the functional type, tremor of the eyelids and fingers of outstretched arms (asymmetrical), pronounced red dermographism, and general hyperhidrosis were revealed. Pulse 96 beats/min, rhythmic, blood pressure 150/100 mm Hg. Art. Otherwise, no changes were detected.

1. Establish a preliminary diagnosis.

2. Draw up the examination plan necessary to formulate the final
diagnosis and MSE.

*Sample answer:*1. Preliminary diagnosis: chronic mercury intoxication, initial stage (neurasthenic syndrome against the background of autonomic dysfunction). To confirm the diagnosis, information about sanitary and hygienic working conditions, urine analysis for mercury content,

2. Treatment: if the diagnosis is confirmed, antidotes (succimer, unithiol or sodium thiosulfate), drugs that improve metabolism (aminolone, stugeron, etc.); physiotherapy (coniferous, hydrogen sulfide baths), therapeutic exercises. During the period of treatment, the patient needs rational employment away from contact with toxic substances. In the future, upon recovery, he is able to work at his job, provided that appropriate preventive measures are taken there.

Task 60.

Patient I., 50 years old, worked for 12 years in the production of “high-quality” electrodes. During the next medical examination, he was diagnosed with monotonous slurred speech, micrographia, hypomimia, bradykinesia, tremor of the limbs, difficult, slow gait, hypersalivation, forced laughter and an uncritical attitude towards his condition. No pathology was detected from the internal organs.

1. Formulate and justify the diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1. Chronic manganese intoxication (manganese parkinsonism). In contrast to postencephalitic parkinsonism, manganese parkinsonism is characterized by slow development, the absence of hyperthermia in the initial period of the disease, and a decrease in the patient’s criticism of his condition.

2. Treatment: antiparkinsonian anticholinergics (cyclodol, tropacin, corbella, norakin, amedine). The patient is disabled and needs outside care.

Task 61.

Patient K., 40 years old, field farmer on a state farm, was taken to the central regional hospital with complaints of severe weakness, dizziness, headache, nausea, vomiting, and abdominal pain.

During the interview, it was established that 2 hours before the onset of the described symptoms, he was weeding a field that had been treated with methyl mercaptophos the day before.

An objective examination revealed constriction of the pupils, skin hyperhidrosis, miosis, bronchorrhea, bradycardia, and fibrillation of individual muscles.

Questions:

1. Establish a preliminary diagnosis.
2. Make an examination plan.
3. Prescribe treatment and perform MSE.

*Sample answer:*1. Acute mild intoxication with organophosphorus compounds,

2. To confirm the diagnosis, the patient’s activity should be determined cholinesterase, conduct a general blood and urine test, electrocardiography.

3. Treatment: remove the victim from the area of organophosphorus contamination compounds, wash the skin with soap and then treat them with a 2% sodium bicarbonate solution or 5 - 10% ammonia solution. If organophosphorus compounds get into your eyes, rinse them with a stream of clean water and drop 30%

sodium sulfacyl solution. The labor prognosis is favorable; after 2 - 3 days, complete recovery occurs.

Task 62.

Patient T., 32 years old, works on the basis of pesticides for agriculture, and is engaged in their distribution by an agricultural enterprise. During work, direct contact with pesticides in the form of their aerosols cannot be ruled out. There were no illnesses in the past. After 6 years from the start of work at the base, he began to notice increased irritability, headaches and dizziness periodically appeared. Recently, my memory has decreased significantly and my sleep has been disrupted.

Objectively: hyperhidrosis, mild acrocyanosis, persistent red dermographism, increased tendon reflexes, mild tremor of the fingers of outstretched arms. There are no deviations from the norm from the internal organs, with the exception of arrhythmia and bradycardia.

1. Formulate and justify the diagnosis. Is there a need for additional research?

2. Prescribe treatment; perform an MSE.

*Sample answer:*1. Chronic intoxication with organomercury compounds (granosan) of moderate severity. To confirm the diagnosis, it is recommended to additionally test the urine for mercury content.

2. Treatment: antidote drugs (unithiol, succimer); eating, containing potassium; physiotherapy (pine baths, galvanic collar). Currently, the patient requires a course of treatment in a hospital setting. Further work in contact with toxic substances is contraindicated. Needs retraining and rational employment. If qualifications are reduced, refer the patient to MSEC to determine the disability group for an occupational disease.

Task 63.

Patient N., 28 years old, an agricultural worker, took an active part in pollinating fruit trees and grain crops with pesticides. Over the next 2 months I felt healthy. He had no previous illnesses and does not smoke. Later, he began to be bothered by pain in his eyes, a sore throat, a runny nose with discharge of clear fluid from the nose, and sneezing. Soon there was a dry cough and periods of difficulty breathing during the exhalation phase. At the same time, headache, dizziness, and increased fatigue are noted.

Objectively: hyperemia of the mucous membranes of the eyes and nose; dry wheezing is heard in the lungs; Heart sounds are muffled, blood pressure is 100/60 mm Hg. Art. On the part of the nervous system, general hyperhidrosis, emotional lability, slight tremor of the fingers, and pain along the nerve trunks are noted.

1. Formulate a diagnosis.

2. Prescribe treatment and perform MSE.

*Sample answer:*1. Chronic intoxication with organochlorine compounds. 2.

Treatment is symptomatic: vitamins C and group B, aloe, plasmol, calcium chloride. For allergic reactions - tavegil, diphenhydramine. Further contact with toxic substances, including pesticides, is contraindicated. The patient needs rational employment.

Task 64.

Patient A., 39 years old, has been working for 10 years in an industry where chloropicrin is used. 4 years ago, while working, pain in the eyes, watery eyes, runny nose, dry cough, and chest pain appeared. In this regard, a sick leave certificate was issued for 6 days. Subsequently, he was periodically bothered by a dry cough, then shortness of breath appeared during great physical exertion.

For the last 2 years, he has been bothered by a cough with a small amount of mucous sputum, shortness of breath with slight physical exertion, and increased fatigue.

Objectively: from the internal organs, a boxy percussion sound is noted over the lungs, breathing is harsh, scattered dry rales are heard.

1. Establish a preliminary diagnosis.

2. Make a plan for additional examination of the patient.

*Sample answer:*1. Preliminary diagnosis: chronic toxic bronchitis caused by exposure to chloropicrin. In all likelihood, the patient suffered acute intoxication with chloropicrin (acute toxic bronchitis) 4 years ago. To confirm the diagnosis, you should obtain information about the sanitary and hygienic working conditions at the patient's workplace during the period of his acute respiratory disease, as well as about all diseases suffered in the past.

2. Additional studies are needed: chest x-ray, function assessment external respiration, general blood test and sputum analysis.

Task 65.

Patient M., 37 years old, was taken to the intensive care unit. He was found at night by a policeman in an unconscious state in the cab of a truck, near

which the motor was turned on. An ambulance was called and suspected a cerebrovascular accident and sent the patient to the hospital.

Objectively: the patient is unconscious, the pupils react extremely weakly to light, the face is hyperemic, on the skin of the legs there are sharply defined blisters (5x6 cm) with serous contents, reminiscent of second-degree burns. Frequent breathing, periodically Cheyne type - Stokes, pulse 112 beats/min, with frequent extrasystoles. Blood pressure 60/35 mm Hg. Art., muffled heart sounds. Tendon and periosteal reflexes are high, uniform, bilateral Marinesco sign. ECG shows sinus rhythm, right bundle branch block. Blood test: Hb 144 g/l, red blood cell count $4.12*10_{12}$/l, color index 1.0; leukocyte count 5.1*10 /l; ESR 12 mm/h. Urinalysis is normal.

1. Make a preliminary diagnosis.

2. Are additional studies needed to establish a final diagnosis?

Which? Is the disease occupational in this case?

*Sample answer:*1. Diagnosis: suspicion of acute severe intoxication with carbon monoxide.

2. For diagnostic purposes, it is recommended to conduct a blood test for carboxyhemoglobin content; Consultation with a neurologist and ophthalmologist is necessary. In this case, the disease is not occupational, but can be attributed to an accident during the work performed.

Task 66.

Patient T., 43 years old, has been working as an engine tester for 12 years. According to workplace certification, the noise level is 95–110 dB.

The patient notes a gradual bilateral hearing loss, tinnitus, sleep disturbance, and increased irritability.

During the last periodic medical examination, bilateral hearing loss was detected: whispered speech up to 3 meters. No changes were detected in the otoscopic picture. An audiometric study reveals an increase in the hearing threshold to 36 dB. The bone curve is parallel to the air curve on both sides. Therapeutically and neurologically healthy.

1. Formulate a diagnosis.

2. Solve the issues of assessing work capacity and further management tactics patient. What additional documents are needed to resolve expert issues?

*Sample answer:*1. Bilateral sensorineural hearing loss of the first degree.

2. The patient must be sent to the Center for Occupational Pathology with the data of a special assessment of working conditions, a copy of the work record book, the results of periodic medical examinations.

Task 67.

Patient M, 42 years old, gets a job at a motorcycle manufacturing company. At the workplace, according to the referral for a preliminary medical examination, there is noise and height. History of frequent acute respiratory viral infections.

The patient has noted a periodic increase in blood pressure recently.

During a medical examination, bilateral hearing loss was revealed: whispered speech of 0 meters. No changes were detected in the otoscopic picture. An audiometric study reveals an increase in the hearing threshold to 92 dB. The bone curve stops at 1000 Hz.

1.Formulate a diagnosis.

2. Solve the issues of assessing work capacity and further management tactics patient.

*Sample answer:*1. A hearing test revealed bilateral hearing loss of grade V.

2. Suitable for the profession subject to vocational training, incl. training safe methods and techniques for performing work.

Task 67.

Patient S., 42 years old, has been working as a mechanic for 15 years. According to workplace certification, the noise level is 79 dB.

The patient notes bilateral hearing loss, sleep disturbance, and increased irritability.

During the last periodic medical examination, bilateral hearing loss was detected: whispered speech up to 0.5 meters. No changes were detected in the otoscopic picture. An audiometric study reveals an increase in the hearing threshold to 46 dB. The bone curve is parallel to the air curve on both sides.

1. Formulate a diagnosis.

2. Solve the issues of assessing work capacity and further management tactics patient.

*Sample answer: 1.*Bilateral sensorineural hearing lossII degree.

2. The use of nootropics, drugs that improve microcirculation of the brain is indicated brain Suitable for the profession.

Task 68.

Patient A., 42 years old, had been polishing TV cases on a felt wheel for 17 years using a solution containing 35% benzene. The disease developed gradually. The patient began to notice weakness, headaches, fatigue, and later bleeding gums and nosebleeds appeared. During the examination in the hospital, attention was drawn to the absence of enlarged lymph nodes, the liver was palpated at the edge of the costal arch, the spleen was not palpable. Tremor of the fingers of outstretched arms, bright red dermographism, hyperhidrosis of the palms, lability of pulse and blood pressure were noted.

1. Establish a preliminary diagnosis.

2. Make a plan for additional examination to formulate the final diagnosis.

*Sample answer:*1. Preliminary diagnosis: based on the patient's clinical signs there are asthenoneurotic and hemorrhagic syndromes, which is possible with chronic benzene intoxication.

2. To clarify the diagnosis, information about the possible penetration of benzene is necessary into the patient's body: conduct a general blood test, determine the number of reticulocytes and platelets.

Task 69.

Patient M., 37 years old; a worker at a mercury enrichment plant worked in contact with metallic mercury for 17 years. After the patient was diagnosed with chronic mercury intoxication, he was employed without contact with mercury and other toxic substances. During follow-up a year later, the patient noted a decrease in headaches, but increased fatigue, pulse lability, and general hyperhidrosis remained. The patient was admitted to the clinic with complaints of lower back pain radiating to the left leg.

During the examination, positive symptoms of tension were noted, pain in the paravertebral points of the lumbar spine, and hyposthesia along the outer edge of the left leg and foot along the left sciatic nerve. No mercury was found in the blood.

Make a diagnosis. Is it possible to return to my previous job?

*Sample answer:*The patient has an initial degree of mercury intoxication. After rehabilitation in a dispensary, it is possible to return to your workplace under the supervision of a doctor.

Task 70.

Patient A., 40 years old. field farmer of the state farm, was taken to the central district hospital with complaints of severe weakness, dizziness, headache, nausea, vomiting, pain in the

stomach. During the interview, it was established that 2 hours before the onset of the described symptoms, he was weeding a field that had been treated with methyl mercaptophos the day before.

An objective examination revealed constriction of the pupils, skin hyperhidrosis, miosis, bronchorrhea, bradycardia, and fibrillation of individual muscles.

1.Formulate a preliminary diagnosis.

2.Draw up an examination plan.

*Sample answer:*1. Acute mild intoxication with organophosphorus compounds.

2. To confirm the diagnosis, the patient's activity should be determined cholinesterase, conduct a general blood and urine test, electrocardiography.

Task 71.

Patient Ya., 28 years old, an agricultural worker, took an active part in pollinating fruit trees and grain crops with pesticides. Over the next 2 months I felt healthy. He had no previous illnesses and does not smoke. Later, he began to be bothered by pain in his eyes, a sore throat, a runny nose with discharge of clear fluid from the nose, and sneezing. Soon there was a dry cough and periods of difficulty breathing during the exhalation phase. At the same time, headache, dizziness, and increased fatigue are noted.

Objectively: hyperemia of the mucous membranes of the eyes and nose. Dry rales are heard in the lungs, heart sounds are muffled, blood pressure is 100/60 mm Hg. Art. On the part of the nervous system, general hyperhidrosis, emotional lability, slight tremor of the fingers, and pain along the nerve trunks are noted.

1. Formulate a diagnosis.

2. Conduct a medical and social examination.

*Sample answer:*1. Chronic intoxication with organochlorine compounds. 2. Further contact with toxic substances, including pesticides, contraindicated. The patient needs rational employment.

Task 72.

42 years old, auto technician, has been involved in pest control work for a number of years.

While filling a cylinder with pesticides, I accidentally doused my face, hands, and chest with a hot mixture of polychloropylene and DDT from a hose. Partially inhaled them. He washed his face and hands with water. The next day, rapid heartbeat, chills, twitching in certain muscle groups appeared, body temperature increased to 38.4^{0}C. The patient could not continue to work and was hospitalized.

Upon admission to the hospital, complaints of general weakness, palpitations, headache, dizziness, nausea, shortness of breath, and a feeling of heaviness in the legs. Objectively: the condition is serious; severe acrocyanosis, shortness of breath c. rest (number of breaths 26 per 1 min).

In the lungs on both sides in the inferolateral sections, moist rales are heard. The left border of the heart is dilated, the sounds are muffled, the heart rate is 120 per minute. Liver - the size is increased, the edge of the liver is painful on palpation. Knee reflexes are high and asymmetrical.

1. Formulate a preliminary diagnosis.

2. Make a plan for additional research.

*Sample answer:*1. Acute intoxication with organochlorine compounds (toxic pneumonia, toxic hepatitis).

2. To confirm the diagnosis, it is necessary to perform an X-ray of the lungs, general blood test, liver function test, electrocardiography.

Task 73.

Male S., 32 years old. Works on the basis of pesticides for agriculture. During work, direct contact with pesticides in the form of their aerosols cannot be ruled out. There were no illnesses in the past. After 6 years from the start of work at the base, he began to notice increased irritability, headaches and dizziness periodically appeared. Recently, my memory has decreased significantly and my sleep has been disrupted. Objectively: hyperhidrosis, mild acrocyanosis, persistent red dermographism, increased tendon reflexes, mild tremor of the fingers of outstretched hands. There are no deviations from the norm from the internal organs, with the exception of arrhythmia and bradycardia.

1. Formulate a diagnosis.

2. Is there a need for additional research?

3. Prescribe treatment.

4. Conduct a medical and social examination.

*Sample answer:*1. Chronic intoxication with organomercury compounds (granosan) of moderate severity.

2. To confirm the diagnosis, it is recommended to additionally examine the urine for mercury content.

3. Treatment: antidote drugs (unithiol, succimer), food intake, containing potassium, physiotherapy (pine baths, galvanic collar). Currently, the patient requires a course of treatment in a hospital setting.

4. Further work in contact with toxic substances is contraindicated.

Needs retraining and rational employment. If qualifications are reduced, refer the patient for a medical and social examination to determine the disability group for an occupational disease.

Task 74.

Patient V., 59 years old, came to the clinic to the local doctor with complaints of frequent (4-5 times a week) episodes of sudden whitening of the nails and main phalanges of the II-V fingers of the left hand and the nail phalanges of the III-IV left hand. These episodes lasted 30-35 minutes and ended with the restoration of the original color of the skin and an intense burning sensation in the whitened fingers. In addition, the patient was bothered by aching pain in the hands and forearms, worsening at night, numbness, chilliness of the hands, pain when moving in the elbow, wrist joints and interphalangeal joints of the hands.

Profession: riveter, 30 years of experience.

On examination, the hands are cyanotic. On palpation, the hands and forearms are cold, hyperhidrosis of the palms.

A study of pain sensitivity revealed distal hypoesthesia of the high-glove type. The cold test is positive. Rheovasography of the upper extremities: decreased level of pulse blood filling on both sides, increased arterial tone, difficulty in venous outflow. X-rays of the elbow and wrist joints show a picture of stage II osteoarthritis.

1. Formulate a diagnosis.
2. Make an examination plan.
3. Make a treatment plan.
4. Conduct a work ability examination.
5. What preventive measures can be applied.

*Sample answer:*1. Vibration disease of the second degree from exposure to local vibration: moderate vegetative-sensory polyneuropathy of the upper extremities with frequent vasospasms of the fingers, arthrosis of the elbow and wrist joints.

2. Examination plan: dynamometry, pallesthesiometry, skin thermometry, electroneuromyography and rheovasography of the upper extremities, thermography of the extremities.

3. 1. Vasodilator (spasmolytic) drugs with myotropic action: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3.

Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

4. Examination of work capacity: work in contact with vibration is contraindicated, low temperatures, heavy physical labor, lifting and moving heavy objects. Send to MSEC to determine the percentage of loss of professional ability, according to indications - disability group. 5. Prevention: time spent working with vibrating tools should be strictly limited. You should take 10-minute breaks after every hour of work. A lunch break is required, and two breaks are also required to carry out a set of industrial gymnastics and physiotherapeutic procedures (20 minutes 2 hours after the start of the shift and 30 minutes 2 hours after the lunch break). The duration of one-time continuous exposure to vibration should not exceed 15-20 minutes, the total time of contact with vibration is 2/3 of the total working time. After finishing work, physiotherapeutic procedures are recommended: showering (fan or Charcot type), warm hand baths, massage of the upper extremities. In order to prevent vibration disease, courses of ultraviolet irradiation are carried out in suberythemal doses. Fortification, physical hardening, balanced nutrition, and organizing active recreation also bring good results. Courses of preventive treatment are recommended (1-2 times a year).

Task 75.

An agricultural machine operator turned to a neurologist with complaints of intense pain in the lumbar spine and lower extremities, aggravated by movement, bending, and during work. In addition, the patient was bothered by aching pain in the hands and forearms, intensifying at night, numbness in the area of the hands, forearms, feet, and chilliness of the hands and feet.

From the anamnesis, it was revealed that the patient worked as a machine operator for 29 years on tracked vehicles (DT-75 tractor), grain harvesters (DON-1500), performing all types of agricultural work (ploughing, harrowing, harvesting, etc.). Symptoms

has developed gradually over the past 10 years. Intense pain in the spine over the past year. Stopped coping with professional responsibilities.

During the last year, 147 days of temporary disability.

On examination, the hands and feet are cyanotic. On palpation - hypothermia and hyperhidrosis of the hands and feet. Hypoesthesia was determined by the “glove” and “sock” type. In the lumbar spine, pain in the paravertebral points and muscle weakness were determined.

1. Formulate a diagnosis.

2. Make an examination plan.

3. Make a treatment plan.

4. Conduct a work ability examination.

*Sample answer:*1. Stage II vibration disease from exposure to general and local vibration: moderately severe vegetative-sensory polyneuropathy of the extremities in combination with lumbosacral radiculopathy.

2. Examination: cold test, skin thermometry, algesimetry, thermography limbs, electromyography and rheovasography of the limbs, pallesthesiometry, nuclear magnetic resonance imaging of the lumbosacral spine.

3. 1. Vasodilator (spasmolytic) drugs with myotropic action: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

4. Examination of work capacity: work in contact with vibration is contraindicated, low temperatures, heavy physical labor, lifting and moving heavy objects. Send to MSEC to determine the percentage of loss of professional ability, according to indications - disability group.

Task 76.

Man V., 39 years old, a driver of a car, was admitted to the occupational pathology center with complaints of periodic discomfort in the chest (in the interscapular region and in the left half of the chest), shortness of breath during exercise, and a dry cough.

He smokes 1/2 a pack of cigarettes a day for about 20 years. He has been working as a driver for 5 years (2 years on a bus, the last 3 years on a passenger car). Previously, he worked for 14 years as a rougher and grinder on wheels made of natural abrasives (sandstone). I switched to working as a driver at my own request, due to moving to another city. I have not had any medical examinations for the last 4 years.

Upon examination: the skin is of normal color and moisture. The mobility of the lower pulmonary edges is 4-6 cm. In the lower parts of the lungs there is a percussion sound with a boxy tint, breathing is weakened, in other areas it is harsh. A few dry, scattered wheezes are heard.

X-ray of the lungs: there are no fresh focal and infiltrative formations. Throughout the entire length of the lungs, excluding the apexes, there are multiple nodular formations with a diameter of 3-5 mm against the background of mesh fibrosis, the roots are “chopped off” and contain petrification of lymph nodes. On the right is the shadow of the interlobar pleura.

1.Formulate a diagnosis.

2. Prescribe treatment.

3. Decide on professional suitability. *Sample answer:*1. Grinder pneumoconiosis.

2. Sanitation and bronchodilator therapy: thermal alkaline inhalations (2% solution soda, alkaline and calcium mineral waters, expectorant herbs), a course of Berotek with lazolvan through a nebulizer, aminophylline 0.15 per tablet. 3 times a day for 7-10 days, massage, vibration massage.

3. Can work as a driver. Considering that the occupational disease was diagnosed for the first time, in his previous profession as a grinder is incapacitated, the patient should be sent to MSEC to determine the percentage of loss of professional ability to work if the examination reveals ventilation insufficiency.

Task 77.

Man A., 32 years old, was admitted to the pulmonology department of the regional clinical hospital to clarify the diagnosis due to the fact that during the regular medical examination, an X-ray of the lungs revealed nodular-like shadows with a diameter of 1.5 - 3 mm, mainly in the middle-lower parts of the lungs in moderate quantity. He made no complaints upon admission.

Professional route: he has been working as an electric welder at a factory for 10 years. From the sanitary and hygienic characteristics of the workplace: in the welding area it is exposed to aerosols of iron oxides, manganese and other compounds exceeding the maximum permissible concentration by 10 - 16 times. Ventilation in the workshop is general; when working in semi-enclosed spaces, a gas exhaust is used. Personal protective equipment: mask - shield, personal respiratory protection equipment were not used.

Before entering the plant, there were no radiological changes in the lungs. During examination: percussion - pulmonary sound, breathing is harsh, no wheezing. Spirography: indicators within normal limits, increase in FEV_1not received for Berotek. SpO_2 – 98%. Phthisiatrician's conclusion: no evidence of pulmonary tuberculosis was identified.

1. Formulate a presumptive diagnosis.

2. Determine further tactics for patient management.

3. Decide on professional suitability. *Sample answer:*1. Pneumoconiosis of an electric welder.

2. Consultation with an occupational pathologist, FBS, consultation with an ENT doctor, conducting occupational pathology commission to establish the connection of the disease with the profession.

3. Is able to work in his profession with dynamic medical supervision and no welding work in confined spaces. Considering the age of the patient, it is advisable to offer retraining (with the consent of the patient) to a profession that is not associated with exposure to dust and irritants.

Task 78.

Man A., 53 years old, underground gallery mechanic, with 16 years of experience. Has contact with sand and expanded clay dust. Dust concentration in the air of the working area – 50 mg/m^3at maximum permissible concentration - 2 mg/m^3. Complains of a cough with mucous sputum in isolated spits, shortness of breath during habitual physical activity, paroxysmal difficulty breathing with coughing and a whistling sensation in the chest.

He entered the enterprise healthy, after 12 years a dry cough appeared, then mucous sputum began to leave, shortness of breath appeared, and gradually increasing attacks of difficulty breathing; exacerbations of the disease 2-3 times a year with a stay on sick leave. During the holidays, there is an improvement, but she does not feel completely healthy. I do not smoke. At the enterprise, many workers suffer from chronic bronchitis.

Objectively: the chest is barrel-shaped, percussion sound with a boxy tint, breathing is hard, weakened, exhalation is prolonged, dry whistling rales are observed in all fields.

Spirography: vital capacity – 63% of predicted, FEV_1– 60% of the expected value, with Berotec an increase in FEV_1. X-ray: increased pulmonary pattern, emphysema, dissemination syndrome.

1.Formulate a diagnosis.

2. Justify the professional nature of the disease.

3. Make a treatment plan.

4. Conduct a work ability examination.

*Sample answer:*1. Silicosis. Chronic dust bronchitis, occurring as an obstructive syndrome, exacerbation. Respiratory failure stage II.

2. 6 years of work experience in dusty conditions, in contact with dust containing more than 10% free silicon dioxide (judging by the maximum permissible concentration of dust), clinical symptoms and data from additional examination methods: syndromes of bronchitis, emphysema, pneumosclerosis, dissemination of lung tissue, ventilation failure; gradually increasing manifestations of the disease.

3. Treatment: use of long-acting bronchodilators (M-anticholinergic tiotropium, beta-agonists formoterol, olodoterol or a fixed combination of an M-cholinergic blocker and beta-2 agonist tiotropium/olodoterol); oxygen therapy; chest massage. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid.

4. Disabled in his profession, send to MSEC to determine the percentage loss of ability to work and disability groups.

Task 79.

Woman A., 44 years old, a worker at a cotton processing factory, was admitted to the clinic with complaints of asthma attacks, more pronounced at the beginning of the work week (on Mondays), decreasing in duration by Friday; almost constant cough with a small amount of viscous sputum; shortness of breath when walking, which worsens with physical activity, work in a workshop, or with sudden changes in weather.

X-ray reveals a mild increase in the vascular-bronchial pattern, mainly in the middle-lower sections; root compaction; increasing the transparency of lung tissue. No eosinophilia was detected in the blood and sputum. Spirographically: FEV_1- 64*%*with an increase per berotek per13%.

1.Formulate a diagnosis.

2. Identify the leading syndromes.

3. Make a treatment plan.

4. Conduct a work ability examination.

*Sample answer:*1. Byssinosis stage II. Chronic dust bronchitis of the obstructive type, moderate emphysema. Respiratory failure stage II.

2. Leading syndromes: bronchitis, emphysema, pneumosclerosis, ventilation non-sufficiency, obstructive with bronchospasm attacks and a characteristic increase at the beginning of the work week, after the weekend.

3. Treatment: use of long-acting bronchodilators (M-anticholinergic tiotropium, beta-agonists formoterol, or a fixed combination of an M-anticholinergic blocker and beta-2 agonist tiotropium/olodoterol); oxygen therapy; chest massage. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid.

4. Needs rational employment away from contact with industrial dust, irritating substances, unfavorable weather factors, great physical stress. If rational employment is not possible, refer to MSEC.

Task 80.

Patient A., 38 years old, was diagnosed with focal tuberculosis of the upper lobe of the right lung. After the treatment, tuberculoma formed.

The patient works as an English teacher at school. No tuberculosis was detected among the students and work colleagues with whom the patient interacted. However, my husband was diagnosed with pulmonary tuberculosis.

My husband's disease was recognized as occupational 3 months ago (he works as a pathologist at the regional bureau of forensic medicine, autopsying the corpses of people without a fixed place of residence, including those who died from tuberculosis).

1. Is the patient's disease occupational? Why?

2. Tactics of patient management, examination of work capacity.

*Sample answer:*1. General disease (non-occupational), because The patient's work does not involve contact with infected patients or material. The infection probably came from her husband.

2. Considering the patient's profession, surgical treatment is indicated according to social indications. For the duration of treatment - sick leave, then - back to work.

Task 81.

A doctor at a gold mine health center expressed suspicion that a 46-year-old miner had silicosis. Referring the patient to the clinic for occupational diseases, the doctor made a preliminary diagnosis: silicosis, chronic dust bronchitis, respiratory failure of the first degree. The medical direction included a description of the patient's sanitary and hygienic working conditions, certified by the chief

a mine medical unit doctor and a safety engineer. The description stated that: “he has been working as a miner for 10 years, part of the working time has contact with dust containing free silicon dioxide with a maximum concentration of 22 mg/m. He gets the job done."

1. The information specified by the doctor in the production characteristics of the conditions is sufficient. labor of the patient, to resolve the issue of occupational disease? Are the documents correctly drawn up to link the disease with the profession?

*Sample answer:*1. The sanitary and hygienic characteristics of working conditions are invalid”, because was not compiled by a doctor of Rospotrebnadzor and was not signed by the chief doctor of Rospotrebnadzor. It does not indicate the composition of dust, % silicon dioxide content, MPC of dust, average shift dust concentrations by year and maximum dust concentrations by year. How long during a shift does the patient come into contact with the dust factor, is there personal respiratory protection equipment, what category of harmful and dangerous working conditions does the work of this patient belong to.

Task 82.

Patient V., 62 years old, consulted an occupational pathologist with complaints of pain in the large joints of the arms and legs, in the lumbar and thoracic spine.

According to the patient, brucellosis was first diagnosed 43 years ago, when she was a 3rd year student at the Faculty of Agronomy at the Agricultural Institute. She fell ill after agricultural work on a collective farm, where she was sent by the dean of the institute. On the collective farm we had to eat raw milk from cows and goats. After graduating from the institute, she worked as an agronomist; her work involved no contact with animals.

1. Is it possible to associate a disease with a profession? Why? What information necessary for an occupational pathologist in order to be able to associate brucellosis with the profession?

*Sample answer:*1. It is not possible to associate this disease with her profession, since the professional duties of the student did not include drinking raw milk or contact with animals. If the patient insists on the connection of the disease with the profession, she must submit the following documents: a copy of the work record book; sanitary and hygienic characteristics of working conditions, including the time of agricultural work; a certificate stating that the patient was sent to practice by order of the institute (where, to which collective farm, who she worked for, production duties); a certificate of the presence and health of livestock on a private farm; epidemiological survey map; information about the examination for brucellosis (where and how the disease was detected, changes in dynamics).

Task 83.

Patient A., 48 years old, an assembler of microcircuits at a radio factory, came to see a physician at a medical emergency department with complaints of asthma attacks occurring at work, which were relieved with aminophylline or inhalation of Berotek. There were no asthma attacks on weekends or vacations. Work experience in this profession is 22 years. Contacts with glue containing rosin, epoxy resin (without exceeding the maximum permissible concentration of these substances). The attacks appeared over the last 2 years, gradually intensifying and becoming more frequent. An allergological examination of household sensitization and sensitization to plant and animal allergens was not detected.

1. Is the disease occupational? Justify your decision.

*Sample answer:*1. In this case, the patient is diagnosed with occupational bronchial asthma, which is of the atopic, mild type. Rationale: contact with industrial allergens for a long time (maximum concentration limit in this case does not matter), the effects of elimination and reexposure, the absence of other types of sensitization during an allergological examination, quickly relieved asthma attacks.

Task 84.

Patient A., 34 years old, works as a nurse, and during her work she comes into contact with antibiotics, vitamins, and chloramine. Occupational pathology diagnosed mild occupational bronchial asthma (allergy to penicillin, gentamicin, chloramine).

1. Determine the correct expert decision and justify it.

*Sample answer:*1. Work in contact with sensitizing and irritating substances, work in dusty rooms, or at low temperatures is contraindicated. If rational employment is not possible, refer to MSEC. Considering the patient's age, retraining is indicated.

Task 85.

Patient K., 43 years old, has been working at a mine for 20 years, directly involved in the extraction of chrysotile - asbestos. Over the past year, he began to notice periodic pain in the chest, cough, and shortness of breath with moderate physical exertion.

At the next medical examination, an X-ray of the lungs revealed a mild increase in the pulmonary pattern of the mesh structure, mainly in the hilar and middle parts of the lungs, basal pleural adhesions, and compaction of the roots.

Constant dry rales are heard in the lungs, and on percussion there is a sound with a boxy tint. Spirographically - FEV_1– 68% of the required amount, increase per berotek – 6%.

1. Formulate a diagnosis.

2. Conduct a work ability examination.

*Sample answer:*1. Asbestosis stage I (2s), pleurodiaphragmatic adhesions, respiratory failure stage II.

2. The patient needs rational employment away from contact with dust, irritating substances, unfavorable weather factors, heavy physical labor. If it is impossible, send it to MSEC.

Task 86.

Patient D., 47 years old, turner, is undergoing re-examination at MSEC. In the past he worked as a sandblaster, 3 years ago he was transferred to work as a turner, he was assigned disability group III due to an occupational disease. During this time, the patient acquired high qualifications, and therefore the disability was removed. I felt satisfactory. Over the past year, silicosis has been complicated by pulmonary tuberculosis. After long-term treatment, the patient began to work, but his labor productivity was reduced and he quickly got tired. Transferred to time-based wages.

1.Indicate the correct expert decision and justify it.

*Sample answer:*1. The patient must be recognized as a disabled person of group II with the determination of the percentage of loss of professional ability to work, since there is a significant decrease in the volume of activity, the nature of the disability is professional. In this case, tuberculosis is a complication of silicosis.

Task 87.

Patient D., 39 years old, went to the clinic at her place of residence with complaints of a prolonged dry cough, rarely with the discharge of light, viscous sputum with occasional spitting, and shortness of breath when walking. He has been working as a baker at a bakery for 19 years, and daily comes into contact with flour dust that exceeds the maximum permissible concentration by 5-8 times. The last 2-3 years - annual acute respiratory diseases 1-2 times a year. I do not smoke. There was no history of pneumonia.

During examination: in the lungs there is a percussion sound with a slight boxy tint, harsh breathing, isolated dry rales; spirographic-FEV_1- 70% of what should be, vital capacity – 86%, increase in $FEV_1$for Berotek – 10%; X-ray - signs of initial emphysema, slight increase in pulmonary pattern in the lower sections; FBS - bilateral mild atrophic endobronchitis with weak mucous hypersecretion; ENT organs - atrophic pharyngitis.

1. Formulate a diagnosis.

2. Is the disease occupational? If so, why?

3. Make a treatment plan.

*Sample answer:*1. Dust bronchitis of the I-II degree, occurring as an obstructive bronchitis, exacerbation. Respiratory failure stage I.

2. Occupational disease. Rationale: long work experience in conditions increased dustiness, primary chronic nature of the disease; descending nature of atrophy of the mucous membrane of the bronchial tree and respiratory tract; no history of any diseases of the bronchopulmonary system.

3. Treatment: use of long-acting bronchodilators (M-anticholinergic tiotropium, beta-agonists formoterol, or a fixed combination of an M-anticholinergic blocker and beta-2 agonist tiotropium/olodoterol); oxygen therapy; chest massage. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid.

Task 88.

Patient D., 46 years old, has been working as a microcircuit solder at a radio factory for 20 years. Periodically comes into contact with substances that contain rosin (the concentration does not exceed the maximum permissible concentration). Over the last 3 years, I began to notice periodic attacks of suffocation at work, which I relieved with aminophylline, then with Berotek. There were no attacks of suffocation outside of work.

When examined at the occupational pathology clinic, no changes were detected. Breathing in the lungs is harsh, there is no wheezing. Spirographically: FEV_1– 96% of what should be, the increase for the sample with Berotek was 24%. After carrying out an inhalation test with rosin after 15 minutes. FEV_1- 74% of what should be, after another 15 minutes an attack of suffocation developed with remote wheezing in the lungs. The attack was stopped by intravenous drip administration of aminophylline 2.4% - 10.0 ml per 200.0 ml saline. solution. The dynamics of the spirogram revealed no obstructive disorders.

1. Formulate a diagnosis.

2. Determine the tactics for managing the patient.

*Sample answer:*1. Mild bronchial asthma of occupational origin (allergy to rosin). Respiratory failure stage II. 2. Inhaled β2-agonists or sodium cromoglycate before anticipated physical activity or contact with an allergen. Avoid contact with triggers. Daily intake of sodium cromoglycate or long-acting xanthines. Contact with sensitizing, irritating substances, exposure to unfavorable conditions is contraindicated.

weather conditions, hard physical labor. If rational employment is not possible, refer to MSEC.

Task 89.

Patient L., 52 years old, has been working as a miner in a gold mine for 25 years, coming into contact with dust containing free silicon dioxide (exceeding the MPC by 8-10 times). An X-ray of the lungs revealed small nodular dissemination in the middle lower parts, signs of bronchitis and emphysema.

Spirographically: FEV_1- moderate obstructive disorders.

The occupational pathology clinic diagnosed silicosis. Chronic dust bronchitis, occurring as an obstructive type, respiratory failure of the 2nd degree.

1. Make a treatment plan.

*Sample answer:*1. Treatment: the use of long-acting bronchodilators, such as the M-anticholinergic blocker tiotropium, beta-agonists formoterol, olodoterol, a fixed combination of the M-anticholinergic blocker and the beta-2 agonist tiotropium/ olodoterol; oxygen therapy; chest massage. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid.

Task 90.

Patient S., 40 years old, assembler and riveter. Complaints of a “crawling sensation” in the fingers, numbness, chilly hands, whitening of the fingers in cold weather, pain in the elbow joints.

For 20 years he has been working as an assembler and riveter at an aviation enterprise. The working day is 8 hours. There was often overtime work. I did not use personal protective equipment (gloves) regularly. During the vacation period, she noted an improvement in her condition, the disappearance of paresthesia and pain in her arms.

For the first time, complaints about “pins and needles” in the area of the fingers, their numbness, chilly hands and whitening of the fingers appeared after 12 years of work at the enterprise. During the periodic medical examination, she hid these complaints, the results of the examination did not reveal any pathology, and the woman was allowed to work. Later, pain in the elbow joints began to bother me. At the last medical treatment, the therapist suggested vibration disease; the patient was hospitalized in the occupational pathology department for examination.

On examination: the skin of the hands is pale and thinned. The distal phalanges of the fingers are cold to the touch. There is full range of movement in all joints, somewhat painful in the elbow joints. No pathology was detected from the internal organs.

Results of the study: Dynamometry of the right hand is 5 kg, left - 8 kg. Capillaroscopy of the hands. Conclusion: spastic-atonic state of the capillaries. Rheovasography of the upper extremities. Conclusion: moderate decrease in the rheographic index and elasticity index, increase in the peripheral resistance index.

1. Identify the syndromes and justify them.

2. Formulate a diagnosis.

3. Make a plan for additional examination.

4. Make a treatment plan. *Sample answer:*1. Syndromes: autonomic-sensory polyneuropathy,

peripheral angiodystonic, articular, anamnestic (work as an assembler-riveter for 20 years, under conditions of exposure to local vibration).

2. Vibration disease from exposure to local vibration, degree I, syndrome autonomic-sensory polyneuropathy, angiodystonic syndrome. Occupational disease.

3. Additional examination is necessary: algesiometry, pallesthesiometry, thermometry, laser Doppler flowmetry.

4. 1. Vasodilator (antispasmodic) drugs with myotropic action: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

Task 91.

Patient R., 29 years old, has been working as a stone cutter with pneumatic tools for 4 years. Vibration is transmitted more to the left hand holding the firing pin.

During the next medical examination, he complained of whitening of the fingers of his left hand, which had appeared over the past year. He does not feel pain in his hands. Whitening

fingers began with the little finger, then, as it cooled, the third and fourth fingers began to turn white. After bouts of whitening, unpleasant paresthesias appear, and sometimes swelling of the wrist joint.

Objectively: mild hyposthesia only on the terminal phalanges of the fourth and fifth fingers; muscles are not changed; according to capillaroscopy, there is a slight tendency to spasm. During a cold test - whitening of the fourth and fifth fingers of the left hand.

1. Formulate a diagnosis.

2. Prescribe treatment.

3. Resolve workability issues.

*Sample answer:*1. Vibration disease of the 1st degree from exposure to local vibration: peripheral angiodystonic syndrome of the upper extremities.

2. Treatment: 1. Vasodilator (spasmolytic) myotropic drugs actions: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride. 2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline. 3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine. 4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. B12). 5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days until the therapeutic effect is achieved: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others. 6. Drugs for the relief of pain, mainly of a neuropathic nature: antidepressants, the opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin). 7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

3. Employable in his profession.

Task 92.

Patient V., 38 years old, has been working for 10 years as an engine tester at a machine-building enterprise, where the noise at the workplace reaches 95-110 dB, mainly at high frequencies. There was no history of gastric ulcer or pneumonia or other diseases.

In the last 3 years, he began to notice increased irritability, fatigue, and periodic headaches. Subsequently, during the next periodic medical examination, a decrease in periosteal tendon reflexes in the arms and legs, tremor of the fingers of outstretched arms, instability in the Romberg position, general hyperhidrosis, and persistent red dermographism were discovered. At the same time, I began to notice a decrease in hearing.

No changes were found in the otoscopic picture. Audiometry revealed moderate sensorineural hearing loss.

1. Formulate and justify the diagnosis.

2. Prescribe treatment.

*Sample answer:*1. Moderate sensorineural hearing loss.

2. Treatment: vascular, nootropic courses 2-3 times a year, sanatorium treatment. General strengthening agents, hardening, a rational regime of work and rest, therapeutic exercises, good nutrition with a sufficient content of vitamins.

Task 93.

The manager of a pesticide warehouse at one of the suburban state farms was taken to the occupational disease clinic. It turned out that on the day of illness, chlorophos was dispensed, packed in paper bags. Due to the illness of the auxiliary worker, he had to carry the bags himself and load them onto the car. He complained of severe headache, dizziness, nausea, vomiting, general weakness and cold extremities.

Upon examination, it was noted that the face was hyperemic, the pupils were somewhat dilated. Pulse 98 beats per minute. Blood pressure 190/100 mm Hg. Moderate enlargement of the heart to the left. Heart sounds are muffled. A systolic murmur is heard at the apex. The emphasis of the second tone is on the aorta. The number of respirations is 18 per minute. Vesicular breathing. The abdomen is soft, painful on palpation. The abdominal organs were palpated without deviations from the norm. Neurological examination did not note any symptoms of organic damage to the central nervous system. An examination by an ophthalmologist revealed the initial signs of retinal angiopathy.

Blood test: hemoglobin - 82 g/l, red blood cells $4.1x10^{12}$/l, leukocytes - $6.2x10^{9}$/l, ESR - 12 mm/h, true cholinesterase activity - 98.8%. A urine test revealed traces of protein. An ECG study reveals the initial signs of left ventricular hypertrophy.

1. Based on the above data, formulate a diagnosis.
2. Outline treatment measures.
3. Give job recommendations.

*Sample answer:*1. Stage II hypertension, stage 3 hypertension, risk 2.

2. Antihypertensive therapy is recommended: ACE inhibitors (ramipril, lisinopril, perindopril) or ARA II (valsartan, candesartan, telmisartan), thiazide or thiazide-like diuretics (hydrochlorothiazide, indapamide), beta-blockers (bisoprolol, metoprolol), calcium channel blockers (amlodipine, felodipine).

3. In the future, heavy physical labor is contraindicated. Can continue to work in their profession with the exception of lifting and carrying heavy objects.

Task 94.

Patient T., 34 years old, was taken to the Acute Poisoning Center in an unconscious state. As it turned out from the anamnesis, he carried out gas welding in a closed room for 2 hours.

Objectively: pink coloration of the mucous membranes and skin, dilated pupils and lack of reaction to light, the appearance of tonic and clonic convulsions, severe muscle rigidity. Shallow breathing up to 32 per minute. Heart sounds are clear. Pulse 100 beats per minute. Blood pressure 90/50 mm Hg. Blood test: hemoglobin 150 g/l, leukocyte count 5.6 x 10_9, ESR 18 mm/h.

1. Formulate a diagnosis.

2. What therapeutic measures.

*Sample answer:*1. Acute severe carbon monoxide intoxication.

2. Therapeutic measures: hyperbaric oxygenation (under pressure 2-3 atm.), with convulsions, for example, barbamyl (5-10 ml 5%), Relanium 2 ml. 5% IV on physical. solution

Task 95.

Patient P., 42 years old, works in a battery manufacturing plant. He was taken to the hospital by ambulance due to severe abdominal pain. From the anamnesis it was revealed that even before working at the battery plant, he suffered from a peptic ulcer of the stomach and duodenum. Over the next 20 years, there were no exacerbations, which was confirmed by gastroenterological studies.

Upon admission to the hospital, he complained of sharp, cramping pain in the abdomen. Objectively: the abdomen is retracted, tenderness on palpation is predominantly localized in the middle and lower half of the abdomen and especially around the navel. The onset of pain was preceded by an unpleasant taste in the mouth, nausea, drooling, insomnia, and constipation. The patient had no stool, although he took laxatives. In the lungs, the percussion sound is not changed, breathing is vesicular, the boundaries of the heart are not changed, the tones are pure and clear. Blood pressure 180/90 mm Hg. Art. Blood test: hemoglobin – 110 g/l, reticulocytes – 40%, erythrocytes – 4.1 x 10_{12}/l, number of red blood cells with basophilic granularity – 66%, ESR – 11 mm/hour.

1. Formulate a diagnosis.

2. Specify additional diagnostic tests.

3. Prescribe treatment.

*Sample answer:*1. Chronic lead intoxication, severe form (lead colic, anemia). Concomitant disease: Peptic ulcer of the stomach and duodenum in remission.

2. It is recommended to further examine the urine for delta-aminolevulinic acid, coproporphyrin and lead.

3. Treatment: complex therapy (calcium thetacin, pentacin, unithiol, succimer). For to relieve attacks of abdominal pain - local heating pads, warm baths, novocaine blockade, atropine injections.

Task 96.

Patient L. works as a truck driver on a state farm. Often he has to carry out repair work on a car, and his hands are usually contaminated with lubricants, motor fuel, and sometimes nitro paint. There was no history of illness, except for a head injury in childhood without any consequences.

After 15 years in rural areas, I began to notice the appearance of headaches in the form of migraine-type crises, dizziness, sleep disturbances (light sleep, insomnia, does not fall asleep for a long time). Subsequently, irritability, a feeling of fear, the sensation of hair in the mouth, insects crawling over the body, and nightmares appeared.

1. Formulate a diagnosis.

2. Prescribe treatment.

3. Solve ITU issues.

*Sample answer:*1. Chronic intoxication with tetraethyl lead, stage 1.

2. Treatment: sedatives, IV glucose with ascorbic acid, hypnotics from group of barbiturates at night.

3. Work in contact with tetraethyl lead and other toxic substances contraindicated. The patient needs treatment and observation by a neurologist, rational employment.

Task 97.

A wordsmith from a printing plant was brought to the hospital emergency department with complaints of sudden abdominal pain, nausea and constipation. Upon examination, the patient was noted to be somewhat pale and restless. Pulse 58 beats per minute, blood pressure 150/90 mm Hg. Vesicular breathing. Palpation of the abdomen reduces pain. Blood test: hemoglobin 133g/l, red blood cells 4.3 x 10_{12}/l, leukocytes 6.8 x 10_{9}\l, ESR 10 mm per hour, platelets 120 x 10_{9}, reticulocytes 20%. Body temperature 37.1$_{0}$C. First, a diagnosis of “acute appendicitis” was made and the patient was sent to the surgical department for surgical intervention.

1. Indicate whether the diagnosis was made correctly, formulate the diagnosis.

2. What is your opinion about the place and method of treatment?

*Sample answer:*1. The diagnosis was made incorrectly. The patient has chronic occupational severe lead intoxication (lead colic). 2. Treatment is indicated in the occupational pathology department with the prescription of complexones (calcium thetacine, pentacin, unithiol), antispasmodics (papaverine, drotaverine).

Task 98.

Patient F., 46 years old, has been working for 21 years as a laboratory assistant in a chemical laboratory of a plant, having constant contact with metallic mercury. During a periodic medical examination, she complained of a widespread headache, memory impairment, irritability, tearfulness, decreased performance, sleep disturbance, and trembling of the fingers. Upon examination, a uniform revival of tendon reflexes according to the functional type, tremor of the eyelids and fingers of outstretched arms (asymmetrical), pronounced red dermographism, and general hyperhidrosis were revealed. Pulse – 96 beats per minute, rhythmic, blood pressure – 150/100 mm Hg. Otherwise, no changes were detected.

1. Formulate a preliminary diagnosis.

2. Draw up the examination plan necessary to formulate the final diagnosis.

3. Prescribe treatment.

4. Solve ITU issues.

*Sample answer:*1. Preliminary diagnosis: chronic mercury intoxication, initial stage (neurasthenic syndrome against the background of autonomic dysfunction). 2. For confirmation, a copy of the work record book, sanitary and hygienic characteristics of working conditions, and a urine test for mercury content are required. 3. Treatment: if the diagnosis is confirmed - complex therapy (succimer, unithiol or sodium thiosulfate), drugs that improve metabolism (aminalon, stugeron, etc.), physiotherapy (coniferous, hydrogen sulfide baths), therapeutic exercises.

4. During the period of treatment, the patient needs rational employment outside of contact with toxic substances. In the future, upon recovery, he is able to work at his job, provided that appropriate preventive measures are taken there.

99. Make a treatment plan for vibration disease.

Sample answer:

1. Vasodilator (antispasmodic) drugs with myotropic action: drotaverine, bencyclane fumarate, bendazole, papaverine hydrochloride.

2. Angioprotectors and microcirculation correctors, including antiplatelet agents, such as nicotinates: nicotinic acid (vitamin PP), xanthinol nicotinate, pentoxifylline.

3. Anticholinesterase drugs: neostigmine methylsulfate, galantamine, ipidacrine.

4. B vitamins: thiamine (vit. B1), pyridoxine (vit. B6), cyanocobalamin (vit. AT 12).

5. Non-steroidal anti-inflammatory drugs (NSAIDs) for 10-14 days before achieving a therapeutic effect: diclofenac, ibuprofen, lornoxicam, meloxicam, aceclofenac, ketorolac and others.

6. Drugs for pain relief, mainly neuropathic nature: antidepressants, opioid analgesic tramadol, anticonvulsants (carbamazepine, trileptal, pregabalin, gabapentin).

7. Non-drug therapy: physiotherapy, balneotherapy, reflexology.

100. What are the basic principles of treatment of pneumoconiosis?

Sample answer:

1. Termination of exposure to the etiological factor.

2. Stop smoking.

3. A nutritious diet with sufficient amounts of proteins, fats, carbohydrates, vitamins, microelements, dietary fiber and liquid. With the development of right ventricular failure with signs of fluid retention in the body, it is necessary to limit the consumption of table salt to less than 6 g/day, fluid intake to 2 l/day (in severe cases, to 1.5 l/day).

4. Prescription of bronchodilators for patients with pneumoconiosis with secondary bronchial obstruction, as determined by physical examination or spirometry, to improve lung function and reduce symptoms.*In the absence of Comorbidity with COPD or bronchial asthma is advisable to prescribe short-acting bronchodilators. M-anticholinergic blockers - ipratropium, beta-2 adrenergic receptor agonists - fenoterol, salbutamol, a fixed combination of an M-anticholinergic blocker and beta-2 agonist - fenoterol/ipratropium bromide can be used. It is possible to prescribe drugs on an "on demand" or regular basis. In patients with long-term persistent signs of bronchial obstruction, the use of long-acting bronchodilators, such as the M-anticholinergic blocker tiotropium, the beta-agonists formoterol, olodoterol, a fixed combination of the M-anticholinergic blocker and the beta-2 agonist tiotropium/olodoterol, may be considered. In case of comorbidity with COPD and bronchial asthma, therapy for broncho-obstructive disease is carried out on the basis of relevant clinical recommendations.*

5. Use of the antifibrotic drug nintedanib in patients with pneumoconiosis with progressive pulmonary fibrosis to slow the decline in lung function. The question of prescribing nintedanib is decided by a medical commission. Criteria for the progressive phenotype of pneumoconiosis:

1. Progressive massive fibrosis (nodular forms)

2.Increase in occupation by more than one subcategory over a period of less than 5 years

3. The volume of fibrosis on chest CT is more than 10% in combination with one of the following signs:

- Decrease in FVC ≥10% in the previous 24 months
- Decrease in FVC 5 – 10% with worsening respiratory symptoms and/or increase volume of fibrosis on CT scan over the previous 24 months
- Increased volume of fibrosis on CT and worsening respiratory symptoms over the previous 24 months.

6. Long-term oxygen therapy for patients with pneumoconiosis and severe respiratory insufficiency when oxygen saturation at rest is less than 88%, partial oxygen tension of arterial blood is less than or equal to 55 mm Hg.

7. Long-term oxygen therapy for patients with pneumoconiosis and pulmonary hypertension, right ventricular failure with oxygen saturation at rest less than 89%, partial oxygen tension of arterial blood less than 60 mmHg.

8. Long-term non-invasive ventilation of the lungs in patients with pneumoconiosis with ineffectiveness of oxygen therapy and hypercapnic respiratory failure (shortness of breath, morning headaches in combination with the following changes in blood gas composition: partial tension of carbon dioxide in arterial blood more than 55 mm Hg or 50 - 54 mm Hg in the presence of episodes of decreased oxygen saturation less than 88% in night time with oxygen inhalation 2 l/min).

9. Prescription of sildenafil for patients with pneumoconiosis and severe pulmonary hypertension.

10. The use of an inhaled form of a prostacyclin analogue - iloprost in patients pneumoconiosis and severe pulmonary hypertension.

11. The use of loop diuretics in patients with pneumoconiosis and decompensated right ventricular failure to achieve euvolemia.

CRITERIA for assessing competencies and rating scales

Grade "unsatisfactory" (not accepted) or absence formation competencies	**Grade "satisfactorily" (passed) or satisfactory (threshold) level of development competencies**	**Grade "Fine" (passed) or sufficient level development competencies**	**Grade "Great" (passed) or high level development competencies**
failure to student on one's own demonstrate knowledge when solving assignments, lack independence in application of skills. No confirmation of availability formation competencies indicates negative results of mastering educational disciplines	student demonstrates independence in application of knowledge skills and abilities to solve educational tasks in full According to sample given teacher, by tasks, solution which were shown teacher, it should be assumed that competence formed on satisfactory level.	student demonstrates independent application knowledge, skills and skills at solving tasks, similar samples that confirms Availability formed competencies for higher level. Availability such competencies for sufficient level testifies about sustainable fixed practical skill	student demonstrates ability to full independence in choosing a method solutions non-standard assignments within disciplines with using knowledge, skills and skills, received as in development progress given disciplines and adjacent disciplines should be considered competence formed on high level.

Criteria for assessing test control:

percentage of correct answers	Marks
91-100	Great
81-90	Fine
70-80	satisfactorily
Less than 70	unsatisfactory

Interview assessment criteria:

Mark	**Descriptors**		
	strength of knowledge	**ability to explain (introduce) the essence of phenomena, processes, do conclusions**	**logic and sequence b answer**
Great	strength of knowledge, knowledge of basic processes of the studied subject area, the answer is different	high skill explain the essence phenomena, processes, events, do conclusions and generalizations,	high logic And subsequence answer

	depth and completeness disclosure of the topic; possession terminological apparatus; logic and consistency answer	give reasoned answers, give examples	
Fine	solid knowledge main processes subject matter being studied area, different depth and completeness disclosure of the topic; possession terminological apparatus; free possession monologue speech, however one is allowed - two inaccuracies in the answer	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
satisfy flax	satisfactory process knowledge subject matter being studied areas, answer, different insufficient depth and completeness of disclosure Topics; 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. Allowed several errors in content of the answer	satisfactory logic and subsequence answer
dissatisfy strictly	poor knowledge of the subject area being studied, shallow opening Topics; poor knowledge main issues theories, weak skills analysis of phenomena, processes. Allowed serious mistakes in content of the answer	inability to give reasoned answers	absence logic and sequences answer

Criteria for assessing situational tasks:

Mark	**Descriptors**			
	understanding Problems	**analysis situations**	**skills solutions situations**	**professional thinking**

Great	complete implication problems. All requirements, declared task, completed	high benefit analyze situation, draw conclusions	high benefit select method solutions problems, faithful solution skills situation	high level professional thoughts
Fine	complete implication problems. All requirements, declared task, completed	benefit analyze situation, draw conclusions	benefit select method solutions problems faithful solution skills situation	residual level professional thoughts. one goes down - there are inaccuracies in reply
satisfy flax	astastic implication problems. majority requirements declared task, completed	please satisfy nyaya benefit analyze situation, draw conclusions	satisfactory skills solutions situations, falsity with choosing a method solutions to the problem	residual level professional thoughts. falls more a bunch of inaccuracies in reply or error sequences solutions
dissatisfy strictly	misunderstanding problems. legs requirements, declared task, not completed. No Tveta. Did not have experiments to solve hello	izkaya benefit analyze situation	insufficient solution skills situation	missing