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

FACULTY OF TREATMENT AND PREVENTION

Evaluation materials

in the discipline ANESTHESIOLOGY, RESUSCITATION, INTENSIVE CARE

Specialty 05/31/01 General Medicine

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2023

1. Scroll competencies, formed discipline (fully or partially)
professional (PC):

Code and name of professional competence	Indicator(s) of achievement of professional competence
PC-11 readiness to participate in the provision of emergency medical care conditions requiring urgent medical intervention	Able to provide first aid and emergency medical care to patients in conditions that pose a threat to the patient's life, including clinical death (stopping the vital functions of the human body (circulation and/or respiration).

2. Kinds estimated materials V compliance With formed competencies

Name of competency	Types of assessment materials	number of tasks **for 1 competency**
PC-11	Closed tasks	25 with sample answers
	Open type tasks: Situational tasks Interview questions Add-on tasks	75 with sample answers

PC-11:

Closed type tasks:

Task 1. Instructions: Choose one correct answer.
Time frames for emergency medical care:
1. no more than 2 hours after the patient's request is received
2. no more than 24 hours after receipt of the patient's request
3. no more than 72 hours after receipt of the patient's request
4. urgently

***Sample answer:*4. without delay**

Task 2. Instructions: Choose one correct answer.
During indirect cardiac massage, to achieve the optimal effect,
1. 100 – 120 compressions per minute
2. 30 – 40 compressions per minute
3. 120 – 160 compressions per minute
4. 60 - 80 compressions per minute

***Sample answer:*1) 100 – 120 compressions per minute**

Task 3. Instructions: Choose one correct answer.
Conditions under which traumatic hemorrhagic shock may develop:
1. polytrauma with pelvic fracture
2. acute bleeding from an isolated injury to a large blood vessel
3. gastrointestinal bleeding

4. non-traumatic rupture of blood vessels (for example, aortic aneurysm)
5. obstetric hemorrhage (eg, uterine atony)

***Sample answer:*1. Polytrauma with pelvic fracture**

Task 4. Instructions: Choose one correct answer.
A solution used to relieve decompensated metabolic acidosis in various diseases and conditions (absolute indication
is a decrease in blood pH below 7.2):

1. sodium bicarbonate
2. 0.9% sodium chloride solution
3. 5% dextrose solution
4. hydroxyethyl starch

***Sample answer:*1. sodium bicarbonate**

Task 5. Instructions: Choose one correct answer.
The drug of first choice in the treatment of anaphylactic shock is:

1. epinephrine
2. norepinephrine
3. dexamethasone
4. prednisolone

***Sample answer:*1. Epinephrine**

Task 6. Instructions: Choose one correct answer.
Select the scale that is used to determine the intensity of pain in patients unable to communicate:

1. Verbal rating scale - VRS
2. Digital rating scale - TsRSh
3. Visual analogue scale - YOUR
4. Pain assessment by facial expression

***Sample answer:*4. Assessing pain by facial expression**

Task 7.Instructions: Choose one correct answer.
In life-threatening conditions, the following scale is used to assess the depth of consciousness impairment in an adult:

1. Glasgow
2. SOFA
3. NEWS
4. YOUR

Sample answer: 1 Glasgow.

Task 8. Instructions: Choose one correct answer.
In case of acute massive blood loss, it is recommended to start infusion therapy with:

1. 0.9% NaCl solution
2. 5% dextrose solution
3. Lactated Ringer's solution
4. Balanced crystalloid solutions
5. Colloidal solutions
6. Blood components

Standard answer: 4. Balanced crystalloid solutions.

Task 9. Instructions: Choose one correct answer.

To assess the presence of organ dysfunction in patients at the prehospital stage of medical care and in the emergency department, the following scale is used:

1. SOFA
2. qSOFA
3. APACHE
4. RASS

***Sample answer:*2.qSOFA**

Task 10. Instructions: Choose one correct answer.
What drug is recommended to be used for vasopressor support in septic shock in order to maintain a mean arterial pressure level of at least 65 mmHg.

1. Norepinephrine (Norepinephrine),
2. Adrenalin
3. Dopamine.
4. Dobutamine.

Sample answer: 1. Norepinephrine (Norepinephrine)

Task 11. Instructions: Choose several correct answers.
Select routes of drug administration during cardiopulmonary resuscitation:

1. Subcutaneous
2. Intramuscular
3. Intravenous
4. Inhalation
5. Intracardiac
6. Intraosseous

***Sample answer:*3, 6**

Task 12. Instructions: Choose several correct answers.
Clinical signs of acute respiratory failure (ARF) include:

1. Feeling of lack of air (shortness of breath). Tachypnea more than 24 bpm. or bradypnea less than 12 per minute. An alarming symptom is jerky speech: the patient cannot utter a long phrase without taking a breath
2. Accessory muscles take part in breathing: the wings inflate
   nose, the muscles of the floor of the mouth and the anterior neck muscles tense, the sternocleidomastoid muscles contract (normally, all of them do not take part in the act of breathing)
3. The patient, if he is not in a terminal condition, tries to take a sitting or semi-sitting position
4. Changes in the psyche develop: from euphoria, moderate excitement and inadequacy in relation to others up to apathy and deep coma in the finale
5. The skin becomes cold, pale, moist; a marbled skin pattern appears; cyanosis of visible mucous membranes, nail beds and skin integuments occurs and increases.

***Sample answer:*1, 2, 3, 4, 5**

Task 13. Instructions: Choose several correct answers.
Clinical criteria for laryngeal stenosis requiring hospitalization.

1. severe shortness of breath
2. excitation

3. breathing with the participation of auxiliary muscles, retraction of the pliable parts of the chest, flaring of the wings of the nose
4. cyanosis of the nasolabial triangle
5. tachycardia
6. hoarseness
7. rough obsessive cough
8. moderate shortness of breath

***Sample answer:*1, 2, 3, 4.5**

Task 14. Instructions: Choose several correct answers.

List the groups of drugs used for infusion therapy:

1. Crystalloid solutions
2. Colloidal solutions
3. Blood components

***Sample answer:*1,2,3**

Task 15. Instructions: Choose several correct answers.

Select drugs used in the treatment of anaphylaxis/anaphylactic shock:

1. epinephrine (adrenaline)
2. 0.9% sodium chloride solution
3. dexamethasone
4. prednisolone
5. norepinephrine
6. dopamine

Sample answer: 1,2,3,4

Task 16. Instructions: Choose several correct answers.

Select the scales that are used to determine the intensity of pain in patients who are able to communicate:

1. Verbal rating scale - VRS
2. Digital rating scale - TsRSh
3. Visual analogue scale - YOUR
4. Pain assessment by facial expression

Sample answer: 1,2,3

Task 17. Instructions: Choose several correct answers.

What signs should be assessed in a victim when using the Glasgow Coma Scale?

1. opening eyes
2. speech reaction
3. pupil width
4. stiff neck
5. motor response
6. muscle tone of the limbs

Standard answer: 1,2,5.

Task 18. Instructions: Choose several correct answers.

Detection of acute kidney injury is based on the use of diagnostic tests:

1. Serum urea concentration
2. Presence of acidosis
3. Serum creatinine concentration

4. Serum potassium concentration
5. Volume of urine excreted
6. Hypervolemia
7. Use of radiocontrast procedures the day before

Standard answer: 3, 5, 7

Task 19. Instructions: Choose several correct answers.
What complications are typical for acute kidney injury?

1. Hyperkalemia
2. Hemolysis
3. Overhydration
4. Metabolic acidosis

Sample answer: 1,3,4

Task 20. Instructions: Choose several correct answers.
Determine the actions for providing first aid in case of poisoning through the mouth at the prehospital stage in a conscious victim:

1. Questioning the victim
2. Give 5-6 glasses of water to drink and induce vomiting
3. Repeatedly drink 5-6 glasses of water and induce vomiting
4. Monitoring the condition of the victim before the ambulance arrives
5. If the toxic substance is unknown, a small amount of vomit should be collected for subsequent examination. It is also necessary to collect empty containers of medicines or household chemicals that could cause poisoning.

Sample answer: 1,2,3,4,5

Task 21. Instructions: Choose several correct answers.
Artificial induction of vomiting is contraindicated in case of poisoning in the following cases:

1. in case of impaired consciousness;
2. in case of poisoning with cauterizing liquids;
3. in case of poisoning with petroleum products (gasoline, kerosene, etc.);
4. in children under one year of age;
5. in cases where parents (relatives) have an inadequate attitude to what is happening and their actions can cause harm

Sample answer: 1,2,3,4,5

Task 22. Instructions: Choose several correct answers.
Specify the signs that may indicate massive internal bleeding
(gastrointestinal bleeding, intra-abdominal and/or intrathoracic bleeding) in the absence of visible signs of ongoing bleeding:

1. Pale, damp and cold skin.
2. The pulse is frequent and poorly defined on the radial artery.
3. Confused consciousness.
4. Rapid breathing.
5. Bradycardia

***Sample answer:*1, 2, 3, 4.**

*Task 23.*Establish a correspondence between the type of shock and its characteristics:

1. Hypovolemic shock	A. is characterized by a decrease in intravascular volume - a decrease in preload, which leads to a decrease in stroke volume and low cardiac output

2. Distributive (distributive) shock	B. this is a state of relative hypovolemia, characterized by pathological distribution of blood volume with insufficient perfusion of tissues and organs
3. Cardiogenic shock	V. is characterized by insufficient tissue perfusion due to a critical decrease in pumping capacity heart failure caused by systolic or diastolic dysfunction leading to decreased ejection fraction or filling abnormalities ventricles
4. Obstructive shock	G. is characterized by a decrease in cardiac output due to physical obstruction to blood flow

Sample answer: 1-A, 2-B, 3-C, 4-D.

*Task 24.*Establish a correspondence between the child's age and scales that allow assessing the intensity of pain in children at a specified age:

1. For children under 1 year of age	A. Neonatal Infant Pain Scale (NIPS)
2. For children under three years of age	B. "Behavioral scale" FLACC (Face, Legs, Activity, Cry, Consolability) or Tactile and Visual Pain Rating Scale (TVP scale)
3. For children aged three to seven years	B. "Wong-Baker rating scale for facial pain assessment" (Face scale), "Color scale Eland body tool or Hand scale
4. For children over seven years of age	D. Visual analogue scale (VAS) or Numerological rating scale (NSR)

***Sample answer:*1-A, 2-B, 3-C, 4-D**

*Task 25.*Establish a correspondence between the Interdisciplinary Classification of Gradations of Consciousness and key clinical signs.

1. Clear consciousness	A. Full orientation, quick answer to the essence of the question.
2. Stupor	B. Only opening your eyes to pain.
3. Moderate coma	B. Lack of eye opening, non-localized reaction to pain.
4. Deep coma	D. Lack of eye opening, lack of localized response to pain.

***Sample answer:*1-A, 2-B, 3-C, 4-D.**

Open type tasks:

Exercise 1.
When performing advanced cardiopulmonary resuscitation, it is necessary to administer intravenously every 3-5 minutes.____
***Sample answer:*epinephrine (adrenaline)**

Task 2.
Availability criteria_____:
- Acute organ dysfunction due to infection, including hemodynamic instability.

- Mean arterial pressure is below 65 mmHg. Art. (provided there are no signs of hypovolemia).
- An increase in lactate concentration > 2 mmol/l, if the patient has an infectious focus.
Sample answer:**septic shock**

Task 3.
In people with suppressed pharyngeal reflexes and those in a coma, gastric lavage through a tube in case of poisoning is carried out after preliminary_____.
Sample answer:**tracheal intubation**

Task 4.
When trying to perform artificial inhalation using the mouth-to-mouth method, you felt resistance and did not see the rise of the chest. What are your next steps?
Sample answer:**it is necessary to perform a triple Safar maneuver (throwing back the head, extending the lower jaw and opening the mouth) and repeat artificial inspiration**

Task 5.
As a result of basic resuscitation measures, you have revived the person, he is breathing, but unconscious. What are your next steps?
Sample answer:**it is necessary to give the victim a stable lateral position and assess the presence of breathing over time**

Task 6.
You performed electrical defibrillation with a manual defibrillator. What are your next steps?
Sample answer:**CPR should be continued for 2 minutes and then the heart rhythm should be assessed**

Task 7.
You are performing basic CPR on a 6-year-old child. An assistant brought an automated external defibrillator (AED), which does not contain children's
electrodes. What are your next steps?
Sample answer:**it is necessary to place the AED electrodes in the anterior-posterior position, and if there is a switch, switch it to child mode, then act in accordance with the voice commands of the AED**

Task 8.
The patient was admitted to the emergency department with a diagnosis of acute coronary syndrome with ST elevation. Gastrointestinal bleeding. From the anamnesis: he has been suffering from a malignant neoplasm of the prostate gland for five years. In the reception department
the patient developed clinical death. Will you begin cardiopulmonary resuscitation on this patient? Give reasons for your decision.
Sample answer:**Despite the presence of a reliably established incurable disease in the patient (prostate malignancy), clinical death occurred as a result of reversible causes of spontaneous cardiac arrest: Acute coronary syndrome with ST elevation (cardiogenic shock) and/or Gastrointestinal bleeding (hypovolemic shock). Advanced cardiopulmonary resuscitation should be started.**

Task 9.
A 2-year-old child was brought to the emergency department with inspiratory shortness of breath, hoarseness, T 37.2°C. According to the mother, these symptoms appeared a day ago. State the possible cause of this condition and your further actions.
Sample answer:**The most likely cause is acute stenosing laryngotracheitis. Inhaled or systemic administration of glucocorticosteroids is indicated. It is necessary to evaluate the level of blood oxygen saturation; if SatO2 is less than 92%, oxygen therapy is indicated; if there is no effect, a consultation with a resuscitator is indicated to decide whether to transfer the patient to the intensive care unit.**

Task 10.
Examination of a 35-year-old patient revealed: severe difficulty in breathing; hoarse breath, elongated; feeling of lack of air (shortness of breath); moderate psychomotor excitation; during inhalation, the intercostal spaces and subclavian areas are retracted; cyanosis of the nasolabial triangle; tachycardia 110/min. Determine the sequence of actions when providing emergency care to a patient with laryngospasm:
Sample answer:

1. **Place the patient in a sitting position and perform pulse oximetry**
2. **Provide access to fresh air and, if possible, oxygen therapy**
3. **inhalation administration of Budesonide suspension 2 mg or 1 mg at intervals of 30 minutes;**
4. **administration of dexamethasone 0.15 - 0.6 mg/kg intramuscularly (or intravenously) or 1 or 2 mg/kg prednisolone.**

Task 11.
Examination of a 24-year-old patient revealed: respiratory rate 25 min; noted difficulty, lengthening and hoarseness of exhalation; bulging of pliable areas of the chest wall; pulse 110 min; the patient cannot pronounce a sentence in one exhalation. The patient sits, resting her hands on the edge of the bed. He has been suffering from bronchial asthma for a long time.
Name the condition and determine the sequence of your actions when providing emergency medical care to the patient:
Sample answer:

1. **The patient developed a severe attack of bronchial asthma**
2. **Determine saturation and, if the saturation level decreases below 92%, administer inhaled oxygen (4 - 5 liters per minute through nasal cannulas) to maintain SpO2 within 93 - 95%.**
3. **Administration of selective beta2-adrenergic agonists in inhalation form: salbutamol at a dose of 2.5 mg per 1 inhalation (maximum daily dose of salbutamol - 40 mg)**
4. **Administration of ipratropium bromide using a nebulizer at a dose of 500 mcg**
5. **Administration of prednisolone 90 mg or dexamethasone 8 mg IV**

Task 12.
Due to bleeding from the dilated veins of the esophagus, the patient developed hemorrhagic shock (massive blood loss). To the patient in order to stabilize hemodynamics, microcirculation, oxygen transport and replenishment of factors blood coagulation, a volemic infusion load (bolus) is indicated.
Name the groups of infusion solutions indicated for correcting the patient's condition.

Sample answer:**The infusion load for this patient should include crystalloid solutions, colloid solutions (if the administration of crystalloids is insufficient to replenish the volume of blood loss) and blood components.**

Task 13.
In a patient with hyperthermia and exacerbation of chronic pancreatitis, accompanied by restriction of oral fluid intake due to periodic vomiting, it is necessary to prescribe maintenance infusion therapy.
1. Name the infusion solutions indicated for correcting the patient's condition.
2. What volume of infusion therapy should be prescribed to the patient in order to replenish the daily physiological fluid requirement.
Sample answer:
1. Maintenance infusion therapy involves the use of only crystalloid solutions (preferably balanced): Friosterol, Isotonic L-Malate, Plasmafuzol, Isotonic Sterofundin.
2. Maintenance infusion therapy with crystalloid solutions in order to replenish the patient's daily physiological need for fluid (which she cannot take in sufficient quantities orally) 30-35 ml/kg of ideal body weight/day.

Task 14.
The patient was admitted to the emergency department. Level of consciousness - stupor (11 points on the Glasgow Coma Scale). The skin is dry, warm. The tongue is dry. Blood pressure 105/70 mm Hg. Art.
Pulse 100 per minute. Respiration rate 24 per minute, Sat 95%. From the anamnesis - found at home relatives, did not contact them for several days, apparently did not drink water for several days. The examination revealed a blood serum level of sodium 162 mmol/l, potassium 4.5 mmol/l, urea 38 mmol/l, creatinine 120 μmol/l, glucose 7 mmol/l. Determine the value of osmolarity using the formula 2Na + urea + glucose and the type of dehydration in this patient.
Sample answer:**The osmolarity of the blood plasma in this patient is 162·2+7+38 = 369 mOsm/L. Osmolarity is higher than normal (normal 285-295 mOsm/l). The patient has hyperosmolar dehydration.**

Task 15.
After administration of the vaccine, a 1-year-old child experienced a decrease in blood pressure to 65 mm Hg. and hives appeared. You assume he has anaphylactic shock. What first-line drug will you administer to him and in what maximum single dosage?
Sample answer:**epinephrine intramuscularly into the anterolateral surface of the upper third of the thigh at a dosage of 0.15 mg (0.15 ml of 0.1% epinephrine solution).**

Task 16.
Two minutes after intravenous administration of the antibiotic, the patient began to complain of itching of the skin, rash, cough, feeling of heat, tinnitus, and fear of death. There is a decrease in blood pressure to 90 mm Hg. Art., tachycardia up to 120 beats per minute, weak pulse. State the expected diagnosis and severity.
Sample answer:**Anaphylactic shock of 1st severity.**

Task 17.
A 40-year-old pregnant woman (30 weeks of pregnancy), two minutes after intravenous administration of an antibiotic, began to complain of itchy skin, rash, cough, feeling hot, tinnitus, and fear of death. There is a decrease in blood pressure to 90 mm Hg. Art.,

tachycardia up to 120 beats per minute, weak pulse. Patient in clothes.
List your emergency medical care actions in the first two minutes of assistance.
Sample answer:
- immediately inject epinephrine intramuscularly into the anterolateral surface of the upper third of the thigh through clothing at a dose of 0.5 mg (0.5 ml of 0.1% epinephrine solution),
- put him in a position on his left side, call for help, tell him to call an ambulance,
- instruct the nurse to establish oxygen flow through the face mask using an oxygen concentrator
- instruct the nurse to install an intravenous catheter and begin intravenous administration of 0.9% sodium chloride solution 500 ml;
- instruct the nurse to monitor heart rate, blood pressure, and respiratory rate

Task 18.
After a bee sting, a person next to you on the street developed
difficulty breathing, shortness of breath, cough, swelling of the eyelids, tinnitus. Indicate the first aid measures you will carry out.
Sample answer:
1. **Put the person down and immediately call for help.**
2. **Call emergency medical help immediately.**
3. **Pull out the sting.**
4. **Apply a venous tourniquet to the limb above the sting site.**

Task 19.
When an ambulance was called, a 67-year-old man complained of moderate chest pain radiating to the left arm. The ECG shows ST segment elevation in 2-4 chest leads. What drug for pain relief do you use according to the standard?
medical care for adults with acute myocardial infarction with ST segment elevation of the electrocardiogram?
Sample answer:**pain relief with a narcotic analgesic - morphine 10 mg intravenously (1 ml of 0.1% morphine solution).**

Task 20.
During the fight, the teenager was hit in the stomach with a sharp object. Upon examination
The emergency doctor visualizes a wound on the anterior abdominal wall, 5 cm long, moderately bleeding. A loop of small intestine protrudes from the wound. Upon examination, a pain syndrome was revealed, the intensity was 80% on a visual analogue scale. Create an emergency care algorithm
Sample answer:**a) administration of a non-steroidal anti-inflammatory drug - ketorolac 30 mg intravenously or intramuscularly (1 ml of 0.3% ketorolac solution); b) apply an aseptic dressing without touching the intestines, treat the skin around the wound with an antiseptic solution, place a cushion around the intestine, wrap the intestine with a sterile napkin generously moistened with warm saline, apply an aseptic bandage; c) transported on a rigid stretcher to a surgical hospital in a supine position with legs bent and spread apart. An improvised support is placed under the knees - a bag, folded clothes.**

Task 21.

The patient complains of severe pain in the abdomen of a dagger-like nature. The emergency doctor prescribed a non-steroidal drug as an emergency treatment
anti-inflammatory drug - ketorolac 30 mg intramuscularly (1 ml of 0.3% ketorolac solution). The intensity of the pain remained the same. Can an emergency physician administer an analgesic narcotic for acute abdominal pain before being examined by a surgeon and making a diagnosis?

Sample answer:**the administration of an analgesic drug for acute abdominal pain before examination by a surgeon and diagnosis is contraindicated, since the clinical picture is obscured and it is difficult to obtain accurate data, since the acuity of the patient's perception of complaints decreases. The standard of emergency medical care for acute abdomen does not include analgesic drugs.**

Task 22.

At the dental clinic, while waiting to see a doctor, a 55-year-old man complained of severe weakness, trembling and lost consciousness. Doesn't answer questions. In response to painful stimulation, he withdraws his hand, but does not open his eyes. The skin is sharply pale and moist. The medical record indicates that the patient has been suffering from diabetes mellitus for 15 years and takes insulin. The ambulance crew arrived and measured a blood glucose level of - 2.0 mmol/L.

1. Name the most likely reason for the development of coma in the patient.
2. What assistance should be provided to the patient by the ambulance crew?

Sample answer:

1. The most likely cause of coma in a patient is hypoglycemia. 2. It is necessary to inject 40-100 ml of 40% glucose solution intravenously until consciousness is fully restored; - if consciousness is not restored, it is necessary after intravenous administration of 100 ml of 40% glucose solution to start intravenous drip administration of 5–10% solution glucose; - hospitalization.

Task 23.

In the office of the local therapist, an elderly man felt a severe headache, lost consciousness and fell. The victim lies on his back. Doesn't answer questions. There is no reaction to painful stimulation. The pupils are wide. Breathing is noisy. RR 24/1 min., BP 220/120 mmHg. art., PS-56 in 1 min. The face is asymmetrical, the left cheek "sails" when breathing, the left leg is rotated outward, and the rigidity of the muscles of the back of the head is determined. The clinic staff began providing first aid.

1. Name the condition that required first aid.
2. What position would be optimal for the victim?

Sample answer:

1. Lack of consciousness - coma level of consciousness.

2. **As part of first aid, a victim who is unconscious but breathing must be placed in a stable lateral position.**

Task 24.

A construction worker suddenly became ill while doing painting work. The man turned pale and started vomiting. After 5 minutes he fell and lost consciousness. The ambulance team arrived. There is a small wound in the superciliary area. The victim does not answer questions and does not open his eyes. Reacts to painful stimulation by bending his right arm. The face is pasty, hyperemic, asymmetry of the nasolabial fold. The pupils are asymmetrical, the reaction to light is reduced. Muscle tone is reduced. Breathing is noisy. Respiratory rate 28 per minute. Blood pressure 140/90 mm Hg. Heart rate 92/min.

1. What laboratory test should be performed on a patient when providing emergency care outside a medical organization?
2. What method would be optimal to ensure airway patency in this patient when providing emergency care outside a medical organization?

Sample answer:

1. Determining blood glucose levels is a mandatory laboratory test that must be performed on a patient when providing medical care outside a medical organization.
2. The optimal method to ensure patency of the airway in this patient is tracheal intubation.

Task 25.

A 16-year-old patient was taken to the hospital in a state of traumatic hemorrhagic shock - polytrauma with pelvic fracture (road accident). Blood pressure 80/60 mm Hg, pulse 120 per minute, diuresis rate 0.2 ml/kg/h. Pathogenesis of acute kidney injury?

Sample answer: **Prerenal acute kidney injury due to shock, massive blood loss. The main link in the pathogenesis is a violation of renal blood flow, accompanied by a significant decrease in glomerular filtration.**

Task 26.

An examination of a 30-year-old victim revealed skin damage from acid used in production. The patient is conscious. The sequence of your actions when providing first aid if a toxic substance gets on your skin.

Sample answer: **stop the flow of the toxic substance; interview the victim; remove contaminated clothing, rinse the toxic substance from the surface of the skin with a stream of running cold water for at least 20-30 minutes, without coming into contact with waste water.**

Task 27.

A 40-year-old patient developed hemorrhagic shock due to massive blood loss - the estimated volume of blood loss was 3 liters. The cause of blood loss was a stab wound in area of the upper third of the thigh. The patient's airway is patent, respiratory rate 28 per minute, Sat 95%, blood pressure 70/40 mm Hg. Art., heart rate 120 beats/minute, weak pulse, thread-like, level of consciousness - stupefaction (Glasgow coma scale 13 points), skin and visible mucous membranes - pale, covered with sticky sweat. Emergency medical team measures were taken to temporarily stop the bleeding (a tourniquet was applied), the patient was placed on his back with his legs raised, catheterization of two peripheral veins, infusion of balanced solutions in a volume of 500 ml was started, and the patient was warmed. At what target level is it recommended to maintain systolic blood pressure at the initial stage of care until bleeding is stopped surgically?

Sample answer: **at a level not higher than 80-90 mm Hg. Art.**

Task 28.

An emergency medical team arrived at the scene of a traffic accident. The motorcycle driver lost control and fell onto the roadway. The patient's airway is patent, respiratory rate 8 per minute, Sat 88%, blood pressure 55/45 mm Hg. Art., heart rate 112 beats/minute, pulse is weak, thread-like, level of consciousness is coma (Glasgow coma scale 8 points), skin and visible mucous membranes are pale, covered with sticky sweat, there are abrasions on the head and abdomen. Tracheal intubation and artificial ventilation of the lungs with a ventilator were performed, the cervical spine was fixed, the patient was placed on his back with his legs and head raised,

catheterization of two peripheral veins, infusion of balanced solutions in a volume of 500 ml and administration of tranexamic acid in a dose of 1 g, which is infused over 10 minutes, was started, warming the patient. At what target level is it recommended to maintain blood pressure in patients with massive blood loss and severe TBI (Glasgow Coma Scale ≤8 points) so that the average blood pressure in these patients is maintained at least 80 mmHg? Art.?
Sample answer:**at a level of at least 120/60 mmHg. Art.**

Task 29.
An 80-year-old patient came to the clinic with complaints of pain in the left lower limbs. He has been suffering from diabetes for a long time. Temperature 37.8°C, blood pressure 100/60 mm Hg. Art., RR 22/min., conscious. Local status: the left lower limb to the level of the upper third of the leg is purple-purple, with areas of epidermolysis. The described changes in the left lower limb have been observed over the past 5 days. Assess whether the patient has organ dysfunction according to the qSOFA scale and whether there are indications for transferring the patient to a surgical hospital?
Sample answer:**The patient has organ dysfunctions - 2 points on the qSOFA scale. The patient must be transferred to a surgical hospital.**

Task 30.
When examining a 13-year-old child on a home call, the following is noted: level of consciousness - stupor (Glasgow coma scale 13 points), temperature 37.9°C, blood pressure 90/60 mm Hg. Art., heart rate 98 per minute, respiratory rate 26 per minute. There is a rash on the lower extremities. According to the parents, the temperature rose to 37.5°C at night, and the rash appeared for no more than 2 hours. Assess whether the patient has organ dysfunction according to the qSOFA scale and whether there are indications for transferring the patient to infectious diseases hospital?
Sample answer:**The patient has organ dysfunctions - 3 points on the qSOFA scale. The patient must be transferred to an infectious diseases hospital.**

Task 31.
Define first aid.
Sample answer:**A set of measures aimed at preserving and maintaining the life and health of victims in the event of accidents, injuries, wounds, defeats, poisoning and other conditions and diseases that threaten the life and health of victims, until medical assistance is provided.**

Task 32.
Define emergency medical care.
Sample answer:**medical care provided for sudden acute diseases, conditions, exacerbation of chronic diseases that pose a threat to the patient's life.**

Task 33.
Name the conditions for which first aid is provided.
Sample answer:**Lack of consciousness, respiratory and circulatory arrest, external bleeding, foreign bodies in the upper respiratory tract, injuries to various areas of the body, burns, effects of exposure to high temperatures, thermal radiation, frostbite and other effects of exposure to low temperatures, poisoning.**

Task 34.
Algorithm for basic cardiopulmonary resuscitation (CPR) using an automatic external defibrillator (AED) in an adult

Sample answer:**Unconscious and not breathing normally – Call emergency services – Give 30 chest compressions – Give 2 rescue breaths – Continue CPR 30:2 – When the AED appears, turn it on and follow the device's voice commands**

Task 35.
Algorithm for advanced cardiopulmonary resuscitation (CPR) in an adult
Sample answer:**Unconscious and not breathing normally – Call emergency services – CPR 30:2 – Assess heart rhythm – A) Defibrillable rhythm (ventricular fibrillation/pulseless ventricular tachycardia) – 1 shock – Continue CPR for 2 minutes – Assess heart rhythm. B) Rhythm not amenable to defibrillation (asystole/electromechanical dissociation) – CPR for 2 minutes – In the presence of intravenous vascular access, administration of an intravenous bolus solution of epinephrine (adrenaline) 1 mg (0.1% - 1 ml) – Assessment of heart rhythm.**

Task 36.
Electrical defibrillation: indications, method of using an automatic external defibrillator (AED)
Sample answer:**Electrical defibrillation is indicated for ventricular fibrillation and pulseless ventricular tachycardia. The AED is turned on either by opening the lid or by pressing the power button. Electrodes are glued: one to the right of the sternum under the collarbone, the second - lateral to the left nipple with a center along the mid-axillary line. Next, act on the AED command (do not touch the victim during heart rate analysis; if a shock is indicated, make sure that no one touches the victim and press the "shock" button)**

Task 37.
What pathological conditions are potentially reversible causes of spontaneous cardiac arrest/clinical death?
Sample answer:
4G and 4T – hypoxia, hypovolemia, hypo/hyperkalemia (or other electrolyte disorders), hypo/hyperthermia, tension pneumothorax, cardiac tamponade, thrombosis (coronary or pulmonary artery), toxins (poisoning). These causes must be identified or excluded during any cardiopulmonary resuscitation.

Task 38.
Name the four main types of shock according to the pathogenesis of development.
Sample answer:**Hypovolemic, distributive (distributive), cardiogenic, obstructive.**

Task 39.
What are the four subtypes of hypovolemic shock?
Sample answer:**Hemorrhagic shock, Traumatic hemorrhagic shock, Hypovolemic shock caused by loss of fluid in the body, Traumatic hypovolemic shock**

Task 40.
What are the three subtypes of distributive/distributive shock?
Sample answer:**Septic shock, Anaphylactic shock, Neurogenic shock**

Task 41.
Name the main reasons for the development of obstructive shock.
Sample answer:**Thromboembolism in the pulmonary artery basin, compression syndrome of the inferior vena cava (caval compression syndrome), tension pneumothorax, pericardial tamponade.**

Task 42.
Define respiratory failure.
Sample answer:**Respiratory failure is a condition of the body in which the maintenance of normal gas composition of arterial blood is not ensured, or it is achieved due to increased work of external respiration, leading to a decrease in the functional reserves of the body, or is maintained artificially.**

Task 43.
Respiratory failure is accompanied by two types of disorders: insufficient saturation of arterial blood with oxygen (hypoxemia), or insufficient removal of carbon dioxide from the body (hypercapnia). Specify values
blood gas parameters indicating the presence of hypoxemia and hypercapnia. Sample answer: hypoxemia**P_aO_2< 60 mm Hg. Art. and hypercapniaP_aCO_2> 45 mmHgArt.**

Task 44.
What is the difference between partial obstruction of the airway and complete obstruction?
Sample answer: If the upper respiratory tract is partially obstructed, the victim answers the question and may cough. If the patency of the upper respiratory tract is completely obstructed, the victim cannot speak, cannot breathe, or breathing is clearly difficult (noisy, hoarse), he may grab himself by the throat, he may nod.

Task 45.
Indications for hospitalization in a medical organization are a severe attack of bronchial asthma and status asthmaticus. What are the clinical criteria?
indicating the transition of a severe attack of bronchial asthma to status asthmaticus. Sample answer: Saturation of blood hemoglobin with oxygen SpO2 < 92%; "Mute" lung; cyanosis; weak breathing efforts; bradycardia; hypotension, impaired level of consciousness.

Task 46.
List the types of infusion therapy.
Reference answer: **There are infusionvolumetric load (bolus) and maintenance (replacement) infusion therapy.**

Task 47.
State the goal of the infusion load (bolus).
Sample answer:**The purpose of the infusion load (bolus) is to quickly stabilize hemodynamics, microcirculation and oxygen transport with a sharp decrease in preload due to blood loss and/or vasodilation.**

Task 48.

Name the types of shocks that require an infusion load (bolus) and in which the infusion load (bolus) is contraindicated. Sample answer: For shocks, the treatment of which requires emergency infusion**loads (bolus) include hypovolemic shock Anddistributive shock. Shocks for which an infusion load (bolus) is contraindicated in intensive care include cardiogenic shock and obstructive shock.**

Task 49.
Define anaphylaxis and anaphylactic shock.
Sample answer:**Anaphylaxis is a life-threatening systemic immediate hypersensitivity reaction. Anaphylactic shock is acute circulatory failure as a result of anaphylaxis, manifested by a decrease in systolic blood pressure below 90 mmHg. Art. or 30% of the operating level and leading to hypoxia of vital organs.**

Task 50.
Name the doses of epinephrine used intramuscularly during development anaphylaxis/anaphylactic shock in adults and children in the first five minutes of medical care.
Sample answer:**For all patients with anaphylaxis/anaphylactic shock, epinephrine is administered intramuscularly at the rate of 0.01 mg/kg, the maximum single dose for an adult patient is 0.5 mg (0.5 ml of 0.1% epinephrine solution), for a child - 6- 12 years - 0.3 mg (0.3 ml of 0.1% epinephrine solution), up to 6 years - 0.15 mg (0.15 ml of 0.1% epinephrine solution).**

Task 51.
All patients with anaphylaxis/anaphylactic shock are immediately given intramuscular epinephrine at a rate of 0.01 mg/kg. After how many minutes is it recommended to administer a second dose of intramuscular epinephrine if there is no response to the first dose?
Sample answer:**At least 5 minutes later, it is recommended to administer a second dose of epinephrine intramuscularly if there is no response to the first dose.**

Task 52.
Name the doses of crystalloid solutions (0.9% sodium chloride solution or balanced crystalloid solution) used in the development of anaphylaxis/anaphylactic shock in a patient to correct relative hypovolemia.
Sample answer:**The recommended dose of crystalloid solutions is 20 ml/kg body weight. 500 – 1000 ml for a patient with normotension and 1000 – 2000 ml for a patient with arterial hypotension; if there is a history of heart failure - no more than 250 ml in 5-10 minutes, in children - 20 ml/kg**

Task 53.
Name the doses of systemic glucocorticoids recommended for administration after the use of epinephrine in the development of anaphylaxis/anaphylactic shock in a patient to reduce the risk of a prolonged phase of respiratory manifestations.
Sample answer:
- adults: IV or IM methylprednisolone 50-100 mg, hydrocortisone 200 mg, prednisolone 60-120 mg, dexamethasone 8-16 mg;

- children: IV or IM methylprednisolone 1-2 mg/kg (maximum 50 mg), hydrocortisone 2-4 mg/kg (maximum 100 mg), dexamethasone 0.1-0.4 mg/kg (maximum 10 mg), prednisolone 1.3-2.6 mg/kg (maximum 50 mg).

Task 54.
Define acute pain.
Sample answer:**Acute pain (nociceptive, physiological) - pain that has recently arisen, is caused by the activation of nociceptors by damaging stimuli, is a symptom of some disease or tissue damage, disappears when the damage is eliminated and the patient recovers.**

Task 55.
Define chronic pain and breakthrough pain.
Sample answer:**Chronic (pathological) pain – acquires the status of an independent disease, exists for a long time (more than 3 months), often throughout the patient's life, in some cases it is difficult to establish its etiology. Breakthrough pain is a temporary, sharp, spontaneous or episodic increase in pain while taking medications in long-acting forms. This type of pain usually appears suddenly, is very intense and short in duration.**

Task 56.
How should the effectiveness of pain relief be assessed?
Sample answer:**The effectiveness of pain relief is determined by assessing the intensity of pain before and after the administration of each analgesic or analgesic method.**

Task 57.
During the initial examination of a patient with complaints of acute pain, first of all
it is necessary to exclude conditions requiring emergency hospitalization. Name the location of pain that requires emergency hospitalization.
Sample answer:**All patients with acute pain in the chest, abdomen and eye are subject to emergency hospitalization in a hospital, depending on the presumptive diagnosis. This is due to the fact that all surgical, gynecological, urological, obstetric and ophthalmological diseases accompanied by acute pain pose an immediate threat to the patient's life.**

Task 58.
Determine the sequence of selection of drugs for pain relief as pain intensity increases, in accordance with the "WHO pain management ladder"
in adults (VAS – assessment of pain intensity on a visual analogue scale): Standard answer:

1. **mild pain, VAS 10-40% - acetaminophen (paracetamol) or non-steroidal anti-inflammatory drugs ± adjuvant therapy**
2. **moderate to severe pain, VAS 40-70% - weak opioids/low dose strong opioids ± acetaminophen (paracetamol) or non-steroidal anti-inflammatory drugs**
3. **severe pain, VAS greater than 70% - strong opioids ± acetaminophen (paracetamol) or nonsteroidal anti-inflammatory drugs ± adjuvant therapy**

Task 59.

Determine the sequence of selection of drugs for pain relief according to the increase in pain intensity, in accordance with the "WHO pain management ladder" in children:

Sample answer:

1. **mild pain, Non-opioid analgesics (paracetamol, ibuprofen, ketorolac, celecoxib) +/- adjuvants +/- non-pharmacological methods**
2. **moderate to severe pain, Strong narcotic drugs (morphine, fentanyl) +/- non-steroidal anti-inflammatory drugs and paracetamol +/- adjuvants +/- non-pharmacological methods**

Task 60.

What signs need to be assessed in a victim with a deficit of consciousness at the stage of emergency medical care using the Glasgow Coma Scale?

Sample answer:**To determine the level of consciousness using the Glasgow Coma Scale, it is necessary to evaluate the following signs: eye opening, speech reaction, motor reaction.**

Task 61.

Name a method for ensuring airway patency during emergency medical care in a patient with unspecified coma (R 40.2) with a consciousness score of 7 points on the Glasgow Coma Scale?

Sample answer:**Depression of consciousness to the point of coma is an indication for tracheal intubation**

Task 62.

Define acute kidney injury (AKI)?

Sample answer:**AKI is the rapid development of organ dysfunction as a result of exposure to renal or extrarenal damaging factors.**

Task 63.

What are the criteria for determining acute kidney injury (AKI) in practice?

Sample answer:

AKI is defined by the presence of at least one of the following criteria:

- increase in serum creatinine ≥ 0.3 mg/dL (26.5 µmol/L) within 48 hours, or

- an increase in serum creatinine ≥ 1.5 times baseline that is known or suspected to have occurred within 7 days, or

- diuresis rate <0.5 ml/kg/hour for 6 hours.

Task 64.

Define the term poisoning.

Sample answer:**Poisoning is a pathological process that has developed as a result of the interaction of the human body with toxic substances of various origins, which lead to disturbances in various physiological functions and pose a threat to the life of the body.**

Task 65.

First aid algorithm for contact with a poisonous plant or animal.

Sample answer:**cold to the bite site; immobilization of the affected limb; applying an aseptic dressing to the wound (tight bandaging is prohibited due to rapidly increasing tissue swelling); when plant poison comes into contact with the skin**

(juice, pollen) wash the area of contact with the plant with soap and water as soon as possible; If poison gets on the mucous membrane of the eyes, rinse immediately with running water for 15–20 minutes.

Task 66.
What target hemoglobin level is recommended to maintain in patients with massive blood loss to ensure sufficient oxygen supply to the tissues?
Sample answer:**70-90 g/l.**

Task 67.
What target hemoglobin level is recommended to maintain in case of massive blood loss in patients with traumatic brain injury and patients with coronary artery disease?
insufficiency for sufficient oxygen supply to the tissues of the brain and myocardium, in order to prevent secondary damage?
Sample answer:**not less than 100 g/l.**

Task 68.
What drugs should be transfused to patients with massive blood loss when the target hemoglobin level decreases below 70-90 g/l (100 g/l in patients with traumatic brain injury and patients with coronary insufficiency)?
Sample answer:**When the hemoglobin level reaches below 70-90 g/l, transfusion of erythrocyte-containing blood components (erythrocyte mass, erythrocyte suspension) is necessary.**

Task 69.
Name the reasons for the need to maintain systolic blood pressure at a level not higher than 80-90 mm Hg. at the initial stage of treatment for massive blood loss until the bleeding is stopped surgically?
Sample answer:**This tactic of maintaining blood pressure allows not to increase hydrostatic pressure, does not cause displacement of blood clots, does not cause dilution of coagulation factors and does not cause unwanted cooling of the patient.**

Task 70.
What medications should be used in the intensive care tactics of patients with massive blood loss when it is impossible to increase systolic blood pressure to the target level (80-90 mm Hg) only with infusion therapy?
Sample answer:**If it is impossible to increase blood pressure only with infusion therapy, use adrenomimetics (vasopressor drugs) - norepinephrine (norepinephrine).**

Task 71.
What are the parameters assessed on the qSOFA scale?
Sample answer:**Blood pressure, respiratory rate and level of consciousness. One point gives:**
- Decreased blood pressure (systolic ≤ 100 mm Hg)
- Increased respiratory rate (≥ 22 breaths/min)
- Impaired consciousness (Glasgow scale < 15)

Task 72.
What are the criteria for sepsis?
Sample answer:**acute organ dysfunction - acute change in the SOFA scale of more than 2 points - due to infection;**

Task 73.

Which crystalloid solutions are preferable to administer to patients with sepsis and septic shock to avoid the development of hyperchloremic acidosis?

Sample answer:**Priority should be given to balanced crystalloids instead of 0.9% sodium chloride solution**

Task 74.

The functions of which organs and systems are assessed using the SOFA Organ Dysfunction Severity Scale?

Sample answer:**central nervous system, respiratory system, cardiovascular system, coagulation system, liver function, renal excretory function.**

Task 75.

When assessing the patient's condition on the qSOFA scale, 3 points were revealed: systolic blood pressure 90 mm Hg. Art., respiratory rate 26 breaths/min, level of consciousness 13 on the Glasgow Coma Scale. Determine the tactics for managing the patient outside the hospital and in the emergency department.

Sample answer:**If the assessment was carried out outside the hospital, hospitalization in a medical organization. When assessing the condition in the emergency department, a consultation with an anesthesiologist-resuscitator is required.**

Topics of reports/abstracts

1. Council of doctors. The regulatory framework for making decisions on providing assistance in life-threatening conditions - first aid, emergency medical care.
2. Safar's resuscitation alphabet. Advanced cardiopulmonary resuscitation. Reversible causes of circulatory arrest.
3. Electrical defibrillation - history of the method, evolution of defibrillation devices. Contribution of domestic scientists.
4. Brain death. Criteria for diagnosing brain death. Regulatory and legal framework.
5. Acute laryngitis in children. Clinic, diagnosis, treatment based on clinical recommendations. Criteria for the quality of medical care.
6. Infusion therapy for critical conditions. Purpose, volume, types of solutions. Crystalloid solutions. Colloidal solutions.
7. Violation of the acid-base state of the body as an example of diabetic ketoacidosis - a life-threatening condition in diabetes.
8. Transfusion components blood. Prevention Andintense therapycomplications. Regulatory framework.
9. Inotropic support. Principles, preparations, methodology.
10. Pain. Pain scale. Mechanisms of pain formation. Pathways for transmission and perception of pain impulses. "WHO pain management ladder" in adults and children. World Health Organization principles of drug therapy for chronic pain syndrome.
11. Extracorporeal detoxification methods (hemodialysis, hemosorption, plasmapheresis).
12. Acute poisoning with sleeping pills and sedatives.
13. Acute poisoning with alcohol and its substitutes.
14. Acute poisoning with organophosphorus compounds.
15. Toxic effect of carbon monoxide.

16. Antibiotic resistance and ways to overcome it in sepsis from the perspective of SCAT (Strategy for the control of antimicrobial therapy).

CRITERIA for assessing competencies and rating scales

Grade "unsatisfactory"(not accepted) or lack of competence	**Grade "satisfactorily"(passed) or satisfactory (threshold) level of competence development**	**Rating "good" (passed) or a sufficient level of mastery of competence**	**"Excellent" (passed) or high level of competency development**
Inability of the learner to learn independently demonstrateknowledge when solving tasks, lack of independence in using skills. Absence confirmation of the presence of formation competenciesindicates negative results of mastering the academic discipline	The student demonstratesindependence in applying knowledge, skills and abilities to solve educational tasks in full accordance with sample given by the teacher for assignments, the solution of which was shown teacher, it should be considered that the competence formed on satisfactory level.	The student demonstrates independentapplication of knowledge, skills and abilities in solving tasks similar to samples, which confirms the presence formedcompetencies at a higher level. Availability such competence at a sufficient level indicates sustainable fixed practical skill	The student demonstratesability to complete independence in choosing a method non-standard solutionsassignments within the discipline using knowledge, skills and abilities, received both during the development of this discipline and related disciplines should be considered competence formed at a 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

When grading tasks with multiple correct answers, one error is allowed.

Interview assessment criteria:

Mark	**Descriptors**		
	strength of knowledge	**ability to explain (introduce)the essence of phenomena, processes, do conclusions**	**logic and response sequence**
Great	strength of knowledge, knowledge	high skill	high logic and

	basic processes of the subject being studied areas, the answer differs in depth and completeness disclosure of the topic; possession terminological apparatus; logic and consistency answer	explain the essence of phenomena, processes, events, draw conclusions and generalizations, give reasonedanswers, give examples	response sequence
Fine	solid knowledge of the basic processes of the studied subject area, is distinguished by the depth and completeness of the topic; possession terminologicalapparatus; free mastery of monologue speech, but one or two inaccuracies are allowed answer	the ability to explain the 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 response sequence
satisfactory	satisfactoryprocess knowledge subject area being studied, the answer differs insufficient depth and completeness of the topic; knowledge of basic theoretical issues. There may be some errors in the content. answer	satisfactoryability to give reasonedanswers and give examples; satisfactorily formedanalysis skills phenomena, processes. There may be some errors in the content. answer	satisfactorylogic and response sequence
unsatisfactory	poor knowledge of the subject area being studied, shallow disclosure of the topic; poor knowledge basic theoretical issues, poor analysis skills phenomena, processes. There are serious errors in the content answer	inability to give reasoned answers	absencelogic and response sequences

Criteria for assessing situational tasks:

Mark	**Descriptors**			
	understanding the problem	**analysis of the situation**	**skills solutions to the situation**	**professional thinking**
Great	full understanding Problems. All	high ability to analyze	high abilitychoose method	high level of professional thinking

	requirements, requirements for the task have been completed	situation, draw conclusions	problem solving, confident solution skills situations	
Fine	full understanding Problems. All requirements presented for the task, completed	ability to analyze a situation, draw conclusions	abilitychoose a solution method problems sure solution skills situations	sufficient level of professional thinking. One or two inaccuracies in the answer are allowed
satisfactory	partial understanding of the problem. Most of the requirements presented for the task, completed	satisfactorystrong ability to analyze a situation, draw conclusions	satisfactoryskills solutions to the situation,diff iculties with choosing a method for solving a problem	sufficient level of professional thinking. More than two inaccuracies in the answer or an error in the sequence are allowed solutions
unsatisfactory	misunderstandin g of the problem. Many requirements, requirements for the task were not completed. No answer. There was no attempt to solve task	low ability to analyze a situation	insufficientsituati on solving skills	absent