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EXAMINATION TASK
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Discipline «Hygiene, Social Medicine, Organization and Economics of Health Protection»
Variant № 1
Station «1»

As a result of examination of conditions of inpatients in wards on 4 beds of department of pulmonary pathology following results were obtained.
The total floor area of the chambers is 30 m2, the height of the chamber is 3.3 m. The windows of the chambers face the north-east. LR (light ratio) = 1/6, NLR (natural light ratio) - 0.8%. 60 watt incandescent bulbs are used for artificial lighting.

Distance from floor, m	Points of temperature examination, °C		
	Near out wall	In center of ward	Near inner wall
0,1	16	17	19
0,8	17	18	19
1,5	17	19	20

Questions

1. Assess the conditions of stay of inpatients in the ward and determine the nature of the microclimate and what mechanisms of physical thermoregulation in this case will support homeostasis?
2. What type of insolation regimen will be in ward and how does it correspond to the nature of the disease?
3. Assess the condition of the hospital environment. Determine the required multiplicity of air moving in the ward.
4. Evaluate the effectiveness of the UV-remediation of the air in the manipulation area of 15 sq.m. and 3.3 m high when using a bactericidal bulb BUV-30 in presence of patients.
5. What are the risks of adverse effects associated with exposure to UV rays if the operating conditions are not observed?

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Variant № 2
Station «1»

During medical examination of physical and biological development of 12-year-old girl following results revealed: height - 145 cm, weight - 35 kg, chest circumference 65.5 cm, skin warm, moist. Heart tones are rhythmic, loud; Heart rate - 110 beats per minute. Blood pressure - 130/50 mm Hg

Questions

1. Assess physical development of girl with method of sigma deviation of body length

Indexes of physical develop.	Girl of 12 y.o	standard		Difference between current and standard indexes	Index of sigma deviance	Assess of develop.level
		M	σ			
Body length, cm		149	6,8			

2. Assess physical development of girl with method of sigma deviation of body weight

Indexes of physical develop.	Girl of 12 y.o	standard		Difference between current and standard indexes	Index of sigma deviance	Assess of develop.level
		M	σ			
Body mass, kg		40,4	7,08			

3.Assess physical development of girl with method of sigma deviation of chest circumference

Indexes of physical develop.	Girl of 12 y.o	standard		Difference between current and standard indexes	Index of sigma deviance	Assess of develop.level
		M	σ			
Chest circumference, cm		69,8	5,02			

4. Give a general assessment of the degree of girl physical development
5. Determine the harmonious development of the girl

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Variant № 3
Station «1»

A 10-year-old girl who lived in a mountain area for a long time (Transcarpathia), and now moved with her parents to the central part of Ukraine, was sent to a pediatrician due to difficulties in concentrating attention and reducing school performance ability. According to the record of the pediatrician, the girl has lost weight since her previous visit 6 months earlier (about 2.5 kg). On examination, it is determined that the girl has physical development below average. Heart tones are rhythmic, loud: heart rate - 110 beats per minute, blood pressure - 130/50 mm Hg The thyroid gland is noticeable on examination, deforming the anterior surface of the neck. The girl constantly feels weak, has low physical endurance, discomfort in the heart, frequent headache.

Questions

1. Make the most likely diagnosis
2. Name the possible main causes of the disease
3. What is an endemic disease
4. Select the most appropriate preventative remedy from the list below
5. What should be the diet to prevent the development of this disease

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Variant № 4
Station «1»

Potatoes and carrots are temporarily absent in food warehouse of the military garrison. The daily norm portion of vegetables for lunch: borsch (70 g cabbage, onion 20 g, beet 30 g), sauerkraut salad (100 g) with onions (50 g). The first dish is served immediately after cooking. Additionally, each soldier receives a multivitamin medicine containing 25 mg of ascorbic acid. Vitamin C content per 100 g: cabbage 36.6 mg; onions 5 mg; beet 8mg; sauerkraut 14.7 mg.

Questions

1.Calculate the vitamin C content in the diet of the serviceman, taking into account the loss of the vitamin in the cooking process and during time of dispensing ready-made food after its preparation.
2. Determine the amount of ascorbic acid that needs to be added to the daily diet, taking into account the requirement of vitamin C.
3. Calculate what amount of rose tincture with ascorbic acid content of 110 mg% should be given daily to soldiers to cover the daily deficit of vitamin C.
4. Specify the factors of life of military personnel that affect the need for vitamins.
5. List the symptoms arising from ascorbic acid deficit.

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Variant № 5
Station «1»

When conducting sanitary examination, the occupational health doctor, examining the results of laboratory studies, found that the content of formaldehyde in the air of the thermoplastic casting area exceeds the MPC by 15 times (MPC 0.5 mg / m3), carbohydrates (5 times) at MPC 300 mg / m3).

Questions

1. What classes of toxicity do these chemical compounds belong to?
2. What diseases can workers have under these conditions?
3. What should the occupational health doctor do in this situation?
4. What documents are drawn up in such cases?
5. What preventive measures should be taken?

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Variant № 6
Station «1»

In the kindergarten for lunch as a collation, eggplant paste was served; before serving it was not thermally treated. In 7 hours, two children had vomiting, abdominal pain, weakness, difficult swallowing, uneven expansion of the pupils. Later, symptoms such as lowering of the eyelid, hoarseness, crowding appeared. Body temperature remained normal, with tachycardia. The children were hospitalized in the neurological ward with diagnoses of bulbar poliomyelitis and diphtheria polyneuritis. Despite the treatment, both children died within a day. For another five children with similar complaints, which became apparent after 12-48 hours, a medical commission was organized, which included infectious disease doctor, neurologist and pediatrician. The commission diagnosed food poisoning of a microbial nature. It was found that all sick children received eggplant paste from one can during lunch. As a result of the treatment, the last five children were rescued.

Questions

1. Analyze the described case of food poisoning using history and clinic data. Justify the diagnosis.
2. Specify any additional laboratory tests that are necessary to clarify the diagnosis
3. What products are forbidden to be used in childcare facilities without heat treatment?
4. What should be the immediate assistance to the suffered children
5. Suggest specific measures to prevent poisoning of this etiology.

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Variant № 7
Station «1»

In the aseptic assistant room - the amount of air entering for 1 hour equals 120 m3. The amount of air removed from the room in 1 hour is 80 m3. The volume of the room is 40 m3.

Questions

1. Determine the multiplicity of air exchange by the inflow of air.
2. Compare the results of air exchange on the inflow of air with the normative values
3. Determine the multiplicity of air exchange by air extraction.
4. Compare the results of air exchange on the exhaust air with the normative values
5. Give recommendations for improving ventilation

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Variant № 8
Station «1»

There is artificial exhaust ventilation in the pharmacy hall volume of 15 m^2 and 3.5 m in height. The room air is removed through a 20 cm x 30 cm rectangular ventilation with a velocity of 0.6 m / s.

Questions

1. Give an general hygienic assessment of the ventilation systems
2. Determine the amount of air that is removed from the room per hour according to the condition of the assignment.
3. Determine the real multiplicity of the air exchange.
4. Compare the actual multiplicity of air exchange with the required in accordance with hygienic standards.
5. Provide recommendations for improving room ventilation.

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Variant № 9
Station «1»

The following foodstuffs were delivered to the Summer Camp for 350 children up to August 20, 2019:
• milk packaged in plastic bags of 0.5 liters. The packaging shows "best defore 08/20/19" On examination found that the milk is white with a yellowish tinge of uniform consistency;
• fresh-frozen fish (hake) in the form of briquettes packed in cardboard boxes, which have no external defects and damage;
• Chicken eggs packed in cardboard boxes and packed in layers in corrugated form. On the boxes there is a date of hatching of eggs "05.08.19";
• Beef meat in the form of frozen carcass without mark. On external inspection, the meat is red, the fat is yellow with no foreign odor

Questions

1. Make a sanitary examination of the products you have received.
2. What helminthoses can be transmitted through fish?
3. Name infectious diseases, the source of which may be meat.
4. What food poisonings can most often occur when eating meat products and eggs?
5. List the main preventative measures to prevent food poisoning in the camp.

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Variant № 10
Station «1»

When sowing air from operating room, with aspiration-sedimentation method by Krotov on Petri dish with meat-peptone agar, a day later, 98 colonies of microbial bodies grew in the thermostat. After the sanitization of the air by 4 UV lamps BUV-30 for 6 hours, secondary sowing was done. Sowing conditions in both cases are identical - aspiration rate and 10 l / min for 5 min. After re-sowing 6 colonies grew. Assess the cleanliness of the operating room air before and after redevelopment.

Questions

1. How a microbial number is determined
2. How is the degree of effectiveness of the bactericidal action of ultraviolet radiation determined?
3. Determine the microbial number in the air sampling tests
4. Determine the microbial number in the air samples after the remediation
5. Evaluate the effectiveness of the remediation by the degree and the coefficient of efficiency.

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Variant № 11
Station «1»

Determination of the volume of ventilation air is carried out according to carbon dioxide amount. Calculate the required volume of ventilation for one adult, if concentration of CO2 in the air in the hospital ward should not exceed 1 l / m3 (0.1%).

Questions

1. The purpose of ventilation
2. In which case the method of determining the volume of ventilation air by carbon dioxide is used
3. The purpose of the method of determining the volume of ventilation air by carbon dioxide
4. Provide an algorithm for solving the problem
5. Calculate the required ventilation volume for this task

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Variant № 12
Station «1»

Determine the illumination level by "WATT" method: The area of the study room is 40 m^2, illuminated with 4 incandescent lamps 100 W each, voltage is 220 V. Is the illumination in the study room sufficient?

Questions

1. Indicate the algorithm for calculating the illumination level determined by "WATT" method
2. What determines the magnitude of the specific light output?
3. Calculate the illumination by "WATT" method
4. Is there enough light for the study room?
5. What are the suggestions for this illumination of the study room

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Variant № 13
Station «1»

Give hygienic assessment of natural light in the class, which is 7.2 m long, 6.4 m wide. The room has three windows with a window opening size of 2 x 1.5 m. The distance from the top eaves of the window to the floor is 2.8 m. The outdoor illumination in front of the school is 4000 lx. Indoor illumination (in the exam room), determine with a light meter.

Questions

1. Explain the method of determining the illumination with a light meter
2. Calculate the coefficient of natural light (CNL)
3. Determine the light factor (LF)
4. Determine the immersion factor
5. Give an overall assessment of the natural light of the room

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Variant № 14
Station «1»

Conclude the suitability of the canned meat fo consuming as part of the soldier's dry ration. In the study of canned food there were following results: canned food is covered with a protective oil, after which the rust spots are found, after which shell-form spots (traces of corrosion with a rough surface) are left with a dry cloth. The tightness of the cans is not changed. There is a swelling of the can, when pressed it is easily bent inside, and there are dents with blunt edges. On the lid of the jar there is a marking: 18, 11 19 502 1 M 192 After opening the jar, the contents were placed on the plate. The inner surface of the jars is covered with dark brown spots and stripes (marbling), with no yellow color. Look, color, smell, contents of jars correspond to the product, taste, acidity within normal limits.

Questions

1. Assess the suitability for consuming of canned meat
2. Describe the types of can swelling. What kind of swelling is described in this task? Can the deformation of the banks described in the problem be the cause of the rejection?
3. How can canned foods be treated if they have "false swelling" and rust?
4. What is meant by the presence of "marbling" and the absence of yellow color?
5. What is the hygienic conclusion for aforementioned canned food?

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Variant № 15
Station «1»

On inspection of conditions of patients‘ staying in the hospital the following has been established: the area of a single-bed ward is 6 m2 , an average air temperature — 18° C, humidity — 60 %, speed of air movement — 0.18 m/sec.

Questions

1. Give a hygienic assessment of the microclimate in the ward.
2. Specify the relative humidity of the hospital ward in accordance with hygiene requirements.
3. List the main types of microclimate.
4. What device is used to measure humidity.
5. Which device measures the speed of air movement in the room.

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Variant № 16
Station «1»

The dry thermometer shows 20°C, and the wet one — 16°C. The speed of air movement is absent.

Questions

1. Determine the effective temperature under the given conditions (according to nomogram).
2. Explain what a nomogram is and how to use it.
3. Define the term "effective temperature".
4. Which device measures the speed of air movement in the room.
5. List the methods of complex assessment of the microclimate.

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Variant № 17
Station «1»

The air temperature ranges within the limits of 18-20°C, difference in horizontal and vertical directions is 2.0-2.5°C respectively?

Questions

1. How can such parameters affect human health?
2. List the room temperature measurement techniques?
3. What device can be used to measure temperature in dynamics?
4. List the main types of microclimate.
5. What are the methods of complex assessment of microclimate.

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Variant № 18
Station «1»

According to the data of the city meteorological station the weather condition in town N. was characterized by the following: From October 20 till October 24 the anticyclonic weather, partly cloudy, without atmospheric precipitation was observed. The atmospheric pressure was 760 mmHg, the air temperature — +12º, daily temperature difference — 3 º, daily pressure difference — 3 mmHg, relative air humidity — 60 %, content of O2 in the air — 325 mg/l, speed of wind — 1.5 m/sec. According to synoptic forecast such weather will last for 3-4 days, then there will be its sharp change connected with moving of a cyclone and passage of a warm front. There will be significant clouding, intensive precipitation. According to forecast the meteorological parameters will be the following: atmospheric pressure — 475 mmHg, air temperature — + 6 º, daily temperature difference — 7 º, daily pressure difference — 7 mmHg, relative air humidity — 100 %, O2 content in the air — 250 mg/l, speed of wind — 10 m/sec.

Questions

1.Determine the type of weather by medical classifications.
2.Determine the degree of weather changeability.
3.Characterize meteorotropism of the revealed types of weather.
4. What kind of heliometotropic reactions can occur in weather-sensitive people?
5. What are the methods of prevention of heliometotropic reactions.

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Variant № 19
Station «1»

During planned intra-hospital check for observance of sanitary-hygenic regimen in wards of the therapeutic department, air is sampled for laboratory analysis for chemical and bacteriological factor. The following data are received: carbon oxide - 0,2 %, oxidability - 15 mg O_2/m^3, general number of microorganisms in 1 m^3 - 1500, Staphylococcus Aureus - 3.

Questions

1. What is the degree of the cleanliness of air of the ward?
2. How can this affect patients' health?
3. What devices are needed for chemical analysis of the air.
4. What is the normal concentration of CO_2 in the air?
5. Describe the technique of bacteriological examination of the air.

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Variant № 20
Station «1»

In a room 400 m3 in size there is a ventilating fan, which is switched on during a break between lectures for 10 min. Its vent is round with a radius of 0.2 m. The speed of air movement in the vent makes up 6 m/sec.

Questions

1. Identify the air changes per hour?
2. Make a conclusion about the adequacy of ventilation of the room?
3. What device measures the speed of indoor air movement?
4. What is the normal speed of the room air movement in accordance with the requirements of hygienic standards.
5. What are the main types of ventilation?

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Variant № 21
Station «1»

In a room with a cubic capacity of 60 m^3 there are 5 men. Airing occurs at the expense of a window leaf, which is opened for 10 min per hour; speed of air movement is 1m/sec, area of the window leaf is 0.15 m^2.

Questions

1. Identify the air changes during the airing?
2. Estimate the ventilation in the room?
3. Identify possible solutions to the problem?
4. What device measures the speed of indoor air movement?
5. What are the main types of ventilation?

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Variant № 22
Station «1»

Microclimate of a premise is characterized by the following parameters: the air temperature – 40 ºC; relative humidity – 70 %; speed of air movement – 0.1 m/sec; radiation temperature – 80– 90 ºC.

Questions

1. Give a hygienic estimation of microclimate in the room.
2. List the main types of microclimate.
3. What devices are needed to evaluate the microclimate
4. Identify the most probable pathological state of a person, which can occur under the given microclimatic conditions.
5. What are the main most effective measures to prevent the development of pathological conditions, which can occur under the given microclimatic conditions.

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Variant № 23
Station «1»

In an hour after feeding a baby with a milk formula, the following symptoms of disease developed in it: cyanosis of lips, mucous membranes, face, then nausea, increased salivation, pain in the stomach, vomiting, diarrhea. The called in pediatrician stated the phenomena of cardiopulmonary decompensation in the child. In the course of investigation it was established that water from a well was taken to prepare milk formula.

Questions

1. What diagnosis was established by the doctor?
2. What is the main cause of this pathological condition?
3. List main chemical parameters of water and their influence on a human organism?
4. What are the preventive measures for the development of this disease?
5. List main stages of sanitary inspection of of water-supply sources?

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Variant № 24
Station «1»

In people of a city district the non-uniform colour of teeth was marked. On incisors the white spots and cross brown strips were observed. Drinking water from a deep borehole was suspected in occurrence of these symptoms.

Questions

1. What microelement of water components could have caused the disease?
2. What is the normal content of this trace element in drinking water?
3. What are the preventive measures for the development of this disease?
4. Give the definition of the term «endemic disease»?
5. Give some examples of endemic diseases?

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Variant № 25
Station «1»

The mountain lake is situated outside the inhabited locality. There is wood around it, lakeside is sandy, stony. The analysis of water revealed the following: taste, smell — 1 point, ammonia and nitrites are absent, colour — colourless, nitrates — 40 mg/l, transparency — 40 cm, chlorides — 50 mg/l, coli titer — 300, microbe number — 65.

Questions

1. Give a sanitary estimation of the water?
2. What can lead the using of this water as drinking water?
3. What are the organoleptic qualities of water?
4. List main stages of sanitary inspection of of water-supply sources?
5. Describe the technique of water sampling for laboratory analysis?

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Variant № 26
Station «1»

Disease incidence of caries among the inhabitants of town N. makes up 89 %. It is established that water contains 0.1 mg/l of fluorine.

Questions

1. Is the development of the disease related to the chemical composition of water?
2. What preventive measures should be carried out?
3. What is the normal content of fluorine in drinking water?
4. Give the definition of the term «endemic disease»?
5. Give some examples of endemic diseases?

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Variant № 27
Station «1»

There are 4 people in the dorm room. The ventilation frequency is 3 times / hour, the concentration of CO_2 is 0.2%. Light ratio - 1: 5. Temperature 20 ºC, humidity 55%. General lighting with incandescent lamps - 150 lux, local lighting - 50 lux.

Questions

1. Give a hygienic estimation of microclimate in the room?
2. What diseases or deviations in a physiological condition of students can occur?
3. What preventive measures should be taken?
4. Explain the method of measuring CO_2 concentration indoors?
5. Give a hygienic assessment of the room's illumination?

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Variant № 28
Station «1»

A two-room flat is located on the 6th floor, the lift does not work. The windows are south-east. The kitchen is next to a living room. A bathroom and lavatory are combined. The total area of the apartment is 45m^2, 5 persons live in it. Noise at night is 25 dB. The walls of the bedroom are of light-green colour. The relative humidity is 66 %. The air temperature is 18º C. The walls of the sitting room are pink. The temperature is 20ºC. Frequency of ventilation in the kitchen is 1 times/hour.

Questions

1. Give hygienic assessment of conditions?
2. What diseases or deviations in a physiological condition of students can occur?
3. What devices are needed to evaluate the microclimate?
4. What are the risk factors of development of possible pathological conditions?
5. Give the plan of preventive measures?

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Variant № 29
Station «1»

The diet of a miner includes 90 grams of proteins, 65 grams of fats and 650 grams of carbohydrates. Dietary habits are chaotic. An interval between meals is very large.

Questions

1. What group of work intensity does the miner refer to?
2. What is the amount of miner's energy losses?
3. What is the caloricity of the submitted diet?
4. Will it cover energy losses of the miner?
5. Estimate this diet.

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Variant № 30
Station «1»

A 39-year-old surgeon spends 3,100 Kcal daily. The diet of the surgeon contains 93 g of proteins (including 40 g of animal origin), 116 g of fats and 300 g of carbohydrates. Caloricity of the diet is 2,651 Kcal. He usually has three meals every day: breakfast – at 7.30, dinner – at 15.00, supper – at 20.00. The distribution of caloricity by meals is as follows: breakfast – 20 %, dinner – 50 %, supper – 30 %.

Questions

1. Determine the group of work intensity?
2. Estimate caloricity of nutrition?
3. Make conclusion about the surgeon's diet regimen?
4. What conditions can develop as a result of such diet?
5. Give recommendations for balanced nutrition.

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Variant № 31
Station «1»

In the younger group of kindergarten there are 26 children. The group section is located on the ground floor of a two-floor building and consists of a standard set of rooms, including a 35 m2 bedroom. It has one common entrance from the street, combined with an entrance for the senior group. For lunch in kindergarten one delivered milk, color white with a yellowish tinge, with a typical milky smell, specific gravity 1,028 g / m3, fat content - 3,2%, acidity 16 T. Also one brought meat with a shiny surface, ordinary smell, color - light red, dense consistency, solid fat, pH of the meat extract – 6.0, on the cut of meat within the area of 40 cm2 4 measles were revealed.

Questions

1. Assess the hygiene requirements of kindergarten planning.
2. Explain the importance of the principle of group isolation when planning the premises and zoning the kindergarten.
3. Give hygienic evaluation of milk quality.
4. Describe the nutritional value of milk and dairy products.
5. Make a conclusion about the meat's possible consumption.

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Variant № 32
Station «1»

Characteristics of the development of six-year-old girls from kindergarten: Nastya K., height - 114 cm, chest circumference - 55 cm, body weight - 18.9 kg, Kern – Yerasek test showed 7 points. Lena M., height - 125 cm, chest circumference - 61.5 cm, body weight 32.2 kg, test result of Kern - Yerasek - 12 points.

In kindergarten, artesian water, with a transparency of 40 cm, color 500, odor 1 point, taste 2 points, is used for cooking. The content of ammonia and nitrites - trace amounts, nitrates - 67 mg / dm^3. The dry residue is 1200 mg / dm3, the oxidation rate is 2 mg O_2 / dm^3, the chlorides are 400 mg / dm^3, the stiffness is 12 mmol / dm^3, the coli index is 3 CFU / dm3, the total microbial number is 20 CFU / cm^3.

Questions

1. Give a hygienic assessment of the physical development of girls.
2. Evaluate girls' school maturity.
3. Explain the method of determining the biological age of girls?
4. Give hygienic assessment of drinking water quality.
5. What are the health effects of consuming water with high nitrate content?

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Variant № 33
Station «1»

A thirty-year-old man works as a handyman in a construction company. He resides in a hostel with three other workers in a room of 18 m2. All common conveniences are located at the end of the corridor. There is no hot water. The room temperature in summer is 30°C, in winter - 17°C, relative humidity - 30% in summer and 60% in winter. The room has one window, measuring 1.5 m × 1.2 m. The speed of movement of the air in the window is 0.5 m / s. In the evening, the room is illuminated by a chandelier, which is located in the center of the ceiling, has 4 incandescent bulbs, 60 watts each. Water supply is centralized. The results of laboratory testing of tap water: fluorine -1 mg / l, nitrates - 47 mg / l, chlorides - 550 mg / l, iron - 0.2 mg / l, residual chlorine - 0.5 mg / l, total microbial contamination - 65 CFU / l, Coliform bacterias index - 5 CFU / l.

Questions

1. Evaluate the living room environment.
2. Calculate and estimate the light factor.
3. Give hygienic assessment of the artificial lighting of the room.
4. Evaluate the quality of drinking water.
5. Explain the mechanism of the bactericidal effect of active chlorine

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Variant № 34
Station «1»

Man of 35 years old, works as a concrete worker in a house-building integrated mill for 12 years. Body weight - 84 kg, height - 182 cm. Daily energy consumption - -3000 kcal. Usualy having food in the local canteen. Consumes 100 g of protein per day (65% of which are vegetable origin), 60 g of fat (10% of vegetable origin) and 350 g of carbohydrates (40% of which are mono - and disaccharides).

Works on an open ground. The main content of the work is the compaction of the concrete mass by vibration installation.

Complains of pain and numbness in fingers. A year ago, pressing type pains appeared in the heart and nape. A neurological examination revealed a decrease in vibration sensitivity.

Questions

1. Assess the nutritional status of the worker.
2. Make a hygienic conclusion about the adequacy of a man's nutrition for his daily energy expenditure.
3. Evaluate the state of health, its dependence on the conditions and nature of work.
4. What preventive measures should be taken?
5. What is the role of previous and current medical examinations of workers?

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Variant № 35
Station «1»

In the galvanic workshop in specialized baths, details are covered with chromium parts by electrodeposition from aqueous salts. The temperature of the solution is 40°C. Before covering, the parts are cleaned of rust, grease and other contaminants in special tanks using alkali solutions and inorganic acid solutions. The temperature of the solutions is 70-80°C. The line maintenance worker hangs the 10 kg parts on special lifting bars and watches over the process. The transfer of parts from one bath to another is mechanized. There is local exhaust ventilation (onboard suction pumps) present. Excess heat in the shop - 5 kcal / m3 per hour. Category of work II a.

When measuring the microclimate parameters, results showed: the temperature at workplaces in winter - 18-20 °C, relative humidity - 70-72%, air velocity - 0.3 - 0.5 m/s.

Questions

1. Evaluate the microclimate in the workshop.
2. What is the mechanism of thermoregulation of workers in these conditions?
3. What diet should be assigned to workers?
4. What are the pathogenetic principles for the construction of therapeutic nutrition.
5. Suggest a system of measures to prevent adverse effects of the climate

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Variant № 36
Station «1»

While planning the use of the land plot for kindergarten, an analysis of the sanitary condition of the soil was carried out. The following results were obtained: sanitary number - 0.7; coli-titer - 0,3; isolated single larvae of flies per 0.25 m^2 of soil surface. Chemical and metal-working industries are intensively developed in the settlement.

Questions

1. Give a hygienic assessment of the soil.
2. What additional indicators should be defined.
3. What is the classification of soil by degree of hazard (or contamination)?
4. What are the main steps in the purification of settlements from municipal solid waste.
5. Explain the hygienic value of flies and their larvae

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Variant № 37
Station «1»

During the sanitary and epidemiological examination, sand samples from the sandbox of the kindergarten were selected. A sanitary topographic survey showed that a kindergarten for 50 children is located on the ground floor of a residential building. The territory of the kindergarten, which is reserved for children's walks, is fenced in by a low fence 1 m high, there is no green fence around the perimeter of the territory, a sandbox is located 25 m from the carriageway of the street. The results of laboratory analysis of sand: Escherichia coli - 56 CFU / g, 5 eggs of Tohosaga canis and 10 eggs of Anslostoma caninum in 1 kg of sand. Enterococci, pathogenic bacteria and preimaginal forms of flies have not been detected. Organic nitrogen is 5 mg / kg, humus 3.5 mg / kg. Lead in the amount of 40 mg / kg (MPC 30 mg / kg) was detected.

Questions

1. Give the sanitary-hygienic characteristics of the location of the kindergarten.
2. Assess the epidemiological risk of sand.
3. Calculate the sanitary number of the sand and make the appropriate conclusion.
4. State the likely cause of the high lead contamination of the sand.
5. What is the mechanism of infection with these worms?

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Variant № 38
Station «1»

The classroom is located on the 2nd floor of the school building. There are 25 students in the class. Size of class 9 × 6 × 3,5 m; natural illumination is carried out through three windows measuring 2.5 × 2.2 m. Window height 0.8 m, distance from the top edge of the window to the ceiling 0.2 m).

For ventilation of the room there are 3 transoms 0.7 x 1.5 m in size, which are opening every 10 minutes. The speed of movement of air of through air 1 m / sec. An analysis of the chemical composition of the air revealed that before the first lesson the CO_2 content was 0.03%, after the 4th lesson the CO_2 content was 0.05%.

Questions

1. Give a hygienic assessment of the layout of the room.
2. Evaluate classroom light mode.
3. To conclude on the quality of ventilation in the classroom.
4. Identify ethiological factors or / and risk factors for students' health.
5. Make hygienic recommendations for the rehabilitation of the school environment and design a program of preventive health measures.

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Variant № 39
Station «1»

Second grade pupils are studying in the first shift. The schedule of classes in the second class is following:

Monday:	Tuesday:	Wednesday:	Thursday:	Friday:
1. Reading 2. Mathematics 3. English 4. Ukrainian language 5. The basics of health	1. Reading 2. Mathematics 3. Physical education 4. Ukrainian language 5. Me and Ukraine	1. Music class 2. Reading 3. Ukrainian language 4. Mathematics	1. Ukrainian language 2. English 3. Mathematics 4. Physical education 5. Fine Arts	1. Mathematics 2. Reading 3. industrial arts 4. industrial arts

Period bells` timetable: 1st lesson - 8-30 - 9-15, 2nd - 9-25 - 10-10, 3rd - 10-20 - 11-05, 4th - 11-35 - 12- 20, 5th - 12-30 - 13-15.

The school canteen is located on the 2nd floor of the school building, and has place for 120 people. There are 4 cold water taps and 4 waffle towels for hand washing. The C-Vitaminization of the food is organized in the dining room, which is carried out by cooker 40 minutes before serving. Vitamins were added directly in the pot with compote (25 l), located on the electric stove, as 3 g of ascorbic acid in the form of tablets.

Questions
1. Give hygienic assessment of educational plan of children.
2. Give hygienic assessment of the class schedule
3. How is the degree of complexity of the lessons determined?
4. Evaluate the conditions of the school cafeteria.
5. Assess the correctness of C-vitaminization of food.

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Variant № 40
Station «1»

During medical examination, a woman, 46 y.o, complained of fatigue, thirst and frequent uresis. The examination revealed that the height of the woman - 160 cm, body weight - 82 kg, waist circumference - 90 cm, blood pressure - 155/95 mm Hg. , pulse at rest - 74 beats per minute, varicose veins in lower extremities.

She works as weaver. Silk fabrics are produced in the weaving workshop, equipped with automatic machines. The woman performs up to 2,500 working processes per day and walks summarily the way about 10 km. The room is characterized by a slight excess of apparent heat. The workshop is located in a building without windows, but with air conditioning. When measuring the microclimate parameters in the winter, it turned out that the air temperature was 21-23 ° C, relative humidity 68-75%, air velocity 0.5-0.6 m / s.

When interviewing a woman, it was found that she has 3 meals a day. Meals (mostly pork up to 100 g per day), various cereals, vegetables (mainly potatoes) and flour dishes are included in the diet almost daily. Consumes milk or sour-milk products two to three times a week. Rarely does include fish, seafood, fresh fruits and vegetables. She prefers fried (mostly smoked) and sweet dishes.

The results of laboratory blood tests: cholesterol (total cholesterol) - 9.5 mmol / l, LDL - 3.4 mmol / l, HDL - 0.7 mmol / l, triglycerides - 2.3 mmol / l, fasting blood glucose in plasma - 7.1 mmol / l.

Questions

1. Assess the nutritional status of a woman.
2. Give recommendations for improving nutrition.
3. What are the criteria for the difficulty and intensity of a woman's work.
4. Assess the microclimatic conditions in the workshop.
5. In what ways is the heat transfer of the organism mainly carried out under these conditions?

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Variant № 41
Station «1»

6 infants from rural areas with pronounced signs of oxygen starvation were admitted to the district hospital. Objectively, children had pale skin, cyanotic mucous membranes, shortness of breath and reflex depression.

A parental interviewing found that all children were formula feeded, and all formula were dissolved in boiled water before consumption. The source of water supply is a mine well.

According to the sanitation center, the well has a clear log, the site around the well is rammed, has a slope to the periphery. Around the block there is a clay lock. The well is closed by a canopy and the public uses a shared bucket. The results of laboratory analysis of water: taste and smell - 2 points, color - 15 degrees, dry residue - 510 mg / l, chlorides - 20 mg / l, sulfates - 110 mg / l, permanganate oxidation - 4 mg / l, nitrates - 35 mg / l, nitrites - 15 mg / l, ammonia nitrogen is absent, coli index 10 CFU / 100 cm3, pathogenic enterobacteria are absent.

Questions

1. Assess the sanitary condition of the mine well.
2. Assess the sanitary and toxicological indicators of water in mine well
3. Evaluate the microbiological indicators of water
4. Is there a relationship between children's health and drinking water quality? If so, explain the cause and mechanism of the development of health disorders.
5. Suggest measures to prevent the occurrence of such health disorders.

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Variant № 42
Station «1»

Patient H. aged 63 suffers from excessive body mass, there are expressed signs of coronary atherosclerosis, hypertension. He has meals 3 times a day, avoiding fatty and spicy food.

Questions

1. Estimate nutritional status of the patient.
2. Make conclusion about the diet regimen?
3. Which daily caloricity of food should be?
4. What recommendations for correction of nutrition of antisclerotic orientation should be given in this case?
5. What conditions can develop as a result of such diet?

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Variant № 43
Station «1»

A patient aged 53 has a body weight of 82 kg at a height of 162 cm. She has 3 meals a day; the diet is usual. On examination an increased sugar level in blood (during last 5 years) has been revealed. In anamnesis: her mother was ill with diabetes mellitus.

Questions

1. Which categories are determined in the nutritional status classification?
2. Estimate the nutritional status of the patient.
3. Calculate Brock index and estimate it
4. Give recommendations for preventive nutrition.
5. What conditions can develop uncorrect diet?

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Variant № 44
Station «1»

There are 20 children in child care center (CCC) junior group. The group section is located on the first floor of a two-stored building, has a separate entrance from street, consists of a standard set of premises, including a bedroom of 49 m2.

For lunch and midday meal in the CCC fresh fish was delivered. It has shiny surface, adjacent scales, transparent eyes, pink meat, wet gills, without mucus, elastic consistency, has a characteristic fishy smell. One also brought milk, a little transparent, white with a bluish tinge, with a characteristic milky smell, specific gravity 1,023 g / m3, fat content - 2,5%, acidity of 19 T.

Questions

1. Assess the compliance of the CCC planning with hygiene requirements.
2. Explain the importance of the principle of group isolation when planning the premises and zoning the kindergarten.
3. Give hygienic evaluation of milk quality.
4. Conclude that the fish is suitable for consumption.
5. Describe the nutritional value of milk and dairy products.

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Variant № 45
Station «1»

3rd grade pupils are enrolled in the first shift. Breaks Schedule:
1st lesson: 8-00 - 8-45, 2nd: 8-55 - 9-40, 3rd: 19-55 -10-40, 4th: 11-00 -11-45,
5 th: 11-55 -12-44.

Timetable:
Monday: 1. Reading 2. Mathematics 3. English 4. Ukrainian language 5. industrial arts
Tuesday: 1. Reading 2. Mathematics 3. Ukrainian language 4. Natural science
5. Physical education
Wednesday: 1. Reading 2. Mathematics 3. Ukrainian language 4. Physical education
5. Me in the world
Thursday: 1. Natural science 2. Music 3. Mathematics 4. English 5. Fine Arts
Friday:1. The basics of health 2. Mathematics 3. Physical education 4. Ukrainian language,
5. computer science

The school canteen is located on the 1st floor of school building, and has room for 120 people. There are 4 cold and hot water taps, liquid soap and paper towels for hand washing. For cooking, one uses artesian water with a transparency of 40 cm, color 500, odor 1 point, taste 1 point. Ammonia, nitrite and nitrate content are traces, fluorine content is 2.5 mg / l. Dry residue - 1200 mg / dm^3, oxidation - 2 mg O_2 / dm^3, chlorides - 200 mg / dm^3, stiffness - 9 mmol / dm^3, total microbial number - 30 CFU / cm^3.

Questions
1. Give hygienic assessment of the educational schedule of children.
2. Give hygienic assessment of the classes schedule.
3. How is the degree of complexity of the lessons determined?
4. Assess the conditions of school cafeteria.
5. Give hygienic assessment of drinking water quality.

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Discipline «Hygiene, Social Medicine, Organization and Economics of Health Protection»
Variant № 46
Station «1»

During medical examination, a woman (43) complained of fatigue. Height of woman - 158 cm, body weight - 92 kg, waist circumference - 90 cm, blood pressure - 140/90 mm Hg. , pulse at rest - 74 beats per minute, varicose veins of the lower extremities.
Works in a weaving shop equipped with automatic machines. The woman performs up to 2,500 working processes per day and walk a way about 10 km. The wrkshop is located in a building without windows, with air conditioning. When measuring the microclimate parameters it was found that the air temperature is 23-25 ° C, relative humidity 70-75%, the speed of air movement is 0.1-0.3 m / s.
When interviewing a woman, it was found that she has meals 3 times a day. These are mostly different cereals, pasta and vegetables (mainly potatoes), bread. Consumes milk or lactic acid products two to three times a week. Meat and fish, seafood, fresh vegetables and fruits are hardly included in the diet. Consumes lots of sugar and sugary drinks.
The results of laboratory blood tests: cholesterol (total cholesterol) - 9.5 mmol / l, LDL - 3.4 mmol / l, HDL - 0.7 mmol / l, triglycerides - 2.3 mmol / l, fasting blood glucose in plasma - 6.5 mmol / l.

Questions

1. Evaluate a woman's nutritional status.
2. Give recommendations for improving nutrition.
3. What are the criteria for the difficulty and intensity of a woman's work.
4. Evaluate the microclimate in workshop.
5. In what ways is the body heat transfer mainly carried out?

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Variant № 47
Station «1»

Woman 35 years old – School canteen Dining Chef. Height 160 cm, body weight 98 kg, chest circumference 118 cm, waist circumference 130 cm, pelvic circumference 168 cm, circumference in the middle of the thigh 85 cm Thickness of skin and fat folds: at the bottom of the shoulder blade - 3.4 cm, on the back middle of the shoulder 4.3 cm, on the lateral surface of the abdomen 5.1 cm. Blood pressure - 130/90 mm Hg. Art., pulse at rest - 75 beats per minute. According to her words, she suffers from shortness of breath, tries to eat little but is forced to try the dishes she cooks often. Does not exercise. Suffers varicose veins on the lower extremities.

The parameters of the microclimate of the school canteen: air temperature 25-27 ° C, relative humidity 70-75%, air velocity 0,1-0,3 m / s. The woman is in a standing position all day long and walks a way about 5 km.

Questions

1. Assess the nutritional status of a woman.
2. Make health recommendations.
3. What are the criteria for the difficulty and intensity of a woman's work.
4. Evaluate the microclimate in canteen.
5. In what ways is the body heat transfer mainly carried out?

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Variant № 48
Station «1»

Second year medical student, 21 years old, height 170 cm, body weight 50 kg, breast circumference 81 cm, pelvis circumference 90 cm, waist circumference 55 cm, thickness of skin and fat folds: at the bottom of the shoulder blade - 1.2 cm, in the middle back surface of the shoulder 1.1 cm, lateral surface of the abdomen 2 cm, lateral surface of the chest 1.0 cm. Appeared to the clinic with complaints of weakness, constant fatigue, irritability, drowsiness, impaired academic performance. According to the student, she eats well without excluding sausages, canned food and other high value products. But she doesn't have time to cook hot dishes, and she doesn't like to go to the canteen. When examining the student, the doctor noticed several bruises on the hands, knees, blueness of the nose, lips, nails, gums, paleness and dryness of the skin.

Questions

1. Assess the student's nutritional status.
2. What diagnosis can be made?
3. What research should be done to confirm or change the diagnosis?
4. Give recommendations for improving nutrition.
5. The physiological role of vitamins in the body.

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Variant № 49
Station «1»

Energy losses of a miner aged 35 make up 4,100 Kcal. The analysis of a daily food allowance has shown that its caloricity is equal to 3,640 Kcal. It contained proteins — 100 g, fats — 90 g, carbohydrates — 598 g. Dietary habits provide four meals a day: breakfast — at 6.00, lunch — at 11.00, dinner — at 16.00, supper — at 20.00. Caloricity is distributed by meals: breakfast — 20 %, lunch — 15%, dinner — 40 %, supper — 25 %.

Questions

1. Determine the group of work intensity?
2. Estimate value of miner's nutrition?
3. Estimate balance of the diet regimen and dietary habits
4. What conditions can develop as a result of such diet?
5. Give recommendations for further rational nutrition.

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Variant № 50
Station «1»

A group of students living in a hostel addressed the doctor with the complaints of general weakness, early fatigue, gingival hemorrhage. On interrogation it was established that the students had meals irregularly, frequently took canned food, food concentrates for meals. The examination has shown the presence of gingival edema and hemorrhage.

Questions

1. Which is preliminary diagnosis and its substantiation?
2. Give the list of methods of investigation?
3. What examination can you offer?
4. What methods can be used to carry out a mass inspection of all students living in the hostel?
5. Give your recommendations for prevention of such diseases?

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Variant № 51
Station «1»

During the medical examination, a woman (46 years old, works as accountant) complained of fatigue, thirst, and frequent urination.

The examination revealed that woman's height was 160 cm, body weight was 82 kg, waist measurement was 90 cm, hip measurement was 100 cm, blood pressure was 145/95 mm Hg. , pulse at rest - 74 beats per minute.

When interviewing a woman, it was found that she has 3 meals a day. She consumes meat (mainly pork), cereals, vegetables (mainly potatoes), milk, sour-milk products 2-3 times a week. Rarely the diet includes fish, seafood, fresh fruits and vegetables. Prefers fat and sweet dishes.

Results of laboratory tests:
Cholesterol (total cholesterol) - 5.5 mmol / l
LDL cholesterol - 3.4 mmol / l
HDL cholesterol - 0.8 mmol / l
Triglycerides - 2.3 mmol / l
Fasting plasma glucose volume is 7.1 mmol / l
On the basis of the examination, the doctor diagnosed type II diabetes.

Questions

1. Assess the nutritional status of woman.
2. Identify the labor intensity group.
3. Identify risk factors for the patient's health.
4. Predict the effects of risk factors on patient's health.
5. Develop and substantiate specific preventive measures to optimize the nutritional status of the patient.

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Variant № 52
Station «1»

During visit to the movie theater, 16-year-old patient A. felt dizzy and saw double contours of objects on the screen. The young man left the movie show for home. There he found his father with the same signs of the disease. Soon the symptoms of the disease increased: there was decreasing in visual acuity, appering double and pain in the eyes, difficult breathing, speech disorders, dry mouth and throat, nausea, vomiting. Both were hospitalized at an infectious hospital. The next day father died.

The disease occurred 12 hours after consuming the home-made salted crucians. The remains of the fish and blood of the patients were delivered to the laboratory.

The toxin and toxigenic culture of C. botulinum type E were isolated from the delivered fish samples.

Questions

1. Make a conclusion about the nature of the disease.
2. Name the most likely causes of the disease.
3. Name the foods that fall into the risk category of the disease.
4. What symptom of the disease is considered to be the most dangerous and can cause death of patient?
5. Outline measures to prevent food poisoning of mentioned nature.

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Variant № 53
Station «1»

An increasing in the level of acute intestinal infections was found in the analysis of the morbidity in population of the district T. In the analysis of surface water sources in this period one found: the smell of water - 2-3 points, taste - 1-2 points, turbidity - 1-2 mg / l, dry residue - 800 mg / l, water oxidation - 5-6 mg O^2 / l, coli-titer - 150-200.

Questions

1. Can water quality cause acute intestinal infections?
2. Evaluate the organoleptic water quality indicators of the area?
3. What are possible reasons for the change in water quality?
4. What indicators of water should be further investigated?
5. Identify necessary measures to improve water quality in the area.

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Variant № 54
Station «1»

During analysis of the water of rural region the following results were established: smell - 2 points, taste - 3 points, turbidity - 1 mg/l, dry residue - 2000 mg / l, sulfates - 500 mg/l, oxidation - 7 mg O2 /l, fluorine - 0.7 mg/l, nitrates - 5 mg / l, microbial number - 80, coli index - 5.

Questions

1. Give a hygienic assessment of water.
2. Can one use this water for drinking?
3. If not, what methods of water quality improvement are needed?
4. Assess the organoleptic qualities of this water
5. What health disorders can this water cause?

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Variant № 55
Station «1»

In the operating unit of the hospital there is an operating room with 2 tables (54 m2 area). Ventilation - supply and exhaust (+4, –5). Illumination of the working area - 1500 Lx. The total illumination - 200 Lx. Operating temperature - 26 ° C, relative humidity 80%. The CO2 content is 0.15%, the total number of bacteria in the air before the operation is 1000 per m3.

Questions

1. Give assessment for the microclimate of the operating unit.
2. Give a hygienic assessment of CO2 in the operating room
3. How can these settings affect working staff and patients?
4. What instruments do measure these parameters?
5. Give recommendations for improving hygienic conditions in the operating room.

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Variant № 56
Station «1»

In the playroom of the kindergarten with an area of 45 m2 there are 25 children. Measurement of microclimate showed following results: air temperature - 18 ° C, relative humidity 75%, air moving speed - 0.4 m / s, effective temperature - 16 ° ET. Illumination indicators: natural light ratio - 1.0%, fluorescent lamps - 200 lux. Frequency of ventilation - once an hour. CO2 content is 0.23%.

Questions

1. Assess the climate of the playroom.
2. Give a hygienic assessment of the CO2 content in the room of kindergarten
3. How can these parameters affect the condition of children?
4. What instruments do measure these parameters?
5. Do you have any recommendations for optimizing the conditions in the group?

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Variant № 57
Station «1»

The 4-bed ward in hospital has an area of 20 m2. The ward has 1 window with a glazed area of 5m2, the natural light ratio is 0.75%. Sound level at night - 25 dB. General artificial lighting - 50 lux, local - 80 Lux. The frequency of natural ventilation is 1.5 / h, the concentration of CO2 is 0.15%.

Questions

1. Assess the area of the ward and its light
2. Give a hygienic assessment of CO2 content in the air
3. What instruments do measure these parameters?
4. How can these indicators affect patients' condition and health state?
5. What are necessary steps to create optimal conditions for patients in the ward?

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Variant № 58
Station «1»

There are 6 beds in the surgical ward of 28 m2, placed in 2 rows parallel to the wall with windows. The first row of beds is installed at a distance of 0.6 m to the outer walls. The distance between the beds is 0.7 m. The airing of the ward is natural, the inflow through the transom, the exhaust through the ventilation in the wall. Two windows of the ward are oriented to the east, the area of each window is 2.8 m2. Wet cleaning is done in the morning and evening, using disinfectants. The air analysis of the surgical wards gave the following results: CO2 content - 0.25%, total bacterial contamination - 3600 microorganisms in 1 m3 of air, pathogenic staphylococci content - 7 in 1 m3 of air.

Questions

1. Give a hygienic assessment of the size of the ward
2. Draw a hygienic conclusion from the results of examination.
3. Identify health risk factors for hospitalized patients.
4. What method determines the degree of bacterial air pollution?
5. Suggest a plan of necessary hygienic measures to prevent the effects of adverse conditions in the ward on the health of patients.

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Variant № 59
Station «1»

A 63-year-old patient, a pensioner, went to the doctor complaining of overweight. He was diagnosed with pronounced signs of coronary atherosclerosis, high blood pressure. During the examination of the patient, it was found that the patient ate 3 times a day, avoiding fat and spicy foods. Analysis of his diet revealed that the protein content was 70 g, fat - 50 g, carbohydrates - 400 g per day. The content of vitamins and minerals in his diet was normal.

Questions

1. Assess the adequacy of patient nutrition
2. What are the possible causes of overweight?
3. Provide a classification of obesity
4. To what group of alimentary diseases does this pathology belong?
5. What are recommendations for correcting the nutrition with anti-sclerotic orientation in this case?

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Variant № 60
Station «1»

In the city of N., there is a high morbidity with hypertension and caries in comparison with the average rate in the region. Drinking water studies are being conducted to find out the causes of the rising morbidity. Analysis of water from the artesian well, supplying the city, revealed: organoleptic parameters - within normal limits, dry residue - 2300 mg / l, chloride content - 670 mg / l, sulfates - 750 mg / l, nitrates - 42 mg / l, iron - 0.2 mg / l, fluorine - 0.8 mg / l.

Questions

1. Make a hygienic assessment of the water.
2. What are the normal organoleptic characteristics of water?
3. Is there any correlation between increasing the morbidity rate and drinking water quality?
4. What diseases` morbidity rate can be also expected in the city?
5. How to reduce the rate of these diseases in the po

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Variant № 61
Station «1»

Citizen N., aged 65, having 3 meals a day (at 8 a.m., at 4 and 8 p.m.), consuming 100 g of proteins, 100 g of fats and 500 g of carbohydrates. A daily energy allowance is 2,700 Kcal.

Questions

1. Estimate caloric content of nutrition with the help of calorimetric factors?
2. Estimate the nutrition rationality of the man?
3. Does nutrition meet the requirements of balanced diet?
4. Give recommendations for preventive nutrition?
5. What conditions can develop uncorrect diet?

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