

**Опрацювати лексичний матеріал, перекласти текст, виконати вправи.
Всі завдання повинні бути виконані письмово.**

English-Ukrainian Vocabulary

centrifuge	центрифуга
coal-charging car	вуглевантажний вагон
coke machine	коксова машина
electric power station	електрична станція
installations	установка
limiting values	граничне значення
low-voltage complete devices	низковольтне комплектне обладнання
oil industry	нафтова промисловість
power plant	енергетична установка
public utilities	комунальні споруди
rated current	номінальний струм
rated voltage	номінальна напруга
shock short-circuit current	ударний струм короткого замикання
specifications	технічна характеристика
substation	підстанція
transmission of the electric power	пересилання електричної енергії

Exercise 3 Translate into English.

1) Регулювання; 2) основні галузі застосування; 3) захист обладнання; 4) електроприводи; 5) автоматика; 6) призначені для прийому й розподілення електроенергії; 7) машинобудувальна галузь промисловості; 8) установки хімічної промисловості; 9) електроприводи екскаваторів та кранів; 10) виміри; 11) електроустановки гірничодобувної та нафтової промисловості; 12) сигналізація; 13) об'єкти комунального та сільського господарства; 14) силове коло.

Exercise 4 Translate into Ukrainian.

1) Machine-building; 2) adjusting; 3) electric drives; 4) designed for the reception and distribution of electric power; 5) main fields of application; 6) chemical industry installations; 7) protection of the equipment; 8) measurements; 9) electric drives of excavators and cranes; 10) automation; 11) installations of public utilities and agriculture; 12) signalling; 13) electrical installations in mining and oil industry; 14) power circuit.

Exercise 5 Match the two halves. Translate the terms and their definitions into English.

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|-------------------|---|
| 1) automation | a) any mechanical or electrical device that automatically performs tasks or assists in performing tasks; |
| 2) equipment | b) the use of methods for controlling industrial processes automatically, esp by electronically controlled systems, often reducing manpower; |
| 3) machine | c) a set of tools, devices, kit, etc., assembled for a specific purpose; |
| 4) circuit | d) an enterprise concerned with the provision to the public of essentials, such as electricity or water...; |
| 5) public utility | e) the rate at which electrical energy is fed into or taken from a device or system. It is expressed, in a direct-current circuit, as the product of current and voltage and, in an alternating-current circuit, as the product of the effective values of the current and voltage and the cosine of the phase angle between them. It is measured in watts; |
| 6) power | f) a complete path through which an electric current can flow; |
| 7) transmission | g) an electromotive force or potential difference expressed in volts; |
| 8) short circuit | h) the magnitude of an electric current measured in amperes; |
| 9) voltage | i) a system of shafts, gears, torque converters, etc., that transmits power, esp the arrangement of such parts that transmits the power of the engine to the driving wheels of a motor vehicle; |

10) rated current

j) a faulty or accidental connection between two points of different potential in an electric circuit, bypassing the load and establishing a path of low resistance through which an excessive current can flow. It can cause damage to the components if the circuit is not protected by a fuse.

Exercise 6 Fill in the gaps with the words from the box. Translate the sentences below into Ukrainian.

Cathode, electronic device, electrical circuits, medium, shaft, direct current, sealed container, certain value

- 1 Stabilizer is an for producing a direct current supply of constant voltage.
- 2 A semiconductor device containing one p-n junction, used in circuits for converting alternating current to is called a diode.
- 3 The earliest and simplest type of electronic valve has two electrodes, an anode and a, between which a current can flow only in one direction.
- 4 It was formerly widely used as a rectifier and detector but has now been replaced in mostby the more efficient and reliable semiconductor diode.
- 5 Resistance is the opposition to a flow of electric current through a circuit component,, or substance. It is the magnitude of the real part of the impedance and is measured in ohms.
- 6 A fuse is a protective device for safeguarding electric circuits, etc., containing a wire that melts and breaks the circuit when the current exceeds a
- 7 A revolving rod that transmits motion or power usually used for axial rotation is called a
- 8 A torque converter is a hydraulic device for the smooth transmission of power in which an engine-driven impeller transmits its momentum to a fluid held in a, which in turn drives a rotor.

Exercise 7 Match the two halves.

- | | |
|---|------------------------|
| 1 Application (purpose) | A Порядок роботи |
| 2 Technical Data (Specification) | В Принцип роботи |
| 3 Arrangement and Operation | С Розміщення та монтаж |
| 4 Allocation and Mounting | Д Засоби безпеки |
| 5 Operation Procedure (Operation Order) | Т Технічні дані |
| 6 Method of Check | Ф Правила зберігання |

7 Safety Instructions. (Precautions)	G Призначення
8 Trouble Shooting (Trouble and Remedies)	H Будова та робота
9 Storage	I Методика перевірки
10 Principle of Operation	J Пошук та усунення неполадок

Exercise 8 Study the terms below.

віток	turn
вольт-амперна характеристика живлення	voltage-current characteristic
зворотний	power supply
компенсаційний стабілізатор	reverse
накладати обмеження	compensating
напівпровідниковий діод	impose restrictions (constraints)
напруга	semiconductor diode
нелінійний	voltage
обмеження	nonlinear
опір навантаження	restriction (constraint)
опори транзистора	load resistance
параметричний	support, holder
послідовно	parametric
стабілізатор	in-series
стабілітрон	stabilizer
струм навантаження	stabilatron
	load current

Exercise 9 Translate the following phrases into English.

пристрій, призначений для...;
утримання в заданих межах;
на певному фіксованому рівні;
це ж стосується... ;
на відміну від...;
принцип дії стабілізатора базується на...;
залишатися незмінним.

Exercise 10 Translate the text below.

Text 2 Low-Voltage Complete Devices NKU-E98

JSC "Energoprom" produces and delivers all the product line of low-voltage complete devices of NKU-E98 series necessary for using at power stations, substations, enterprises for oil-fields construction, oil and gas production factories, metallurgical complexes, objects of housing and communal services. NKU are applied in alternating and direct current circuits of up to 1000 V.

Operating conditions

NKU are suitable for operation in stationary installations only, in industrial premises not containing caustic vapors and gases in concentrations causing metal and insulation destruction, besides NKU of open construction should be installed in premises without dust.

Height of installation above sea level is up to 1000 m. Operating conditions group is M1, M6, M13, including operating conditions of seismic load at earthquake intensity of 8 points on MSK-64 scale.

Climatic modification and category of installation of NKU is in accordance with GOST 15150-69, intended for interstate deliveries and export to the countries with temperate climate – UHL4; to the countries with tropical climate – O4.

As agreed with the customer, production of NKU of climatic modification and with a degree of protection different from the basic one is possible.

Design

The embodiment of NKU can be in the form of blocks, boxes, cases, panels and boards. The design of each kind of NKU is executed as follows:

NKU-block in which apparatus and devices are installed on a frame, a plate or another basis no more than 1200 mm high. A degree of protection is IP00;

NKU-box is up to 1200 mm high, closed at all sides by the elements of the jacket, intended for hanging vertically (columns, walls, etc.). A degree of protection is IP31, IP41, IP54;

NKU-panel in which apparatus and devices are mounted on functional cabinets, a plate more than 1800 mm high. A degree of protection is IP00;

NKU-case is closed at all sides by the elements of the jacket in such a manner that, when doors, covers and other protected devices are closed, contacts with live parts are excluded. A degree of protection is IP20, IP31, IP41, IP54;

NKU-board consists of several panels or cases. A degree of protection is IP00 for open boards, IP20, IP31, IP41, IP54 – for protected boards;

NKU-benchboard is intended for control, signaling and measuring equipment installation. There are modifications for standing and sitting operator work. A degree of protection is IP20, IP31.

Wiring inside NKU is made at the customer request in plastic punched buckets or in harnesses, laid and fixed on metalware details according to GOST 23586-96. Panels and cases NKU are intended for electric equipment, automatic and control devices installation.

English-Ukrainian Vocabulary

AC squirrel-cage motors	короткозамкнені асинхронні електродвигуни
circuit-breaker	вимикач
climatic version	вид кліматичного виконання
low-voltage apparatus	апарати низковольтні
magnetic contactors	контактори електромагнітні
operating switching	оперативні комутації
overcurrent protection	максимальний струмовий захист
overloads	перевантаження
rated current	номінальний струм
rated voltage	номінальна напруга
reversible motors	реверсовані електродвигуни
short-circuit	коротке замикання
single-pole contactors	контактори однополюсні
stationary drives	стаціонарні приводи
version	виконання

Exercise 3 Translate into Ukrainian.

1) Rated voltage; 2) non-frequent starts of AC squirrel-cage motors; 3) undervoltage protection of electric circuits; 4) AC-controlled; 5) remote switching of electric circuits; 6) under normal conditions; 7) squirrel-cage motors; 8) power electric circuits; 9) for non-frequent operating switching; 10) electrical installations; 11) switching; 12) frequent starts of AC squirrel-cage motors.

Exercise 4 Translate into English.

1) Захист електричного кола при зменшенні напруги до неприпустимої величини; 2) номінальна напруга; 3) часті пуски короткозамкнених асинхронних електродвигунів; 4) електричні установки; 5) з управлінням змінним струмом; 6) короткозамкнені електродвигуни; 7) комутація; 8) для нечастих оперативних комутацій; 9) силові електричні кола; 10) генератори й електродвигуни постійного струму; 11) у нормальному режимі; 12) дистанційне вмикання та вимикання електричних кіл.

Exercise 5 Fill in the gaps with the words from the box. Translate the sentences into Ukrainian.

Electrical hazards, voltage, Directive, requirements, equipment, transformers and motors
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- 1 The Low Voltage Directive (LVD) contains more than 210 documents and applies to electrical equipment designed for use with a rating of between 50 and 1000 V for alternating current, and between 75 and 1500 V for direct current.
- 2 Rated voltage refers to the input or output voltage of the and not voltages which are generated internally.
- 3 The Directive requires manufacturers to offer safety protection against arising from the equipment, and protection against hazards caused by external influences on the equipment.
- 4 Broadly, the scope of the covers goods designed to operate within those voltage limits, including electrical appliances; lighting equipment; switch gear and control gear.
- 5 It also includes electric wiring; appliance couplers and cord sets; electrical installation equipment; and electrical equipment intended for incorporation into other equipment such as
- 6 The LVD lays down eleven “safety objectives”, which represent the essential of this Directive.

Exercise 6 Study the list of terms below.

опір навантаження	load resistance
p-n - перехід	p-n junction
активний режим	active mode
база	Base
емітер	Emitter
колектор	Collector
коло керування	control circuit
коло навантаження	load circuit
підсилюючий елемент	amplifying element
прошарок	Layer
режим відсічки	cutoff mode
режим насичення	saturation mode

Exercise 7 Translate the text below into Ukrainian.

Text 2 Low-Voltage, Full-Bridge Brushless DC Motor Driver

Low-Voltage, Full-Bridge Brushless DC Motor Driver with Integrated Hall Sensor IC, PWM Speed Control, Soft-Switching, and Reverse Battery and Short Circuit Protection

Features and Benefits

Low-voltage operation, 1.8 to 4.2 V

Multifunction CONTROL pin input:

Direct input PWM for speed control

Active braking for fast stop cycle
Sleep function to reduce average power consumption
Reverse voltage protection on VDD and CONTROL pins
Output thermal shutdown protection for robust performance
Soft switching algorithm to reduce audible switching noise and EMI
Hall chopper stabilization technique for precise signal response over operating range
Antistall feature guarantees continuous rotation and prevents overheating
Single-chip solution for high reliability
Miniature MLP/DFN package with industry-leading 0.40 mm maximum overall thickness.

Description

The A1448 is a full-bridge motor driver designed to drive low-voltage, brushless DC motors. The device is designed to allow the user to control several functions with a single input control pin. The pin allows for direct input PWM for speed control, is used to initiate the active braking function to reduce motor stop time, and acts as an enable pin to engage micro-power sleep mode to reduce average power consumption when not in use. The A1448 is designed for use in vibration motor applications in portable devices that require fast stop-start cycles, such as haptic applications and vibration ring tones.

Commutation of the motor is achieved by use of a single Hall element sensor to detect the rotational position of an alternating-pole ring magnet. A high density CMOS semiconductor process allows the integration of all the necessary electronics. This includes the Hall element sensor, the motor control circuitry, and the output full bridge. Low voltage design techniques have been employed to achieve full device functionality down to 1.8 V VDD. This fully integrated single chip solution provides enhanced reliability (including reverse battery protection and output short circuit protection) and eliminates the need for any external support components.

The A1448 employs a soft-switching algorithm to reduce audible switching noise and EMI interference. The micropower sleep mode can be initiated on the CONTROL pin, and reduces current consumption for battery management in portable electronic devices. This feature allows the removal of a FET transistor for switching the device on and off.

The A1448 is optimized for vibration motor applications in cellular phones, pagers, electronic toothbrushes, hand-held video game controllers, and can also be used as a micro-fan driver for fans motors up to 1 W.

The small package outline and low profile make this device ideally suited for use in applications where printed circuit board area and component headroom are at a premium. It is available in a lead (Pb) free, 6-contact MLP/DFN micro-leadframe package, with an exposed pad for enhanced thermal dissipation. Leadframe is 100% matte tin plated.

