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ИСТОРИИ МЕДИЦИНЫ

МЕДИЦИНСКАЯ ИНФОРМАТИКА

лекционная рабочая тетрадь
для иностранных студентов

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for international students

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FOREWORD

The purpose of this publication is to help foreign students of KubSMU in preparation for lectures and practical classes in medical informatics, independent study of the material of the discipline.

The analysis of the material presented in the manual will allow the student to get acquainted with the main provisions, problematic issues of the upcoming lecture, which is especially important in preparing for interactive forms of work, and will also help in organizing the student's independent work on specific topics. The tasks contained in the manual will help to consolidate and subsequently identify the knowledge and skills of students.

The material presented in English summarizes modern scientific and practical knowledge in the field of medical informatics, and allotted blank lines for recording keywords, concepts, comments will be useful to foreign students in the process of working with the teacher.

The future specialist during the training should not only master the curriculum, but also acquire the skills of planning and performing independent work, which will allow, at a high scientific and methodological level, to investigate the various processes and patterns of functioning and reforming the modern health care system in a market and competition .

The development of the material presented in the textbook is aimed at building students' knowledge of the basics of medical informatics; ability and willingness to analyze problems that arise when working in the medical information space; the ability to use modern methods of working with digital information

This tutorial is adapted to understand information processes, the principles of categorization and mechanisms for working with information, as well as aspects of information security by foreign students of medical universities.

The lecture workbook presents the supporting abstracts of the lecture in accordance with the subject of the academic discipline, test assignments for self-training and self-monitoring, a glossary of basic economic terms and concepts, recommended literature.

The success of mastering the teaching material is achieved in the process of joint activity of the teacher and student, taking into account their individual capabilities, accessibility of the teaching material.

Размещено кафедрой

ПРЕДИСЛОВИЕ

Цель настоящего издания – помочь иностранным студентам КубГМУ при подготовке к лекционным и практическим занятиям по медицинской информатике, самостоятельному изучению материала дисциплины.

Анализ изложенного в пособии материала позволит студенту ознакомиться с основными положениями, проблемными вопросами предстоящей лекции, что особенно важно при подготовке к интерактивным формам работы, а также поможет в организации самостоятельной работы студента по отдельным темам. Содержащиеся в учебном пособии задания будут способствовать закреплению и последующему выявлению знаний и умений обучающихся.

Представленный на английском языке материал, обобщает современные научные и практические знания в области медицинской информатики, а отведенные пустые строки для записи ключевых слов, понятий, комментариев будут полезны иностранным студентам в процессе совместной работы с преподавателем.

Будущий специалист за время обучения должен не только освоить учебную программу, но и приобрести навыки планирования и выполнения самостоятельной работы, что позволит на высоком научно-методическом уровне исследовать различные процессы и закономерности функционирования и реформирования современной системы здравоохранения в условиях рынка и конкуренции.

Освоение изложенного в учебном пособии материала направлено на формирование у студентов знаний основ медицинской информатики; способности и готовности анализировать проблемы, возникающие при работе в медицинском информационном пространстве; умения использовать современные методики работы с цифровой информацией

Данное учебное пособие адаптировано для понимания информационных процессов, принципов категоризации и механизмов работы с информацией, а также аспектов информационной безопасности иностранными студентами медицинских вузов.

В лекционной рабочей тетради представлены опорные конспекты лекции в соответствии с тематикой учебной дисциплины, тестовые задания для самоподготовки и самоконтроля, глоссарий основных экономических терминов и понятий рекомендованная литература.

Успешность овладения учебным материалом достигается в процессе совместной деятельности преподавателя и студента, учета их индивидуальных возможностей, доступности учебного материала.

INTRODUCTION

Information technologies are increasingly entering our lives and if 5–10 years ago, in some cases, it was possible to imagine the activities of a doctor without the use of medical information systems (MIS), then now this is impossible. Within the framework of the current EH-HIS system, according to the legislation, each medical case must be included in the existing IIA database. In order to focus on the use of information systems, to acquire skills in the technological information field, students of medical specialties master the discipline “Medical Informatics”.

The competency-based approach to the organization of the educational process at a university presents new requirements for a lecture as the leading form of its organization. There is a transition from the formation of an indicative basis for the subsequent assimilation by students of teaching material to the co-creation of a lecturer and audience, the activation of students' mental activity, and the realization of their creative abilities as a result of interactive forms of work. This makes it necessary to search for new technologies, methods, and techniques that enable students to engage in cognitive activity.

The correct arrangement of notes, rubrication, emphasis on the main ideas, key words make the lecture notes more qualitative. In addition, pre-recorded recordings avoid distortion of factual information. After all, there are often cases when students at a lecture incorrectly write down the terms, formulas, names of scientists. All these errors can be prevented, saving the student from the need to record information of this kind. At the same time, abstracts are allotted blank lines for recording keywords, concepts, comments. The use of working test is directly related to the implementation of the principle of visualization, which is a general didactic norm, due to the need to reinforce verbal explanations with facts, their schematic, graphic and model representation.

These guidelines have been prepared to assist students in mastering the lecture course of the discipline “Medical Informatics” taught at the Department of Public Health, Health Care and the History of Medicine of the Kuban State Medical University. It contains the necessary didactic material that meets the requirements of the GEF 3 program in the areas of medical care, pediatrics and dentistry.

ВВЕДЕНИЕ

Информационные технологии все глубже и теснее входят в нашу жизнь и если 5 - 10 лет назад, в отдельных случаях, можно было представить деятельность врача без применения медицинских информационных систем (МИС), то сейчас это невозможно. В рамках действующей системы ЕГИСЗ, по законодательству, каждый медицинский случай должен быть внесен в существующую базу МИС. С целью ориентированности на использование информационных систем, получения навыков работы в технологическом информационном поле студенты специалитетов медицинских направлений осваивают дисциплину «Медицинская информатика».

Компетентностный подход в организации учебного процесса в вузе предъявляет новые требования к лекции, как к ведущей форме его организации. Происходит переход от формирования ориентировочной основы для последующего усвоения студентами учебного материала к сотворчеству лектора и аудитории, активизации мыслительной деятельности студентов, реализации их творческих способностей в результате интерактивных форм работы. Это обуславливает необходимость поиска новых технологий, методов, приемов, позволяющих активизировать познавательную деятельность студентов.

Правильное расположение записей, рубрикация, выделение главных мыслей, ключевых слов делают конспект лекции более качественным. Кроме того, предварительно сделанные записи позволяют избежать искажения фактической информации. Ведь нередки случаи, когда на лекции студенты неправильно записывают термины, формулы, фамилии ученых. Все эти ошибки можно предупредить, избавив студента от необходимости фиксировать информацию подобного рода. В то же время в конспекте отведены пустые строки для записи ключевых слов, понятий, комментариев. Использование рабочей тетради непосредственно связано с реализацией принципа наглядности, являющегося общей дидактической нормой, обусловленной необходимостью подкрепления словесных объяснений фактами, их схематическим, графическим и модельным представлением.

Настоящие методические рекомендации подготовлены для помощи студентам в освоении лекционного курса дисциплины «Медицинская информатика», преподаваемой на кафедре общественного здоровья, здравоохранения и истории медицины Кубанского государственного медицинского университета. Содержит необходимый дидактический материал, отвечающий требованиям программы ФГОС 3 по направлениям лечебное дело, педиатрия и стоматология.

Lecture № 1. Introduction to medical informatics. Key terms and concepts



Definition

Informatics — sciences about methods and processes of collecting, processing, storage, transferring, analyzing and evaluating information with computer technology, that provides the ability to use it for making decisions.



1



Definition

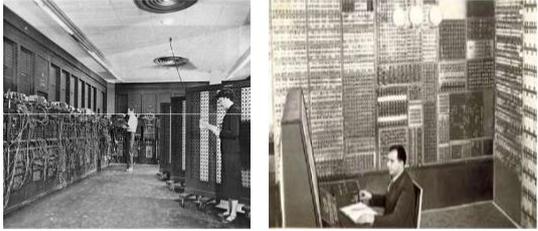
The word Informatics is a complex word and it made up of two words: the first one is information, the second one is automation. That is, the new meaning of the word informatics is the automated collecting, processing, storage and transferring of second-level information derived on the basis of primary data (primary information).

2



Computer Creation History

The first generation - computers with vacuum tubes(1946-1955)



ENIAC - the first computer made in 1946

MESM - the first Soviet computer, 1950

3

Computer Creation History

Second Generation - Transistor Computers(1955-1965)



Compared to electronic tubes, the use of transistors allowed:

- reduce the size of Computer Engineering
- increase reliability
- increase work speed (up to 1 million operations per second)
- get rid of heat irradiation.

CDC Computer 6600

4

Computer Creation History

Third Generation - Integrated Circuit Computers(1965-1980)




5

Computer Creation History

Четвертое поколение - компьютеры с микропроцессорами (1980-н.в.)




Первый персональный компьютер от корпорации IBM - 12 августа 1981 года

Современный персональный компьютер

6

 **Computer Creation History**

Fifth generation - computers of the near future



- Their main quality should be a high intellectual level.
- They will be possible input from the voice, voice communication, machine "vision", machine "touch".
- To increase memory and speed, will be used the achievements of optoelectronics and bioprocessors.

7

 **Definition of Information**

1. Information is an attribute of the existence of matter.
2. Information is a measure of the distribution of mass and energy in space and time.



8

 **Information Features**

- Objectivity - does not depend on anything opinion.
- Veracity – reflects the true state of affairs.
- Completeness - sufficient for understanding tasks and making decisions.
- Relevance – important and necessary for the present.
- Significance - (usefulness, value) provides a solution of the tasks, is needed in order to make the right decisions.
- Clarity - expressed in a speech accessible to the recipient.

9

 **Information Features**

In addition, the information has other properties:
Attribute Properties

- discreteness (information consists of separate parts, signs);
- incessancy (the ability to accumulate information).

Dynamic properties are associated with a change in information over time:

copying – duplication of information;

- transmission from source to consumer;
- translation from one language to another;
- transfer to another medium;
- aging (physical - medium, moral - value).

Practical properties - information volume and density.

10

 **Information classification**

By the methods of perception:

- visual
- audial
- tactile
- olfactory
- flavoring

11

 **Information classification**

By representation forms:

- textual;
- numerical;
- graphic;
- musical;
- combined etc.

12



Data

Data is a objects or phenomena, presented in the form of symbols, signs, numbers.



13



Definition of medical informatics

Medical informatics – the science of the processing, transformation, storage, transmission and presentation of information in medicine.



14



The problem of medical Informatics

1. the population health status monitoring;
2. clinical medicine advisory support;
3. switch-over to electronic case histories and outpatient cards;
4. automation of functional and laboratory diagnostics.

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 **Classification of Medical Information**

- alphanumeric,
- visual,
- audio,
- combined

16

 **Storage medium**

Storage medium — any material object or environment used by man, capable for storing (carrying) in its structure the data recorded on it for a long time, without the use of additional devices (for example, an energy source).

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 **Media Classification**

By nature of medium:

- Material-subject (books, hardware storage devices);
- biochemical (DNA, RNA, etc.);

According to the main purpose:

- general (wide) purpose (for example, paper);
- specialized (for example, designed only for digital recording).

By the number of recording cycles:

- for single recording;
- for multiple recording.

By durability:

- for long-term storage (termination of the media function due to random circumstances);
- for short-term storage (termination of the function is due to regular processes leading to the inevitable degradation of the carrier).

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Electronic devices

Electronic devices includes media for one-time or multiple recording (usually digital) by electrical method:

- **optical** (CD-ROM, DVD-ROM, Blu-ray Disc);
- **semiconductor** (flash-memory, floppy disk)



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Electronic media

Electronic media has significant advantages over paper:

- by volume (size) of stored information;
- at the unit cost of storage;
- on the cost-effectiveness and efficiency of providing relevant (intended for short-term storage) information;
- if possible, provide information in a form handy for the consumer (formatting, sorting).

• Disadvantages :

- fragility of readers;
- weight (mass), in some cases;
- dependence of power supplies
- the need for a reader/writer for each type and format of media.

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Memory device

Information storage device consist of these elements:

- Data storage;
- recording device — mechanisms for recording information on a medium;
- information reader — mechanisms for reading information from storage medium.



21



Information units

- **Bit** — the smallest information unit. It can take only one value (1 or 0, yes or no, true or false).

- **Byte** – basic unit of information amount.

$$1 \text{ byte} = 8 \text{ bit}$$

$$1 \text{ Kb} = 1024 \text{ byte}$$

22



Information units

Измерения в байтах							
ГОСТ 8.417—2002		Приставки СИ		Приставки МЭК			
Название	Обозначение	Степень	Название	Степень	Название	Символ	Степень
байт	Б	10^0	-	10^0	байт	В Б	2^0
килобайт	Кбайт	10^3	кило-	10^3	кибибайт	КиВ КиБ	2^{10}
мегабайт	Мбайт	10^6	мега-	10^6	мебибайт	МиВ МиБ	2^{20}
гигабайт	Гбайт	10^9	гига-	10^9	гибибайт	ГиВ ГиБ	2^{30}
терабайт	Тбайт	10^{12}	тера-	10^{12}	тебибайт	ТиВ ТиБ	2^{40}
петабайт	Пбайт	10^{15}	пета-	10^{15}	пебибайт	ПиВ ПиБ	2^{50}
эксабайт	Эбайт	10^{18}	экса-	10^{18}	эксибайт	ЕиВ ЭиБ	2^{60}
зеттабайт	Збайт	10^{21}	зетта-	10^{21}	зебибайт	ЗиВ ЗиБ	2^{70}
иоттабайт	Ибайт	10^{24}	иотта-	10^{24}	йобибайт	ЙиВ ЙиБ	2^{80}

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Размещено кафедрой Информатики и компьютерных наук

ФГИИМ КубГУМУ www.kzma.ru

Lecture № 2. The concept of Informatization. Strategy of transition to information society. Information technology hardware

Computer device

Any PC consists of

Hardware **Software**



1

Computer hardware

It is a system of interconnected technical devices designed for input, processing, storage and output of information



2

Motherboard

Motherboard this is the main Board of the system unit. On it are connectors for connecting all other parts-graphics card, RAM, processor, etc. Throwing computer terminology, the motherboard-the base of the computer. As we said before-and RAM and processor play a major role in the computer

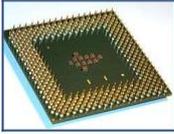


3

 **Processor**

Central processor (CP; also Central processing unit CPU)
— an electronic unit or integrated circuit (microprocessor), executing machine instructions (program code), the main part of the hardware of a computer or a programmable logic controller.

- The main chip that performs arithmetic and logical operations – "computer brain".



4

 **Classification of processors**

By the number of large integrated circuits in a microprocessor set:

- Single chip
- Multichip
- Multi-sectional

As intended:

- Universal
- Specialized

By the nature of the temporary organization of work:

- Synchronous
- Asynchronous

By the number of programs executed:

- Single-program
- Multiprogramming



5

 **Processor model**

The most popular processors today are produced by firms:

Intel, AMD и IBM.




6

Intel

At the moment 3 families (lines) of desktop processors of the Intel company are widespread

Celeron –the weakest, stripped-down version of the Pentium, then go Pentium and the most modern and productive- Core i



7

Intel

- All Core i3 models are dual-core, have 512 KB L2 cache, built-in Intel HD Graphics video subsystem and are divided into i3-xxx and i3-2xxx series. New i3-2xxx processors running on the LGA1155 socket have 3 MB of third-level cache.
- Core i5, the LGA1156 socket-equipped models are divided into i5-6xx and i5-7xx series. The i5-6xx line CPUs are dual-core like the Core i3, have a built-in video chip, 512 KB L2 cache and 4 MB L3 cache. The new family of Quad-core Core i5 processors is marked with a four-digit number (for example, Core i5-2400), has a built-in video core, 1 MB L2 cache, 6 MB L3 and is designed to be installed on the socket LGA1155.
- The Intel Core i7-xxx are Quad core (with the exception of "extreme" six-core model Core i7-970/975/980X), does not have integrated GPU, I have the second level cache of 1 MB, the third level is 8 MB and is designed for installation on the socket LGA1366 (series i7-9xx) or LGA1156 (i7-8xx). And finally, the most modern line of processors Core i7-2xxx. These models are designed to run on the socket LGA1155, have a built-in video core.



8

AMD

- The most common lines of processors today are A-series, Athlon II, Phenom II and FX. All modern Socket AM3/AM3+ processors have standard system bus frequencies equal to 4000/5000 MHz respectively.
- A-series-the "weakest" among AMD processors, designed for office configurations. It has a built-in video core and is designed to be installed on the FM1 socket. Analogue of the previous generation models called "Sempron" and Celeron processor from Intel.
- Athlon-universal processor of medium-high power, designed to work on socket AM3/AM3+ or Socket FM1 (new models). Similar to Intel Pentium and Core i3/i5. Series X2 2xx-dual-core, X3 4xx-tri-core, X4 6xx-Quad. The three-digit number depends on the cache size (1 to 4 MB) and the processor clock speed.
- New FX series processors are marked with a four-digit number, in which the first digit indicates the number of cores (4, 6 or 8), and, accordingly, the volume of the L2 cache. These processors are perfect for modern gaming configurations



9

 **AMD**

- Phenom —processor for game configurations of system units. The six-core models have performance comparable to the Core i5-2xxx and Core i7 series processors.
- Processors called Phenom II are two- (X2), four- (X4) and six-core (X6).
- Phenom II X6 six-core processors are one of the most powerful processors currently produced by AMD.



10

 **Macintosh**

Macintosh (Mac)—a line of personal computers designed, developed, manufactured and marketed by Apple. They work under the Mac OS operating system. Macintosh computers can be used for the same tasks as computers running Windows and systems based on the Linux kernel. There is a wide range of software applications, including Microsoft Office for Mac, Adobe Photoshop etc. Also Macintosh are widely used in the field of computer graphics, printing and recording. The move to Intel processors greatly simplified and accelerated the operation of virtual machines that run virtual operating systems. Moreover, the Boot Camp project is currently implemented, which allows you to install and run other operating systems on the Macintosh and boot into one of them .



Windows XP and Windows Vista, Windows 7 are already supported. Can be installed independently adaptable from Apple Linux distributions this initiative turns the **MACINTOSH** into a **UNIVERSAL COMPUTER**, which is **AVAILABLE** for a **VARIETY** of **OPERATING SYSTEMS** for **INTEL PROCESSORS**.

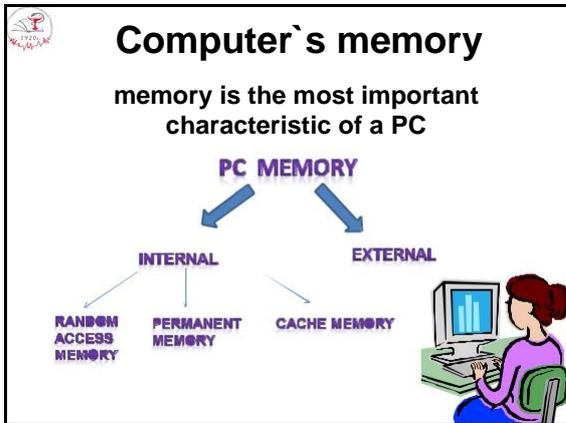
11

 **Video card**

Video card-a device that converts a graphic image stored as the contents of the computer's memory (or the adapter itself) into a form suitable for further output to the monitor screen



12



13

PC Memory

- The permanent memory (ROM) stores information recorded at the enterprise and manufacturer, includes basic system programs that automatically run when you turn on the computer and are designed to check the health of the computer and the initial boot of the operating system
- Random access memory (RAM) – electronic memory for storing programs and data that are processed by the processor at a given time. When the computer is powered off, the information in the RAM is erased.

14

The permanent memory

- Permanent memory (RO. ROM, Read Only) - non-volatile memory, used to store data that will never require changes. The contents of the memory are specially "sewn" into the device during its manufacture for permanent storage. ROM can only be read. First of all, a program for controlling the operation of the processor itself is recorded in the permanent memory. The ROM contains programs to control the display, keyboard, printer, external memory, programs to start and stop the computer, testing devices. The most important chip permanent or Flash-memory-module BIOS. BIOS (Basic Input/Output System- basic input / output system) - a set of programs designed for: automatically test devices after the computer is powered on-loading the operating system into RAM

15



Random access memory

RAM is one of the main elements of a computer. "Operational" memory because it is very fast and allows the processor to read information from memory almost without any noticeable waiting. The data stored in the RAM is stored and available only when the computer is turned on. When you turn off the computer, the content is erased from memory, so you must save all data before you turn off the computer. The amount of RAM (by the way, it is also called RAM – random access memory) depends on the number of tasks that can be performed simultaneously by the computer



16



Organization of RAM



- Physically, RAM in a system is a set of chips or modules containing chips that are usually connected to the motherboard. These chips or modules can have different characteristics and, to function properly, must be compatible with the system in which they are installed. The term "RAM" often refers not only to the chips that make up the memory devices in a system, but also includes concepts such as logical mapping and placement. The logical mapping is a way of representing memory addresses for the chips are actually installed. Placement is the location of information (data and commands) of a certain type at specific memory addresses of the system.

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Dynamic random access memory

Dynamic RAM can be of different types:

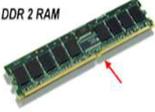
- DRAM (Dynamic Random Access Memory) Dynamic storage device with arbitrary sampling order..
- At the moment the most common are three types of memory : DDR, DDR2, DDR3.
- The worst one is DDR, and the newest and best is DDR3. Memory types differ in the transmission rate: DDR: 200-400 MHz, DDR2: 533-1200 MHz, DDR3: 800-2400 MHz. Accordingly, the higher the frequency, the faster everything works.



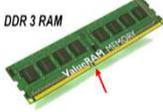
18



DDR 2 RAM



DDR 3 RAM



- SDRAM (Synchronous DRAM). This type of memory was used in legacy systems of the Pentium I/III class, in the first releases of Pentium 4, as well as in similar models with AMD processors. SDRAM memory was available in several versions, differing in operating frequency: RS66 (66 MHz), RS100 (100 MHz), RS133 (133 MHz). The faster PC100/PC133 modules do not work on PC66-only boards.
- DDR SDRAM (Double Data Rate SDRAM), this memory runs twice as fast. The OPA was used in systems based on Pentium IV (Celeron) AMD Athlon (Sempron) processors, but since 2008 motherboards with DDR RAM are no longer available
- DDR2. This memory is a further development of DDR technology. DDR2 memory modules are widely used in modern computers and are available in several versions, different clock speeds. DDR2 modules can have the designations DDR2-400 (PC2-3200), DDR2-533 (PC2 - 4200), DDR2-677 (PC2-5300), DDR2-800 (PC2-6400) and DDR2-1066 (PC2-8500).
- DDR3. The memory of this standard allows you to transfer 8 data packets per clock cycle. At the time of writing, it is supported only by the newest chipsets, such as Intel P35, X38 and X48

19



Amount of RAM

- It's no secret that almost all PC users tend to increase the amount of RAM. This is natural, because the larger the amount of RAM, the faster all currently running processes. This is especially important for gamers, because the larger the amount of RAM on the computer, the faster the gameplay will be.
- The most common amounts of RAM now on computers: 1, 2, 3, 4 GB. This volume can consist of a single line (Board) of RAM, and several installed in different slots.



20



External memory organization

External (auxiliary) memory is a long-term nonvolatile memory for storing data (programs, texts, calculations, etc.).

Unlike RAM, external memory has no direct connection to the processor. Information from the ESD to the processor and vice versa circulates approximately the following chain:

ESD ↔ ISD ↔ Cache ↔ Processor

This type of memory is implemented by external storage devices located, as a rule, in the system unit or outside it.

To work with external memory, you must have a drive and media.

Drives-devices for recording and (or) reading information.
Media-devices for storing information.

21

External memory organization

The most common are the following types of drives:

- 1) hard disk drives (HDD);
- 2) drives floppy disks
- 3) magneto-optical compact disc drives;
- 4) optical disk drives (CD-ROM);
- 5) the tape drives, etc.

22

Hard magnetic disk

Hard disk drives (HDD) is a high-capacity storage device in which data carriers are non-replaceable round hard plates, both surfaces of which are covered with a layer of magnetic material. Hard magnetic disks are placed on one axis, they are enclosed in a metal body and rotating at high angular speed.

In comparison with disk drives hard drives have a number of very valuable advantages :

- the volume of stored data is immeasurably larger (up to several thousand GB),
- access time at the hard drive is much less.

- **Manufacturer:** Seagate, Maxtor, Western Digital, Hitachi, Samsung
- **Capacitance :** 4000 Gb
- **Rotational speed :** 7200rp/m, 10000rp/m
- **Connection :** IDE, SATA, SCSI

23

Floppy Disk Drive

5,25" (inches')

3,5" (inches')

1,44 MB
300 rp/m

разрешение записи

- Floppy Disk Drive as a storage medium use floppy disks-small amount of information that are designed to transfer information from one computer to another.
- Any magnetic disk is not initially ready for operation. To bring it into working condition it must be formatted.
- When formatting, the disk surface is divided into magnetic concentric tracks divided into sectors. The number of tracks and sectors depends on the type and format of the floppy disk. The sector stores the minimum amount of information that can be written to disk or read. The sector capacity is constant at 512 bytes.

24

 **Magneto-optical disc**

A magneto-optical disk is a data carrier combining the properties of optical and magnetic storage devices. For the first time magneto-optical disc appeared in the early 80-ies

A magneto-optical disk interacts with the operating system as a hard disk, so it can be formatted into a standard file system (for example: FAT, NTFS, HPFS, etc.)

Advantages:
 Low susceptibility to mechanical damage
 Weak susceptibility to magnetic fields
 Guaranteed quality of the recording



25

 **The magnetic tape drives**

Streamer also a tape drive — storage device on the principle of magnetic recording on tape, with sequential access to data, the principle of operation is similar to a household tape recorder.

Main purpose: recording and playback of information, backup and restore data

Advantages:
 High capacity;
 Low cost and wide storage conditions of information media;
 Stability of work;
 Reliability;
 Low power consumption for a large tape library.



26

 **Optical (laser) CD and DVD discs**

- **Optical disk drives** are devices that record information and read information using laser radiation.
- Information is recorded on two main types of disks-CD (Compact Disk) with a capacity of about 700 MB and DVD (Digital Video Disk) with a capacity of several GB.

- Audio CD (compact disk) Diameter 12 cm
 CD-ROM, CD-R, CD-RW:
 650-700 Mб
 CD-ROM – reading
 CD-R-single recording
 CD-RW – multiple recording
- mini-CD (-R, -RW)
 diameter 8 cm
 210 Mб



27

 **Classification of printers by printing technology**

- Matrix
- Inkjet
- Laser
- LED-printers
- Printers with dye phase
- Thermal sublimation printers
- Printers with thermal transfer of wax mastic

31

 **Main user characteristics:**

- Format-normal format allows you to print on A4 paper (210x297 mm), wide – on A3 paper (297x420). In addition to these most common sizes, there are also printers A2, A1 and A0 (the latter are often called inkjet plotters), they are usually used in design studios and design offices.
- Resolution – the value of the smallest details of the image transmitted when printing without distortion. Measured in dpi (dot per inch) – the number of individual dye points applied per inch of paper.
- Number of colors.
- Performance – the number of characters or pages printed per second or minute. It is measured for matrix printers in cps (character per second) – the number of characters printed per second, for inkjet and laser printers in ppm (pages per minute) – the number of pages printed per minute.

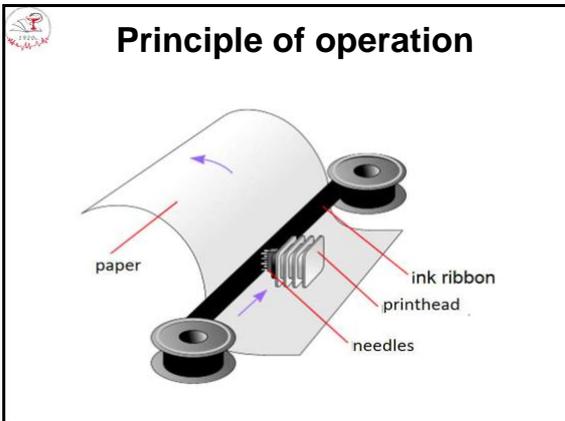
32

 **Matrix printer**
Characteristics:

Resolution	72 – 360 dpi
Number of colors	One color
Performance	small



33



34

Advantages and disadvantages of matrix printers

Advantages	Disadvantages
<ul style="list-style-type: none"> •Low price of the printer and consumables. •The ability to print under the copy tracing paper. •Not demanding of paper. 	<ul style="list-style-type: none"> •Average print quality. •High noise level.

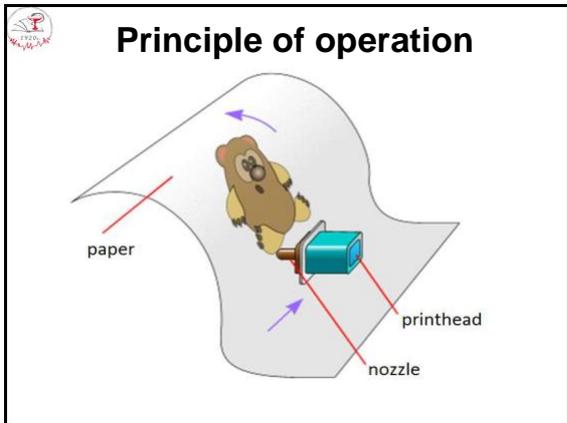
35

Inkjet printer

Characteristics:

Resolution	Till 1440 dpi
Number of colors	One color (black) or four colors
Performance	Printing in normal quality mode is 3-4 ppm. Color printing a little longer

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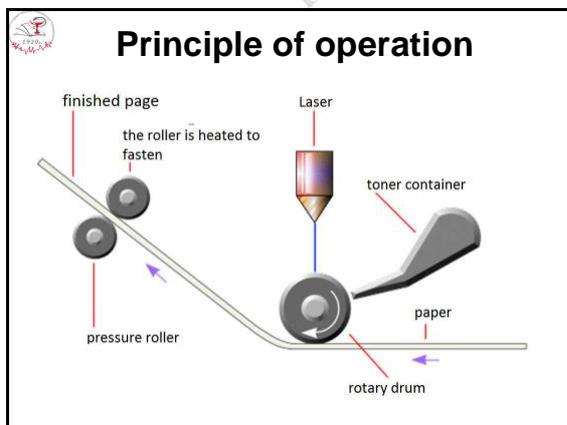
37

Laser printer

Characteristics:

Resolution	600 – 1200 dpi
Number of colors	One color
Performance	12 ppm

38



39

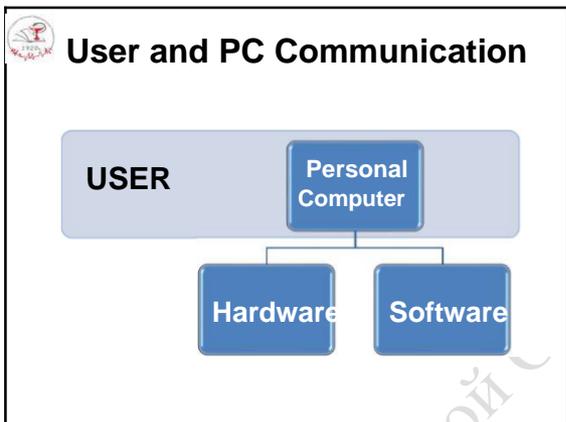
Lecture № 3. Information Technology Software. Windows operating system. General principles. Standard and utility programs. Word 2010 text editor. Excel spreadsheets

PC

- a computer is a software-controlled electronic system for working with information;
- a personal computer (PC) differs from a computer only in the degree of versatility of the two components of a PC: hardware and software;
- due to its universality (simplification), a PC user (person) combines in his person the functions of an electronic engineer, programmer and the user itself.

The PC user must understand the purpose, classification and features of the software.

1



2

Basic software concepts

**6) Algorithm;
Program.**

3



Algorithm

An algorithm is an accurate and trouble-free prescription of the actions that must be performed.

Algorithm Properties:

- discreteness - the algorithm is divided into individual elementary steps;
- certainty - each team uniquely determines the action of the performer;
- finiteness (effectiveness) - the algorithm must be completed in a finite number of steps;
- directions are provided for all possible scenarios.

4



Methods for specifying algorithms

in the form of flowcharts;
using natural language;
any conventional signs;
but if we want the algorithm to be executed by a computer, it must be written in a special formalized language - a programming language.

5



Programming languages

Depending on the level of detail of the prescriptions, the level of the programming language is usually determined

- the less detailed the level of language. The following levels of programming languages are distinguished:

- machine;
- machine-oriented;
- machine independent (high level languages).

6



Programming languages

High level programming languages.

Writing an algorithm in such a language is a sequence of commands denoted by natural language words or their abbreviations. Each of them corresponds to a sequence of dozens, or even hundreds of machine instructions. As a result, the recording is more compact and understandable to humans.

7



Programming languages

High-level programming languages are divided into:
procedural (algorithmic) (Basic, Pascal, Fortran, etc.), which are intended for an unambiguous description of the algorithms; to solve a problem, procedural languages require in one form or another to explicitly record the procedure for solving it;
logical (Prolog, Lisp, etc.), which are focused not on the development of an algorithm for solving the problem, but on a systematic and formalized description of the problem so that the solution follows from the compiled description;
object-oriented (Object Pascal, C ++, Java, etc.), which are based on the concept of an object that combines data and actions on them. A description of reality in the form of a system of interacting objects is more natural than in the form of interacting procedures.

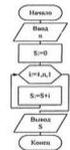
8



Program

- writing an algorithm using a programming language is called a program (program listing).
- However, the program also means the end result in the form of machine code. This result is recorded as a program file with the extension .exe, .com, .sys.

algorithm	listing program	program file
-----------	-----------------	--------------



```

Program ex:
For
  i, n, S:integer;
Begin
  WriteLn('Bechime n');
  ReadLn(n);
  S:=0;
  for i:=1 to n do
    S:=S+i;
  WriteLn('Сумма : n, ' 'vices panna' ; S);
End.
  
```



9

How a machine understands commands

calculus systems: binary and others;
 for technical reasons, binary coding is the "native language" of computers;
 any decimal number is represented by a binary number. For example, the number 13 has the form: 1101;
 when encoding text for each of its characters is allocated, usually by byte. This allows you to use 28 = 256 different characters. In practice, you must be able to read text created on another computer on one computer. Therefore, encoding tables are standardized.

10

For the Russian language, five encoding tables are used:

CP866 (DOS-alternative) - on PC-compatible computers when working with DOS and OS / 2 operating systems;
CP1251 (Windows encoding) - on PC-compatible when working under Windows;
KOI-8r is the oldest encoding so far used. Used on computers running UNIX, it is the de facto standard for Russian texts on the Internet.
Macintosh Cyrillic - as the name implies, is designed to work with all Cyrillic languages on Macs.
ISO-8859. This encoding was conceived as an international standard for Cyrillic texts.

11

Code tables

<p>Кодировка MS Windows (CP1251) - используется в MS Windows. Русские буквы в кодировке MS Windows</p> <table border="1"> <tr><td>Code</td><td>00</td><td>01</td><td>02</td><td>03</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>0A</td><td>0B</td><td>0C</td><td>0D</td><td>0E</td><td>0F</td></tr> <tr><td>80</td><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>8A</td><td>8B</td><td>8C</td><td>8D</td><td>8E</td><td>8F</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>9A</td><td>9B</td><td>9C</td><td>9D</td><td>9E</td><td>9F</td><td>A0</td><td>A1</td></tr> <tr><td>A2</td><td>A3</td><td>A4</td><td>A5</td><td>A6</td><td>A7</td><td>A8</td><td>A9</td><td>AA</td><td>AB</td><td>AC</td><td>AD</td><td>AE</td><td>AF</td><td>B0</td><td>B1</td><td>B2</td></tr> <tr><td>B3</td><td>B4</td><td>B5</td><td>B6</td><td>B7</td><td>B8</td><td>B9</td><td>BA</td><td>BB</td><td>BC</td><td>BD</td><td>BE</td><td>BF</td><td>C0</td><td>C1</td><td>C2</td><td>C3</td></tr> <tr><td>C4</td><td>C5</td><td>C6</td><td>C7</td><td>C8</td><td>C9</td><td>CA</td><td>CB</td><td>CC</td><td>CD</td><td>CE</td><td>CF</td><td>D0</td><td>D1</td><td>D2</td><td>D3</td><td>D4</td></tr> <tr><td>D5</td><td>D6</td><td>D7</td><td>D8</td><td>D9</td><td>DA</td><td>DB</td><td>DC</td><td>DD</td><td>DE</td><td>DF</td><td>E0</td><td>E1</td><td>E2</td><td>E3</td><td>E4</td><td>E5</td></tr> <tr><td>E6</td><td>E7</td><td>E8</td><td>E9</td><td>EA</td><td>EB</td><td>EC</td><td>ED</td><td>EE</td><td>EF</td><td>F0</td><td>F1</td><td>F2</td><td>F3</td><td>F4</td><td>F5</td><td>F6</td></tr> <tr><td>F7</td><td>F8</td><td>F9</td><td>FA</td><td>FB</td><td>FC</td><td>FD</td><td>FE</td><td>FF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Code	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F	90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF	E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF									<p>Кодировка MS DOS (CP866) - используется в OS MS DOS 6.22 для IBM PC. Русские буквы в кодировке MS DOS</p> <table border="1"> <tr><td>Code</td><td>00</td><td>01</td><td>02</td><td>03</td><td>04</td><td>05</td><td>06</td><td>07</td><td>08</td><td>09</td><td>0A</td><td>0B</td><td>0C</td><td>0D</td><td>0E</td><td>0F</td></tr> <tr><td>80</td><td>81</td><td>82</td><td>83</td><td>84</td><td>85</td><td>86</td><td>87</td><td>88</td><td>89</td><td>8A</td><td>8B</td><td>8C</td><td>8D</td><td>8E</td><td>8F</td><td>90</td></tr> <tr><td>91</td><td>92</td><td>93</td><td>94</td><td>95</td><td>96</td><td>97</td><td>98</td><td>99</td><td>9A</td><td>9B</td><td>9C</td><td>9D</td><td>9E</td><td>9F</td><td>A0</td><td>A1</td></tr> <tr><td>A2</td><td>A3</td><td>A4</td><td>A5</td><td>A6</td><td>A7</td><td>A8</td><td>A9</td><td>AA</td><td>AB</td><td>AC</td><td>AD</td><td>AE</td><td>AF</td><td>B0</td><td>B1</td><td>B2</td></tr> <tr><td>B3</td><td>B4</td><td>B5</td><td>B6</td><td>B7</td><td>B8</td><td>B9</td><td>BA</td><td>BB</td><td>BC</td><td>BD</td><td>BE</td><td>BF</td><td>C0</td><td>C1</td><td>C2</td><td>C3</td></tr> <tr><td>C4</td><td>C5</td><td>C6</td><td>C7</td><td>C8</td><td>C9</td><td>CA</td><td>CB</td><td>CC</td><td>CD</td><td>CE</td><td>CF</td><td>D0</td><td>D1</td><td>D2</td><td>D3</td><td>D4</td></tr> <tr><td>D5</td><td>D6</td><td>D7</td><td>D8</td><td>D9</td><td>DA</td><td>DB</td><td>DC</td><td>DD</td><td>DE</td><td>DF</td><td>E0</td><td>E1</td><td>E2</td><td>E3</td><td>E4</td><td>E5</td></tr> <tr><td>E6</td><td>E7</td><td>E8</td><td>E9</td><td>EA</td><td>EB</td><td>EC</td><td>ED</td><td>EE</td><td>EF</td><td>F0</td><td>F1</td><td>F2</td><td>F3</td><td>F4</td><td>F5</td><td>F6</td></tr> <tr><td>F7</td><td>F8</td><td>F9</td><td>FA</td><td>FB</td><td>FC</td><td>FD</td><td>FE</td><td>FF</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr> </table>	Code	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	80	81	82	83	84	85	86	87	88	89	8A	8B	8C	8D	8E	8F	90	91	92	93	94	95	96	97	98	99	9A	9B	9C	9D	9E	9F	A0	A1	A2	A3	A4	A5	A6	A7	A8	A9	AA	AB	AC	AD	AE	AF	B0	B1	B2	B3	B4	B5	B6	B7	B8	B9	BA	BB	BC	BD	BE	BF	C0	C1	C2	C3	C4	C5	C6	C7	C8	C9	CA	CB	CC	CD	CE	CF	D0	D1	D2	D3	D4	D5	D6	D7	D8	D9	DA	DB	DC	DD	DE	DF	E0	E1	E2	E3	E4	E5	E6	E7	E8	E9	EA	EB	EC	ED	EE	EF	F0	F1	F2	F3	F4	F5	F6	F7	F8	F9	FA	FB	FC	FD	FE	FF								
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Sound and Image Encoding

- Sound vibrations, a video image, a graphic image are also encoded in the form of portions of voltage pulses carrying information in a binary extinction system.

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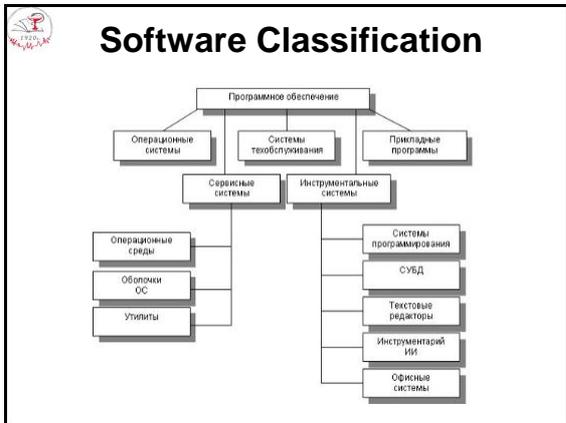
Software Classification

The set of programs and data intended for their processing is called PC software.

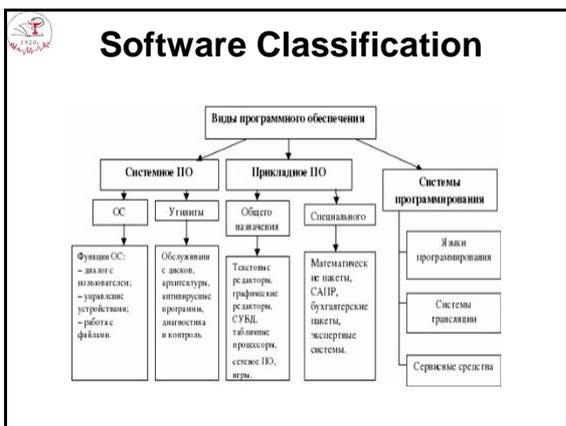
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Software Classification

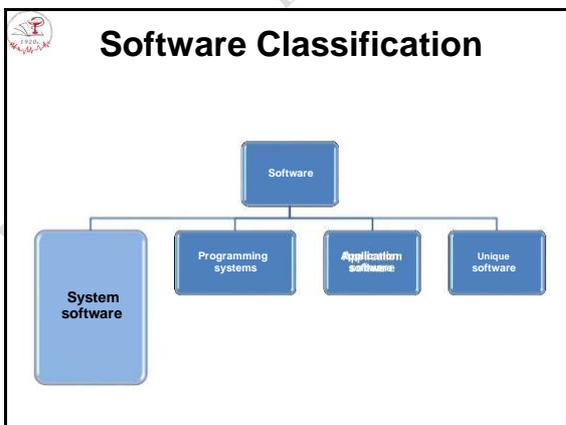
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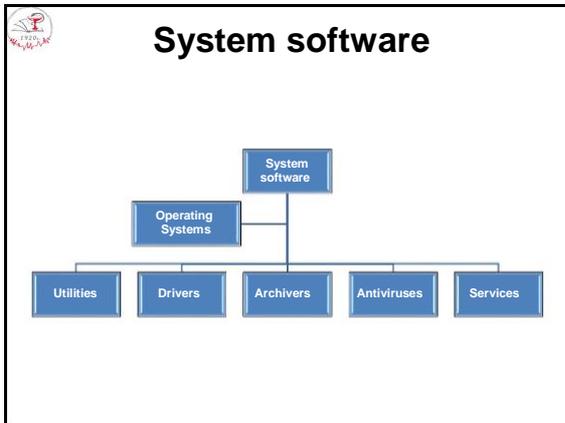
16



17



18



19

Operating system

- The operating system is the most important part of computer software designed to automate the planning and organization of the process of processing programs, input-output and data management, resource allocation, preparation and debugging of programs, and other auxiliary maintenance operations
- The operating system is a software extension of the computer control device
- The operating system is usually stored in the external memory of the computer - on disk (HD). When you turn on the computer, it is read from disk memory and placed in RAM.
- This process is called booting the operating system.



20

Operating system features

- 211 dialogue with the user;
- 212 input-output and data management;
- 213 planning and organizing the process of processing programs;
- 214 distribution of resources (RAM and cache, processor, external devices);
- 215 running programs for execution;
- 216 all kinds of auxiliary maintenance operations;
- 217 information transfer between various internal devices;
- 218 software support for peripheral devices (display, keyboard, disk drives, printer, etc.);
- 219 network connection support.

21



Types of Operating Systems

- The first successful operating system is UNIX (1969). It still remains one of the main systems on computers that are more powerful than personal ones and many UNIX-like operating systems are generated from it.
- In 1981, IBM released a personal computer (IBM PC), whose architecture has become the standard in the world. All personal computers are usually divided into IBM-compatible (the absolute majority) and IBM-incompatible, for example, a Macintosh computer manufactured by Apple. Macintosh computers are running the MacOS operating system.
- In 1982, Microsoft released the MS-DOS (Disc Operating System) operating system, which has become the most popular operating system for IBM-compatible PCs for many years.
- In 1985 - the same Microsoft released the first version of Windows, which initially functioned as a DOS application;

22



Types of Operating Systems

1991 - the year of birth of the Linux operating system - the main competitor of Windows, which is becoming more widespread.

In 1995, Microsoft released the Windows-95 operating system, which is already working independently. The Windows line has evolved and today is the most common operating system with the most popular applications. The latest versions of Windows: Windows-98, Windows-2000, Windows-XP, Windows Vista, Windows 7, Windows 10.

In addition, you can list many names of operating systems from various manufacturers, for example: Netware (Novell), OS / 2 (IBM), SunOS (Sun Microsystems), Java Desktop System (Sun Microsystems), FreeBSD (one of the open source branches of UNIX) and etc.

23



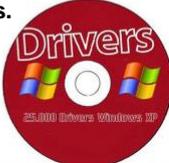
Utilities

- Important classes of system programs are auxiliary programs - utilities (lat. Utilitas - good).
- They either expand and supplement the corresponding capabilities of the operating system, or solve independent important tasks.
- Some utilities are part of the operating system, and the other part functions independently of it, i.e. offline
- monitoring, testing, diagnostic programs to verify the correct functioning of computer devices and to detect malfunctions during operation; indicate the cause and place of the malfunction;
- programs for writing to CDs;
- shell programs for managing files;
- and many others.

24

 **Drivers**

- driver programs that expand the capabilities of the operating system to manage I/O devices, RAM, etc .;
- with the help of drivers, it is possible to connect new devices to the computer or non-standard use of existing ones.



25

 **Archivers**

- packer programs (archivers) that allow recording information on disks more densely, as well as combine copies of several files into one archive file;
- archiver programs differ in various degrees of compression.



26

 **Antiviruses**

- A computer virus is a specially written small-sized program that can "attribute" itself to other programs to perform any harmful (for you) actions - it corrupts files, "clogs" RAM, transfers information over the network, etc .;
- anti-virus programs are used to prevent infection of PC software with computer viruses and to eliminate the consequences of virus infection.



27



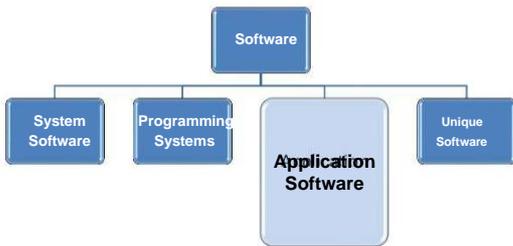
Types of programming systems

- Translator is a translation program. It converts a program written in one of the high-level languages into a program consisting of machine instructions.
- Translators are implemented as compilers or interpreters. In terms of doing the work, the compiler and the interpreter differ significantly.
- The compiler reads the entire program, makes its translation and creates a finished version of the program in machine language, which is then executed.
- The interpreter translates and executes the program line by line.
- After the program is compiled, neither the source program nor the compiler is needed anymore. At the same time, the program processed by the interpreter must be re-translated into machine language each time the program is launched again.

31



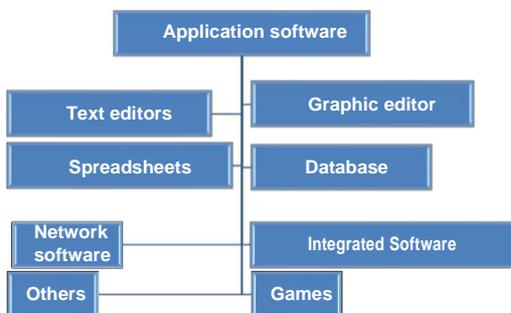
Software Classification



32



Application software



33

 **Text editor**

- A text editor is a program used specifically for entering and editing text data.
- This data can be a program or some document or a book. Editable text is displayed on the screen, and the user can interactively make changes to it.





34

 **Text editor**

Text editors can provide a variety of functions, namely:

1. editing lines of text;
2. the ability to use various character fonts;
3. copying and transferring part of the text from one place to another or from one document to another;
4. contextual search and replacement of parts of text;
5. assignment of arbitrary line spacing;
6. automatic hyphenation of words on a new line;
7. automatic page numbering;
8. processing and numbering of footnotes;
9. alignment of paragraph margins;
10. creating tables and charting;
11. spelling check of words and selection of synonyms;
12. building tables of contents and subject indexes;
13. listing of the prepared text on the printer in the required number of copies, etc.

35

 **Types of Text Editors**

The possibilities of text editors are varied - from programs designed to prepare small documents of a simple structure, to programs for typing, designing and fully preparing for printing books and magazines (publishing systems).

- The most famous text editor is Microsoft Word.
- Full-featured publishing systems - Microsoft Publisher, Corel Ventura, and Adobe PageMaker.
- Publishing systems are indispensable for computer typesetting and graphics. Significantly facilitate the work with multi-page documents, have the ability to automatically break text into pages, arrange page numbers, create headings, etc. Creating layouts for any publication - from handouts to multi-page books and magazines - is becoming very simple, even for beginners.

36

 **Graphic editors**

- A graphic editor is a program designed to automate the processes of building graphic images on a display screen. Provides the ability to draw lines, curves, paint areas of the screen, create labels in different fonts, etc.



37

 **Spreadsheets**

- A table processor (spreadsheets) is a set of interconnected programs designed to process spreadsheets.
- A spreadsheet is the computer equivalent of a regular table consisting of rows and graphs at the intersection of which are cells that contain numerical information, formulas or text.




38

 **Databases**

A database is one or more data files designed to store, modify and process large volumes of interconnected information.

In the enterprise database, for example, can be stored:

- all staffing information,
- about patients with healthcare facilities;
- information on material values;
- insurance data;
- information on stocks in pharmacy warehouses;
- statement data;
- orders and instructions of the directorate, etc.



39



Database Management Systems (DBMS)

- Database Management System (DBMS) is a specialized software package designed for convenient and efficient organization, monitoring and administration of databases.
- As a structural form of a DBMS, any of the models existing today can be used. An example of such a model is a relational DBMS or other DBMS.

40



Network software

- Network software is designed to organize the collaboration of a group of users on different computers. Allows you to organize a common file structure, shared databases available to each member of the group. Provides the ability to send messages and work on common projects, the ability to share resources.



41



Integrated Software

- Integrated packages are a set of several software products integrated into a single convenient tool. The most developed of them include a text editor, organizer, spreadsheet, DBMS, email support tools, presentation graphics creation program.

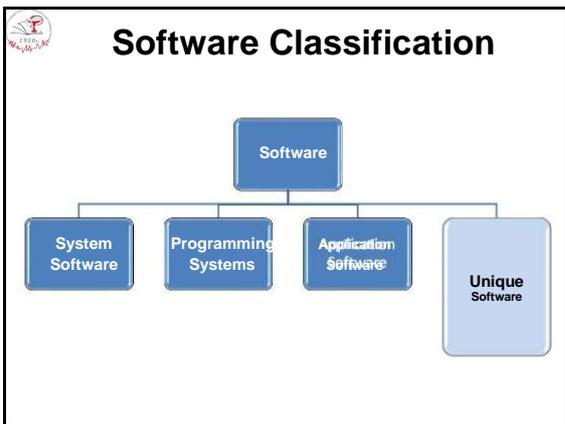
42

 **Games and other software**

- Application software includes a large class of various GAMES;
- Among games there is a classification;
- Computer video game lovers are gamers.



43



44

 **Unique software**

Software that is not used on personal computers:

- spacecraft control systems,
- computer models of global cataclysms, etc.

45



Software Copyright

- Proprietary software is software that is privately owned by authors or copyright holders and does not meet the criteria for free software. The copyright holder of proprietary software reserves the monopoly on its use, copying and modification, in full or in essential aspects.
- Using a license agreement, a legal relationship is established for the use of the program.

46



Typical Proprietary Software Limitations

- Restriction on commercial use - allows free use for non-commercial purposes for individuals, medical and educational institutions, for non-commercial organizations, etc., however, they require payment in case of using a software product for profit. Such software is very popular and widely used, and due to its free of charge it has good technical support from specialists who do not need additional training costs.

47



Typical Proprietary Software Limitations

- Distribution restriction - this type of restriction usually accompanies large software projects when the copyright holder requires payment for each copy of the program. Typically, with such a restriction, software products are used that focus on a narrow "professional" market segment or for software that requires a large number of users. An example is the Adobe CS3 software package or the Windows XP operating system.

48



Typical Proprietary Software Limitations

- **Modification restriction** - this type of restriction is used only in closed source software packages and may prohibit or restrict any modification of program code, disassembly and decompilation.

49



Software installation

- after purchasing a software product on a specific medium, the program is installed on the computer (the program is read using the Setup.exe file);
- further activate the program using a code, an electronic key;
- in case of free use, activation is not required.



50

Размещено кафедрой

ЦИМ КИБИТУ www.kisma.ru

Lecture № 4. Local and global information networks. Using information resources of the Internet to solve various medical problems



Network definition

- A physical network forms when two or more computers are physically connected.
- To create computer networks, special hardware is needed - network equipment and special software - network software.
- If the network has a special computer dedicated for sharing by network participants, it is called a file server.



1



Network classification

1. By territorial distribution

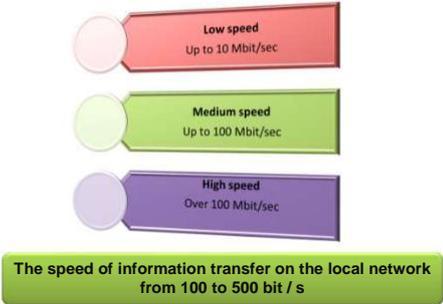


2

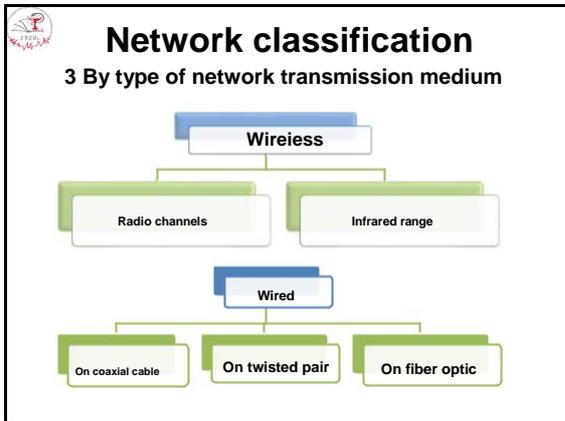


Network classification

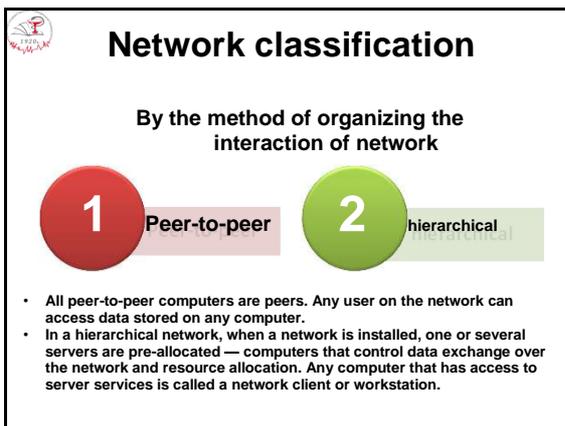
2. By information transfer rate



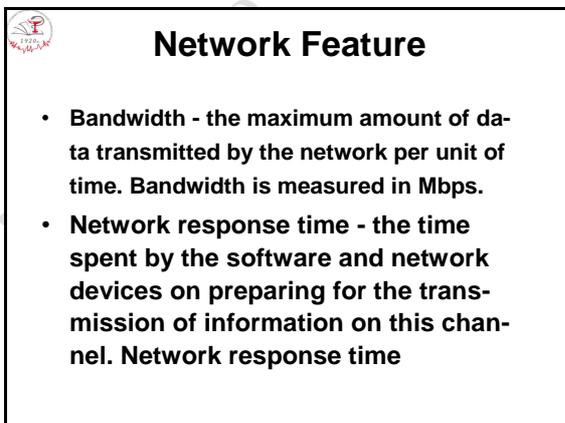
3



4



5



6

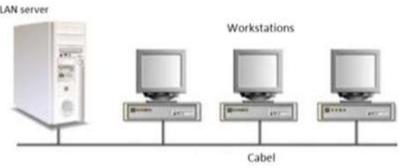
Network topologies

- Network topology refers to the physical or electrical configuration of a cable system and network connections.
- network node - a computer, or a network switching device.
- network branch - a path connecting two adjacent nodes.
- terminal node - a node located at the end of one branch..



7

1. Topology "General (linear) Bus"



- In this case, connection and data exchange is carried out through a common communication channel called a common bus.
- Transmitted information may be spread in both directions.

8

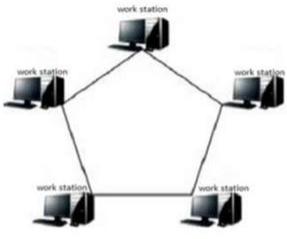
2. Topology "Star"



In this case, each computer is connected by a separate cable to a common device called a hub, which is located in the center of the network.

9

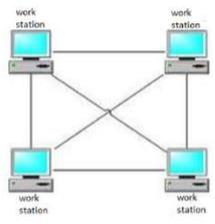
3. Topology "Ring"



In networks with a ring topology, data in the network is transmitted sequentially from one station to another along the ring, usually in one direction

10

4. Cellular topology

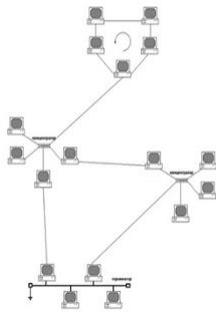


A mesh topology is characterized by a computer connection scheme in which physical communication lines are installed with all nearby computers.

11

5. Mixed topology

- Mixed topology - the network topology prevailing in large networks with arbitrary connections between computers.
- In such networks, it is possible to distinguish individual arbitrarily connected fragments (subnets) having a typical topology, therefore they are called networks with a mixed topology.



12



Network architecture

- To ensure the necessary compatibility at each of the seven possible levels of computer network architecture, special standards or rules called protocols are applied. They determine the nature of the hardware interaction of network components (hardware protocols) and the nature of the interaction of programs and data (software protocols).
- Physically, protocol support functions are performed by hardware devices (interfaces) and software (protocol support programs). Programs that support protocols are also called protocols.
POP3, TCP/IP, PPP (Network protocol), PPPoE, DNS, Ethernet.

13



Network equipment

- The main components of the network are workstations, servers, transmission media (cables) and network equipment.
- Workstations are network computers where network users implement application tasks.
- Network servers are hardware and software systems that perform the functions of controlling the distribution of network shared resources. A server can be any computer connected to the network on which the resources used by other devices on the local network are located.



14



Cable types

1. Twisted pair



Coaxial cable

• Fiber optic cable



15



Types of network equipment

1. Network cards



2. Terminators



16



Types of network equipment

- Hubs



- Communicators (Switch)



17



Types of network equipment

- Router



- Bridge



18

 **Types of network equipment**

Gateway



• Firewall



19

 **Global network**

- 1) The Internet is a worldwide system of integrated computer networks for storing and transmitting information. Built on the basis of the TCP / IP protocols.
- 2) • Internet information resources - this is the totality of information technologies and databases available with the help of these technologies and existing in constant updating mode. To their number:
 Email,
 Database WWW,
 Search engines.
 WWW — abbreviation «World Wide Web»



20

 **Domain Name Registration**

WWW-server uses hypertext technology. To record documents in hypertext, a special, but very simple HTML language (Hypertext Markup Language) is used, which allows you to control fonts, indents, insert color illustrations, supports sound and animation output.

Internet domains vary in hierarchy levels.

Top-level domains classify organizations by type:

gov (government),
 edu (educational),
 org (organization),
 net (main network support centers), mil (military groups), int (international),
 com (commercial),
 <country code> (any country, geographical point).



21

 **Internet Protocols**

- SMTP is used to send mail from users to servers and between servers for further forwarding to the recipient. Data is transmitted using TCP, using ports 25 or 587. SMTP was widely used in the early 1980s.
- POP3 (from the English Post Office Protocol Version 3 - Post Office Protocol version 3) is a network protocol used to deliver e-mail messages to recipients on TCP / IP networks. Commonly used in conjunction with the SMTP protocol. By default, uses TCP port 110.

25

 **Browsers**

To view the information received from the web server, a special program is used on the client computer - a web browser.

The main function of a web browser is displaying hypertext. Hypertext is text marked up with the HTML hypertext markup language, after HTML markup the resulting hypertext is placed in a file, such an HTML file is the most widespread resource on the World Wide Web.

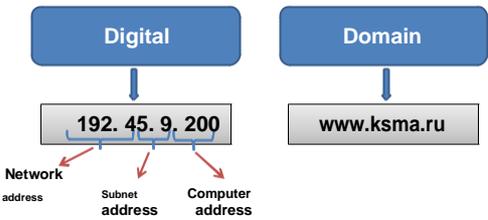
After the HTML file is available to the web server, it is called the "web page". A set of web pages forms a website. Hyperlinks are added to the hypertext of web pages



26

 **Internet addressing**

Two formats:
IP – Address (digital)
DNS – Address (domain)



The diagram illustrates two address formats: Digital and Domain. The Digital address is 192.45.9.200, which is broken down into three parts: Network address (192), Subnet address (45), and Computer address (200). The Domain address is www.ksma.ru.

27

Lecture № 5. Computer-mediated systems in medicine. Ways and means of informatization in medicine and Health care



Data

- In a broad sense data represents facts, texts, schedules, pictures, sounds, analogue or digital video-segments.
- Data can be received from result of measuring, experiments, arithmetic and logical operations .
- Data should be presented in a form suitable for storage, transfer and processing.



1



Measurement

3.Measurement is a process of attribution numbers for characteristics of explored objects according to a certain rule.

4.Scale is a rule which in accordance with the objects are being given numbers.

2



Scales

There are 5 types of the scales of the measurement :

- nominal,
- ordinal,
- interval,
- ratio,
- dichotomous.

3

Nominal scale

Nominal scale is a scale which includes only categories; its data cannot be streamlined, no arithmetical operations can be performed on the data.

Assessed indicator : Punctuality

1	2	3	4	5
Extremely Low	Low	Normal	High	Extremely High

Pic. 7. 4. Example of nominal scale

4

Ordinal scale

Ordinal scale is a scale that uses labels to classify cases (measurements) into ordered classes; to designation numbers for object to mean the relative object position, but not for difference between it.

Pic. 6.2. The design of the decision sheet of standart evaluation on factor N16- factories personal questionnaire. By I.E. Kettef
From the bottom- intervals unit 1/2 of standart deviation.

5

Interval scale

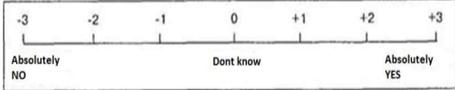
Interval scale is a scale whose differences between values can be calculated, but their relationship makes no sense.

Pic.2. Interval scale for 5 sizes

6

 **Ratio scale**

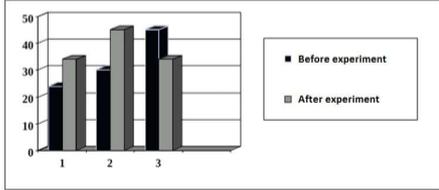
Ratio scale is a scale which has a definite point of reference and in which the attitude between scale values are possible.



7

 **Dichotomous scale**

Dichotomous scale is a scale which has only two categories.



Category	Before experiment	After experiment
1	25	35
2	30	45
3	45	35

8

 **Table data**

Table data is data which is composed of entries each of which consists of a fixed set of attribute.

Tabular data organization

"Toys"			
Name	Material	Color	Quantity
balls	wood	red	75
cubes	wood	blue	20
dolls	plastic	green	34

9

Database

Database is data which is well-organized and electronically stored.

Book name	Author	Publisher	Release	Page count	ISBN	Pictures	Section
Microsoft Excel	Kalashnikov	SPB	2008	603	978-5-9041-041-8	Pic	100
Microsoft Office 2000 Study course	Kurber	SPB	2002	640	5-271-00095-6	Pic	100
Accessibility language programming	Pozharov	Moscow	1998	289	5-96404-051-7	Pic	100
VB6.0 Fox programming	Pogov	Moscow 2	1997	375	5-082-02015-8	Pic	100
Database administration course	Stakhov	SPB	2004	483	5-54957-277-8	Pic	100
Physics reference materials	Kabardin	Moscow PC	1991	387	5-59-00308-1	Pic	100
Physics lessons in the classroom	Sapozhnikov	Moscow detale	1993	413	5-28-32551-9	Pic	100
Calculus	Shabanova	Extra Fantastika	1996	493	5-7921-0369-3	Pic	100

10

DBMS

Database Management System is a software for creating database, storing and searching for the necessary information.

```

    graph TD
      A([Possibilities of DBMS]) --> B[Creation of databases]
      A --> C[Data sorting]
      A --> D[Filling databases]
      A --> E[Search for information in the DB]
      A --> F[Output information from the DB]
      A --> G[The installation of the protection DB]
  
```

11

DBMS

```

    graph TD
      DBMS([Database Management System]) --> Database[Database]
      DBMS --> Programmes[Programme envelopes]
      Database --> MainFunctions[Main functions]
      Database --> Model[Database model]
      Database --> Linkages[Types of linkages]
      MainFunctions --> Storage[Storage and maintenance of structural information (data)]
      MainFunctions --> Conversion[Conversion of stored view to structural information on some request]
      Model --> Relational[Relational database]
      Model --> Hierarchical[Hierarchical database]
      Model --> Network[Network database]
      Linkages --> ObjRel[Relationship between objects]
      Linkages --> AttrRel[Relationship between attributes of the same object]
      ObjRel --> Connections[Types of connection]
  
```

12

Relational database

In relational model of data any representing of terms is confined to a totality of relational tables (two-dimensional specific type table). Relational database management systems are used for construction of data warehouses.

13

Main components of relational attitude

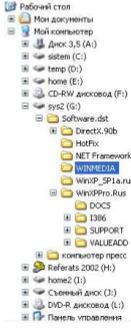
whole	line		whole		Data types
number	name	post	money		Domain
Personal number	Name	Post	Salary	Bonus	Attributes
2934	Ivanov	engineer	112	40	}Tuples
2935	Petrov	senior engineer	144	50	
2936	Sidorov	accountant	92	35	

↑
Key

14

Hierarchical database

- Hierarchical database can be graphically presented like a tree composed of the different-level objects. The top level is occupied by one object, the second is occupied by objects of the second level and etc.
- These objects are in relation to the ancestor (object, which more close to root) to the descendant (lower-level object).
- There is possibility that object-ancestor does not have descendants or has more than one, while object-descendant may have only one ancestor.
- Objects which have a common ancestor are named twins.



15

 **Network database**

The network database is formed by generalization of the hierarchical database due to the assumption of objects having more than one ancestor, i.e. each element of the higher level can be associated simultaneously with any elements of the next level.

The network database consists of a series of copies of a certain types of record and a series of copies of certain types of connections between this records.

The network database is in fact the World Wide Web of global computer network - Internet. Hyperlinks connect hundreds of millions documents in a single distributed network database.



16

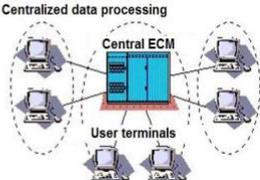
 **Methods for processing data**

- **Centralized**
- **Decentralized**
- **Distributed**
- **Integrated**

17

 **Centralized data processing**

- Implies the presence of a Central computing object (center);
- The user supplies (transmits) the initial information (data) to Computing centre;
- The user receives the results of processing;
- Difficulty in organization of channels of communities;
- Difficulty in organization of data protection.



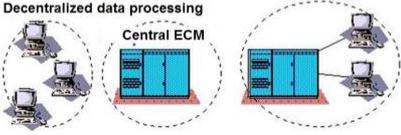
18

 **Decentralized of data processing**

Types of technology

5. **Base: PC without networking**
6. **Base: PC networked without server**
7. **Base: PC networked with server in mode «client-server»**

Decentralized data processing



19

 **Decentralized data processing**

Way of distribution:

- Partitioning an information base into several physically distributed bases
- Every user uses his database which is a part of common DB
- Database is installed at several servers

20

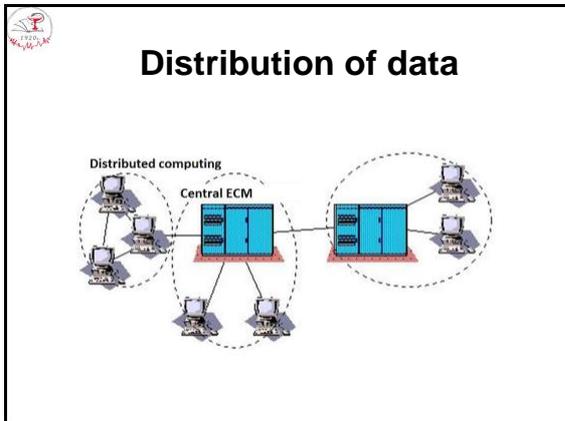
 **Decentralized data processing**

Way of duplication:

Complete database is posted at every server

Synchronization is required for data harmonization

21



22

The modes of implementing data distribution

Depend on:

- Space-time settings of tasks
- Frequency
- Dispatch (speed)
- Requirement to speed of the processing
- Technical capacity

23

Types of modes of data distribution

- Batch mode
- Real-time mode
- Distribution of time mode
- Scheduling mode
- Query mode
- Dialogue mode
- Interactive mode
- One-program mode
- Multi-program mode
- Teleprocessing mode

24



Integrated data processing

- It provided for the creation of information model of the managed object, i.e. the creation of distributed database;
- It allows to improve quality, reliability and speed of processing since the processing is made on the basis of data backup which is put into an electronic computing machine only once;
- The peculiarity of this method is the separation of technologically and time processing procedures from the procedures of collection, preparation and data entry.

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Lecture № 6. Overview and classification of medical information system. Information security in a health system



Information systems in medicine

- In modern health care different technical means of information processing find application, beginning from the simplest maps with edge perforation and finishing the most perfect computers.
- Evolution of process of implementation in medicine and health care of computers, means of communication and the organizational equipment naturally leads to transition from incidental use of separate devices to full informatization of worker process.
- The different systems integrating technical means, mathematical methods and programs are created.
- They provide a necessary order of interaction at a solution of specific objectives of both medical, and technical character.

1



Definition

- The medical information system is the form of the organization of activity in medicine and health care integrating physicians, mathematicians, engineers, technicians with a complex of technical means and providing collecting, storage, processing and issue of information of a different profile in the course of a solution of certain tasks.



2



Purpose of MIS

The modern concept of medical information systems assumes association of the existing information resources on the following main groups:

- electronic stories of patients;
- results of laboratory diagnostic testings;
- financial and economic information;
- databases on medicines;
- databases of material resources;
- databases of work forces;
- expert systems;
- standards of diagnostics and treatment of patients, etc.



3

 **History of implementation of Information systems in medicine**

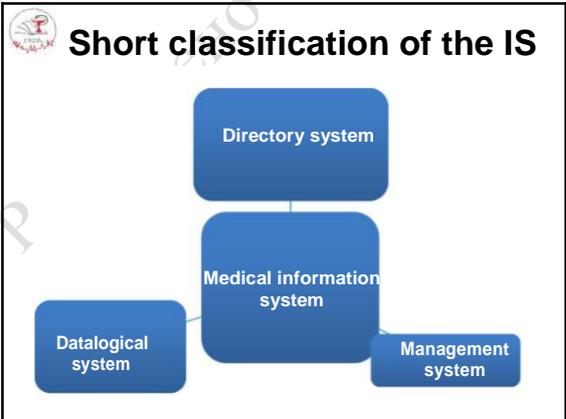
- One of the first systems "Automation of Accounting of Data on Incidence with Temporary Disability" began to function in 1975 in Medical and sanitary service of Oktyabrskaya Railway.
- In the early seventies abroad the information systems capable to solve the most various problems began to be implemented. Among them there is an information system of university clinic in the Tubing (Germany). It provides medical personnel with convenient access to the most necessary state-of-health data of patients and their treatment, carries out preparation of basic data for diagnostics process programming.
- In 1987 in a health care system of the Russian Federation 18 data processing centers and 40 departments of ACS worked.

4

 **Classification of MIS by functional criterion**

- The medico-technological IS intended for information support of processes of diagnostics, treatment, rehabilitation and prevention of patients in treatment and prevention facilities.
- The directory systems supporting banks of medical information for information service of medical institutions and services of management of health care.
- Statistical IS of governing bodies of health care.
- The research IS intended for information support of medical researches at clinical research institutes.

5



6



Directory system

- The largest, it is capable, except quick search of the necessary information in databanks, to carry out also its various conversions.




7



Purpose of medical directory systems

- They are capable to store in memory of "machine" of the clinical record, different data of bibliographic character, materials of annual, monthly and daily reports.
- There are systems with databanks about results of the conducted pilot and clinical trials, information of administrative and managerial character. These are data on diagnostics, duration of treatment and outcomes of a disease, a status of dispensary observation, etc. And the computer can provide with the necessary information not only the attending physician, but also organizers of health care of all service.

8



Datological system

- Its essential difference – ability to transform information which is in computer memory.
- And, such systems are capable to generate the new information which before was absent in information array.
- For this reason they will be able to be applied to diagnostics, forecasting and tracking different parameters of an organism.




9

 **Management system**

- Are known as managing or automated.
- All information which is processed in any of such systems will be organized in files.
- It is so accepted to call a data set.




10

 **Classification of MIS by structural technologically criterion**

1. The automated jobs and the IS of structural divisions of medical institutions (medical department, clinical laboratory, drugstore, etc.) – the first level or basic;
2. The IS of healthcare institutions (polyclinics, a hospital, the diagnostic center and so forth) – the second level;
3. The IS of territorial level (managements of health care, territorial fund of the obligatory medical insurance (OMI), etc.) – the third level;
4. The IS of federal level (The Ministries of Health of the Russian Federation, the federal centers, etc.) – the fourth level.

11

 **The first level**

Main objective – computer support of work of doctors of different specialties.

On solvable tasks select :

- directory systems (are intended for search and issue of medical information on a request);
- consulting and diagnostic systems (for diagnostics of pathological statuses, including the forecast and development of recommendations about ways of treatment);
- Instrument computer systems (for the information support and/or automation of diagnostic and medical process which are carried out at direct contact with the patient's organism);
- the automated jobs (AJ) of specialists (for automation of all technological process of the doctor of the corresponding specialty and providing information support at acceptance of diagnostic and tactical medical solutions).

12



The second level

It is presented by the following main groups:

- 3) information systems of the advisory centers (information support of doctors at consultation);
- 4) banks of information of health services (contain summarized data about the qualitative and quantitative list of employees of institution, the attached population);
- 5) the personified registers (containing information on the attached or observed contingent);
- 6) screening systems (for performing pre-medical routine inspection of the population);
- 7) information systems of treatment and prevention facility (association of all information flows in a single system and automation of establishment);
- 8) information systems of scientific research institute and medical schools.

13



The third level

Are presented :

IS of territorial authority of health care;
The IS for a solution of medico-technological tasks providing with information support activity of health workers of specialized health services;
The computer telecommunication medical networks providing creation of a common information space at the level of the region.

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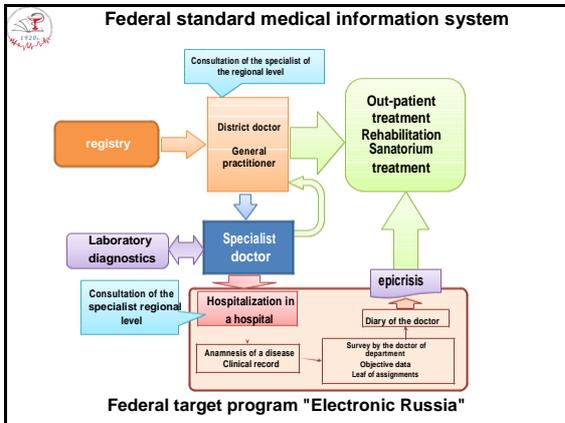


The fourth level

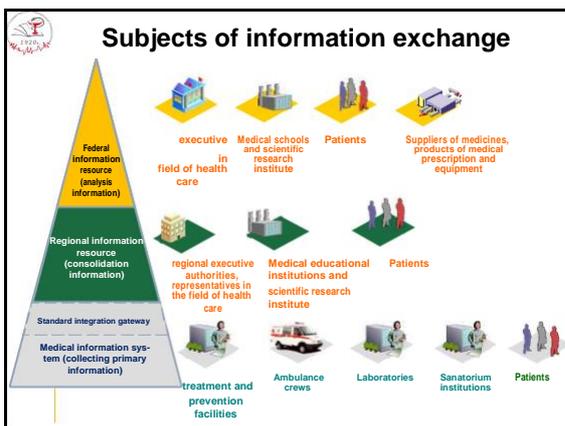
It is intended for information support of the state level of a health care system. At the federal level creation of management medical systems allows to solve the problems providing the strategic level of management:

- monitoring of implementation of the program of the state guarantees of rendering to citizens of the Russian Federation of free medical care;
- monitoring of implementation of the national Health project and monitoring of overall performance of public authorities (State automated system "Management");
- social and hygienic monitoring;
- monitoring of health of the population of Russia (the analysis of dynamics of the state of health of the population in connection with social and economic and ecological factors);
- maintaining state registers (register of preferential categories of citizens of the Pension Fund of the Russian Federation and so forth);
- management of medical educational institutions, movement and retraining of medical frames;
- accounting and analysis of material, financial resources of health care, etc.

15



16



17

Medical instrument and computer systems

- Important kind of specialized medical information systems are the medical instrument and computer systems (MICS).
- MPKS belong to medical information systems of basic level.

The main difference of systems of this class – work in the conditions of direct contact with an object of a research and in a real mode of time.

18

 **Medical instrument computer systems**

Typical representatives of MICS are medical monitoring systems behind a status of patients:

when carrying out difficult operations;
 systems of computer data analysis of a tomography, ultrasonic diagnostics, radiography;
 the systems of the automated data analysis of microbiological and virologic researches, the analysis of cages and tissues of the person.



19

 **Medical instrument computer systems**

In MICS it is possible to select three main components:

medical,
 hardware,
 software.



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 **Medical support**

- Includes ways of implementation of the selected circle of the medical tasks solved according to opportunities of hardware and program parts of a system.
- Sets of the used techniques, the measured physiological parameters and methods of their measurement, definition of ways and admissible borders of impact of a system on the patient belong to medical support.



21



Hardware

• Includes ways of implementation of a technical part of the system including means of obtaining medicobiological information, means of implementation of medical influences and computer aids.



22



Software

These are mathematical methods of processing of medicobiological information, algorithms and actually the programs implementing functioning of all system.



23



Medical diagnostics

- The task of diagnostics in the field of medicine can be set as finding of dependence between symptoms and the diagnosis.
- For implementation of an effective organizational and technical diagnostic system it is necessary to use methods of artificial intelligence.
- The expediency of such approach confirms data analysis, used at medical diagnostics which shows that they have a number of features, such as qualitative nature of information, existence of admissions of data.
- Interpretation of the medical data obtained as a result of diagnostics and treatment to become one of the serious directions of neural networks.

24



Systems for carrying out monitoring

The problem of operational assessment of a status of the patient arises in a number of very important practical directions in medicine and first of all at continuous observation of the patient in chambers of intensive therapy, operational and postoperative departments.

In this case it is required to provide on the basis of the long and continuous analysis of large volume of the data characterizing a status of physiological systems of an organism not only operational diagnostics of complications at treatment, but also forecasting the patient's status and also to define optimum correction of the arising violations.

25



Systems for carrying out monitoring

Are among the parameters which are most often used when monitoring:

- electrocardiogram,
- blood pressure in different points,
- breath frequency,
- temperature curve,
- content of gases of blood,
- minute volume of blood circulation,
- content of gases in an expiratory air.



Important feature of monitor systems is existence of means of the express analysis and visualization of their results in real time. It allows to display on the monitor screen also dynamics different derivative of controlled values.

26



Management systems medical process

Here automated systems of intensive therapy and also the prostheses and artificial organs created on the basis of microprocessor technology belong.

In management systems medical process tasks come out on top:

- exact dosing of quantitative operation parameters,
- stable deduction of their preset values in the conditions of variability of physiological characteristics of an organism of the patient.

27



Management systems medical process

Understand the systems intended for state management of an organism in the medical purposes as automated systems of intensive therapy and also for its normalization, recovery of natural functions of bodies of the sick person, their maintenance within norm.



28



Medical information systems in Russia

- Now informatizations of health care as to the most important direction of modernization and increase in management efficiency and quality of medical care, the closest attention – is paid and not only from a practical link and science, but also from the state.
- As the main part of informatization the project of creation of the uniform state information system (USIS) which is in fact the first large-scale experience of the state in the field of informatization of medicine acts in recent years.
- To this project the medical information systems (MIS) had somewhat exotic character. Only the few treatment and prevention facilities paid to automation a close attention.

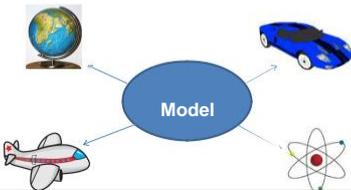
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Lecture № 7. Modeling of physiological processes and it's use in practical medicine

Model

A model is an object or information representation that reflects the essential features of a real object or process



The diagram illustrates the concept of a model. A central blue oval labeled "Model" is connected by arrows to four different icons: a globe representing Earth, a blue sports car, a white airplane, and a Bohr-style atomic model.

1

The requirements for models

The following requirements should apply to models:

- adequacy is the correspondence of the model to the original real system and taking into account, first of all, the most important qualities, connections and characteristics;
- accuracy is the degree of coincidence of the results obtained in the process of modeling with pre-set, desired;
- universality is the applicability of the model to the analysis of a number of similar systems in one or more modes of functioning;
- appropriate cost-effectiveness is the accuracy of the results obtained and the generality of the solution of the problem should be tied to the cost of modeling.

2

Classification of models

Signs of model classifications:

- by area of use;
- by time factor;
- by branch of knowledge;
- by presentation form.

3



Classification of models

Signs of model classifications by area of use:

- training models are used in training;
- experienced are reduced or enlarged copies of the designed object. Used to study and predict its future characteristics;
- scientific and technical are created to study processes and phenomena;
- gaming is a rehearsal of the behavior of the object in different conditions;
- simulation is a reflection of reality to one degree or another (this is a trial and error method).

4



Classification of models

Signs of model classifications by time factor:

- Static models are models that describe the state of the system at a certain point in time (a one-time slice of information on this object). Examples of models: classification of animals ..., the structure of molecules, a list of planted trees, a report on the examination of the condition of the teeth in the school, etc.
- Dynamic models are models that describe the processes of change and development of the system (changes in the object over time). Examples: a description of the movement of bodies, the development of organisms, the process of chemical reactions.

5



Classification of models

Signs of model classifications by branch of knowledge - is a classification by branch of human activity:
mathematical,
biological,
chemical,
social,
economic,
historical and so on.

6

 **Classification of models**

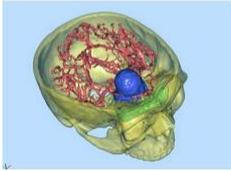
Signs of model classifications by presentation form:

- **Material models** are subject (physical) models. They reflect the external property and internal structure of the source objects, the essence of the processes and phenomena of the original object. Examples: children's toys, human skeleton, stuffed animal, model of the solar system, school books, physical and chemical experiments.
- **Abstract (intangible) models** are models that do not have a real embodiment. Their basis is information. This is a theoretical method of understanding the environment. On the basis of implementation, they are: mental and verbal: informational.
 - Mental models are formed in the imagination of a person as a result of thoughts, conclusions, sometimes in the form of an image.
 - Verbal is a mental model expressed in colloquial form. Used to convey thoughts
 - Information models are purposefully selected information about the object, which reflects the most significant properties of the object for the researcher.

7

 **Modeling**

Modeling is the process of creating a model, as well as studying the functioning of a model under different conditions.



8

 **Types of modeling**

- Information modeling
- Computer modeling
- Mathematical modeling
- Mathematical and cartographic modeling
- Molecular modeling
- Digital modeling
- Logic modeling
- Pedagogical modeling
- Psychological modeling
- Statistical modeling
- Structural modeling
- Physical modeling
- Economic and mathematical modeling
- Simulation modeling

9



Process of modeling

The modeling process includes three elements:

- the subject (researcher),
- the object of study,
- the model that determines (reflects) the relationship of the knowing subject and the knowable object.

10



Modeling background

1. Dimensions

- 1.1. Mega (Large)
- 1.2. Micro (Small)

2. Time

- 2.1. Long
- 2.2. Moments

3. Security

- 3.1. For the outside world
- 3.2. For a real object or phenomenon

4. Learning objectives

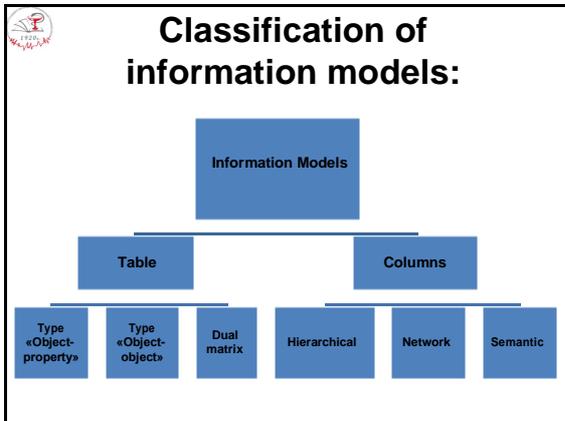
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Properties

- The essential features of a real object or phenomenon
- Time of creation
- Cost

12



13

Tabular model

In a tabular model, a list of similar objects or properties is placed in the first column (or row) of the table, and the values of their properties are placed in the next rows (or columns) of the table.

Date	Rainfall	Temperature (C°)	Pressure (mmHg)	Humidity (percent)
15.03.97	Snow	-3,5	746	67
16.03.97	No precipitation	0	750	62
17.03.97	Fog	1,0	740	100
18.03.97	Rain	3,4	745	96
19.03.97	No precipitation	5,2	760	87

14

Table of type "Object-property"

Date	Rainfall	Temperature
14.03	Snow	-15 ⁰
15.03	Rain	-20 ⁰

One line contains information about one object or event

15



Table of type "Object-object"

Student	Algebra	Geometry
Ivanov	5	3
Petrov	3	4

Reflect relationships between objects

16



Table type «Double matrix»

x	1	2
1	1	2
2	2	4

Reflects the qualitative nature of the relationship between objects

17



Tabular Information Models

- Static model

The price of individual computer devices (1997)

Device name	Price
System board	100
Processor Pentium II (300 MHz)	200
Memory 16 Mb	30
Hard drive 4 Gb	150
Floppy drive 3.5"	20
Videocard 4 Mb	30
Monitor 15"	200
Case	25
Keyboard	10
Computer mouse	5

18

 **Tabular Information Models**

- **Dynamic model**
The changing of computer's price

	Years		
	1997	1998	1999
Computer price Pentium II	1800	1200	800

19

 **Graph**

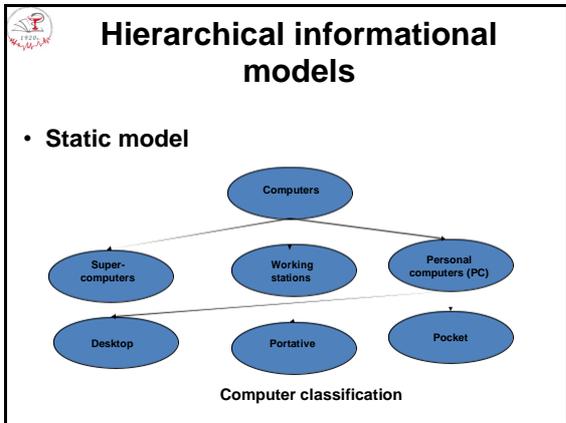
Graph is a means of visualizing the composition and structure of the scheme.

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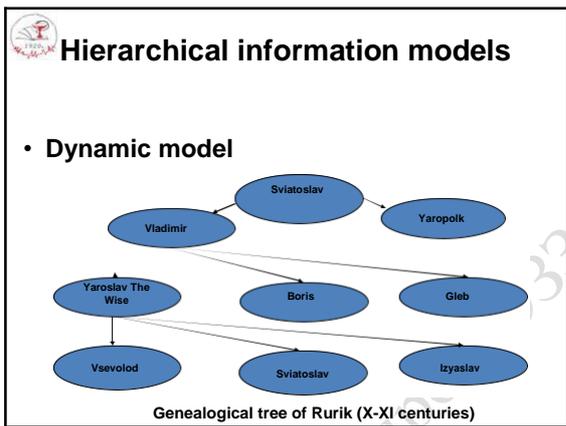
 **Hierarchical model**

- Hierarchical model is a system whose elements are in relation to nesting or subordination.
- In the hierarchical model objects are distributed by levels, moreover lower level elements enter into one higher level element.
- Such models are built in the process of classifying objects.

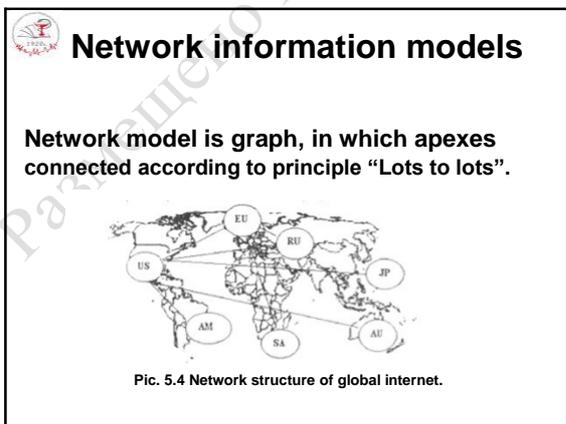
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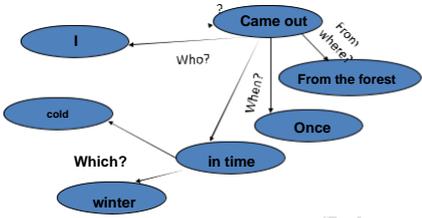
 **Semantic information model**

Semantic model is graph, which based on the concept that all knowledge could be presented as complex of objects (concept) and connections (relations) between them.

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 **Semantic information model**

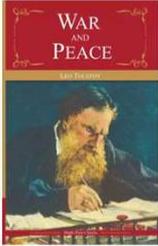
«Once in cold winter time I came out from the forest»



26

 **Verbal model**

- As example may be introduced such literature genre as fable, because real relations between people transfers to relations between animals or fictional characters.
- Actually, any literature work may be considered as a model. So in the novel of Leo Tolstoy "War and Peace" you can find a verbal description of the Borodino battle. Moreover, the author describes both the dynamics of events and the costumes of the characters.



27

 **Graphical model**

A picture, painted by artist, and a scheme from textbook are graphical models of the same object.



Borodino
The 26th of August, 1812
Watercolor of unknown artist. The 1st
quarter of XIX.

28

 **Mathematic models**

- Solving problems in physics, you create mathematical models of various phenomena and processes.
- Mathematical models are models built with using mathematical concepts and formulas. For example, a model of uniformly accelerated rectilinear motion:

$$S = v_0 * t + (a * t^2) / 2$$
- S — way, that body has passed in time
t; a — accelerate;
v₀ — initial speed;

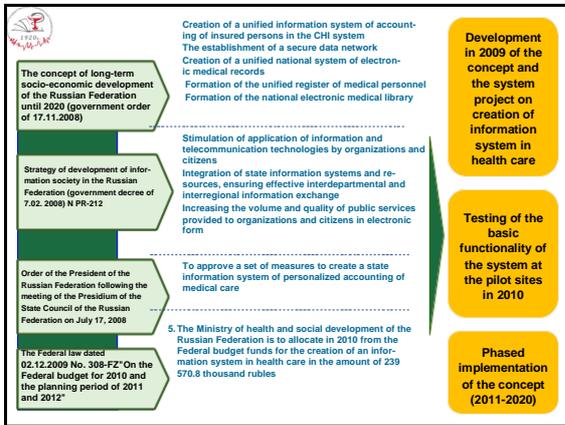
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 **Computer modeling**

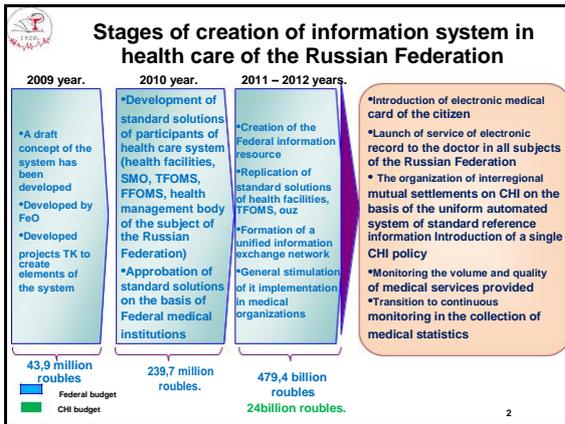
- In computer science, models that can be created and explored using a computer are considered. In this case, the models are divided into computer and non-computer.
- Currently, there are two types of computer models:
 structural and functional, which are a conditional image of an object described using computer technology;
 imitation, representing a program or a set of programs that allows to reproduce the processes of functioning of the object in different conditions.

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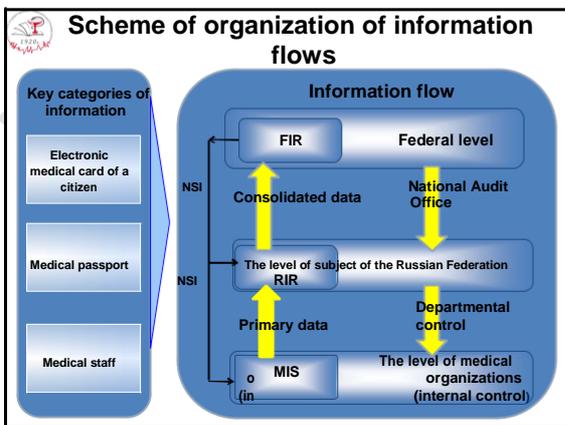
Lecture № 8. Typical tasks of Informatization of medical technological process in medical-prophylactic institution



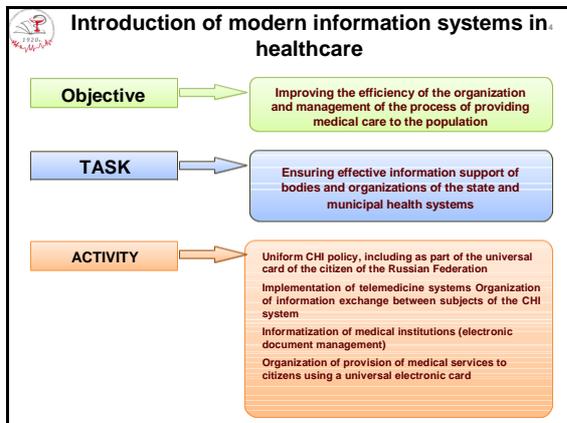
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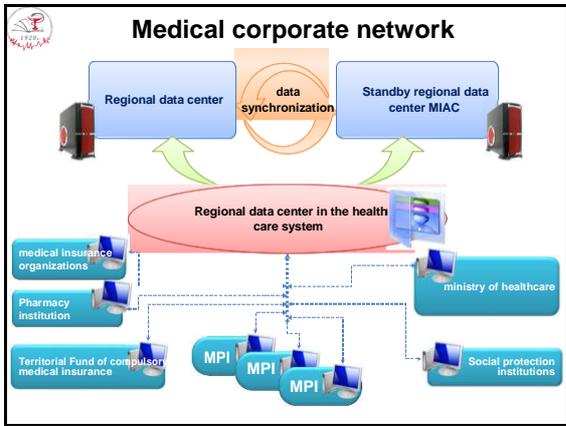
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- Regional activities of the implementation plan of the information society development Strategy in Russia**
- p. 3. Use of information and communication technologies in health and social protection**
- Development of information technology infrastructure of health care institutions
 - Providing access to the Internet for medical institutions
 - Ensuring the availability of information on the activities of medical institutions on the Internet
 - Implementation of information systems for management of health care institutions
 - Introduction of information systems to support the provision of medical care in the activities of medical institutions
 - Development of information technology infrastructure of the emergency medical service
 - Training of health care workers in the use of information and communication technologies

5

- Regional activities of the implementation plan of the information society development Strategy in Russia**
- p. 3. Use of information and communication technologies in health and social protection**
- Development of information technology infrastructure of health care institutions
- Objective:** to create a single industry-wide secure information and telecommunications network in the health sector
- Tasks:**
- Connection of healthcare institutions to the departmental network using a standard integration gateway with the provision of additional telematics services
 - Construction/modernization of structured cable networks in healthcare institutions
 - Modernization of computer and office equipment fleet, including active network equipment, server and communication equipment
 - Practical implementation of a set of measures for the protection of processed information and information security in health care institutions

6



7

Regional activities of the implementation plan of the information society development Strategy in Russia

p. 3. Use of information and communication technologies in health and social protection

- Implementation of information systems for the management of health care institutions**

Objective: to improve the efficiency of management of medical institutions through the use of information and communication technologies

Tasks:

- Reduction of patient waiting time to the doctor due to the use of automated information systems in the register of health care institutions
- Optimization of routing of flows of patients in need of medical care at various stages of its provision through the introduction of automated control systems
- Modernization of information systems for comprehensive analysis of health status and health system activities at the level of health institutions / municipal districts and urban districts / region
- Modernization of management information systems for the implementation of a single program
- Introduction of electronic document management in healthcare institutions

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Electronic routing

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Regional activities of the implementation plan of the information society development Strategy in Russia

p. 3. Use of information and communication technologies in health and social protection

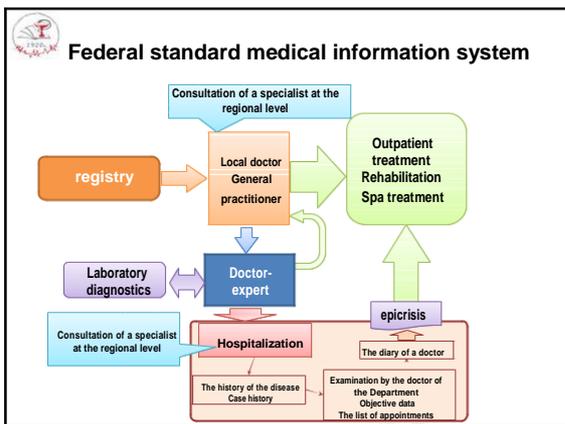
- [Introduction of information systems to support the provision of medical care in the activities of medical institutions](#)

Objective: to Improve the quality of medical care through the use of information systems in the activities of health workers, formalization of registration procedures for the volume and quality of medical services provided to the patient

Tasks:

- Personalized accounting of the volume and quality of medical services provided to the patient on the basis of electronic medical records
- 2. Automated monitoring of the implementation of standards of medical care
- 3. Modernization of information systems of management of financial and economic activity of medical institutions
- 4. Organization of work on the formation and maintenance of registers of patients in need of high-tech medical care
- 5. Organization of remote consultation of patients in clinically complex cases within the framework of the regional telemedicine system
- 6. Organization of automated preventive screening in health centers with the formation of an individual health passport

10



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Technical requirements for a typical medical information system

Federal law "on technical regulation".
Federal law of the Russian Federation of December 27, 2002 N 184.
Federal law "on information, informatization and information protection", Federal law of the Russian Federation No. 24 of 20 February 1995.

GOST 34.201-89. Information technology. A set of standards for automated systems. Types, completeness and designation of documents in the creation of automated systems.

GOST 34.601-89. Information technology. A set of standards for automated systems. Stages of creation.

GOST 34.602-89. Information technology. A set of standards for automated systems. Terms of reference for the creation of an automated system.

GOST 34.603-92. Information technology. A set of standards for automated systems. Types of tests of automated systems.

GOST R 52500-2006 Protocols of management of patients. Generalities. GOST R 52636-2006 Electronic medical history. Generalities.

GOST R ISO / TS 18308-2008 Informatization of health. Requirements for the architecture of electronic health accounting.

GOST R 52979-2008 Informatization of health. The composition of the data of the consolidated register of insured citizens for electronic exchange of these data. General requirements.

GOST R 52977-2008 Informatization of health. Composition of data on mutual payments for treated patients for electronic exchange of these data. General requirements.

GOST R 52978-2008 Informatization of health. Composition of data on the health care facility for electronic exchange of these data. General requirements.

GOST R 52976-2008 Informatization of health. Composition of primary data of medical statistics of medical institutions for electronic exchange of these data. General requirements.

RD 50-34. 698-90. Methodical Instructions. A set of standards and guidance documents for automated systems. Requirements for the content of documents

12



Electronic medical record

GOST R 52636-2006 "Electronic medical history. General Provisions ";
 GOST R ISO / TC 18308-2008 "Health informatization. Requirements for the architecture of electronic health accounting ";
 GOST R ISO / TO 20514-2009 "Health informatization. Electronic health records. Definition, scope and context. "

<p>Outpatient card sections:</p> <ul style="list-style-type: none"> card title page; history; signal information; appeals to specialists; labor loss; list of final diagnoses; diagnostic purposes; medical appointments; Epicrisis; references; conclusions of medical commissions; information about hospitalization; information about spa treatment; vaccination prevention; information on dispensary observation; personal account 	<p>Sections of the medical history:</p> <ul style="list-style-type: none"> title page of information security; signal information; a doctor's record in the admission department; inspections; diagnoses; diaries; operational benefits; medical appointments; diagnostic purposes; Stay in the departments; the attending physician; results of appointments; Epicrisis; statement; Notices; personal account
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16



Types of MSI by Functionality

- Medical information systems for healthcare facilities
- Regional information systems
- Administrative and accounting systems
- Pharmacy, drug movement
- Hardware and firmware, system integration
- Mobile, web-applications, telemedicine, cloud services
- Non-medical systems, dispatching, monitoring Specialized solutions for medicine (laboratory, dentistry, surgery, neurology, etc.))Additional functionality and environment for application development

17



Composition of MSI

- The composition of medical information systems for each medical organization may differ in the composition of the included modules.
- For example: MIS hospitals need modules

18



MSI requirements

- **What modules does your organization need? You can read about this in the "Guidelines for ensuring the functionality of medical information systems of medical organizations"** approved by the Ministry of Health of the Russian Federation.
- **You need to familiarize yourself with the "Unified Register of Russian Programs for Electronic Computing Machines and Databases"**, which is located on the website of the Ministry of Communications. You have the right to buy IIAs only from that are included in this registry.
- **IMPORTANT! From January 1, 2016, a legislative ban on foreign goods and work has been in force in the public procurement system!**

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Examples of MSI











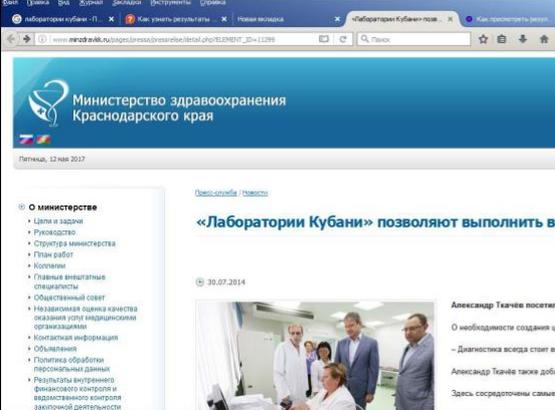








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Maintenance and technical support

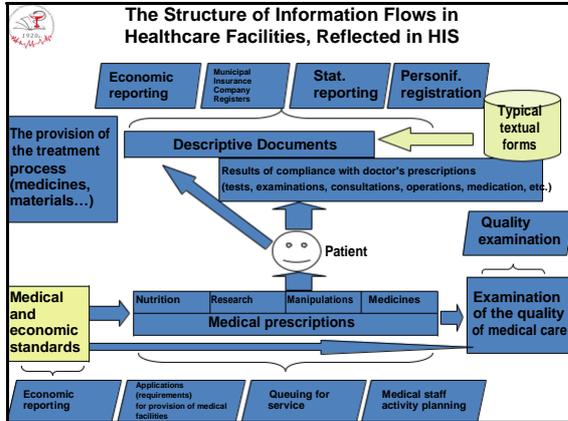
- Connection to a regional medical corporate network
- Service of computer and office equipment
- Service of local area networks and active network equipment
- Server service
- Conducting an information security audit, developing a package of documents and recommendations for preparing for certification of personal data information systems operating in health facilities

Communication services

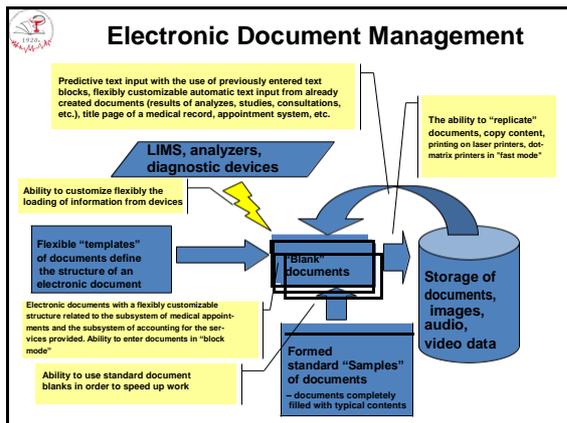
- Telematic communication services
- Communication services for data transmission

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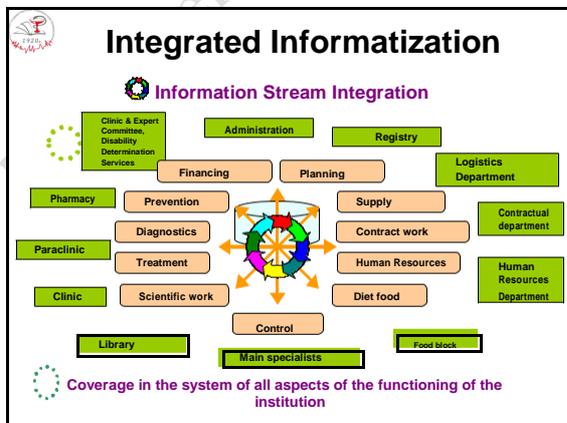
Lecture № 9. Information Support for Diagnostic and Therapeutic processes. The Use of Information Technology Systems in the Work of the Medical Department of a Medical and Preventive Treatment Institution



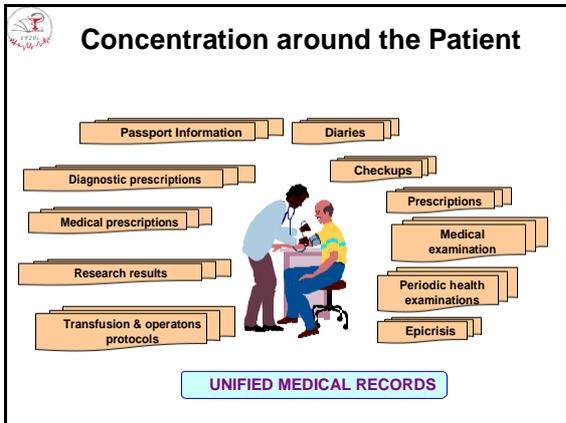
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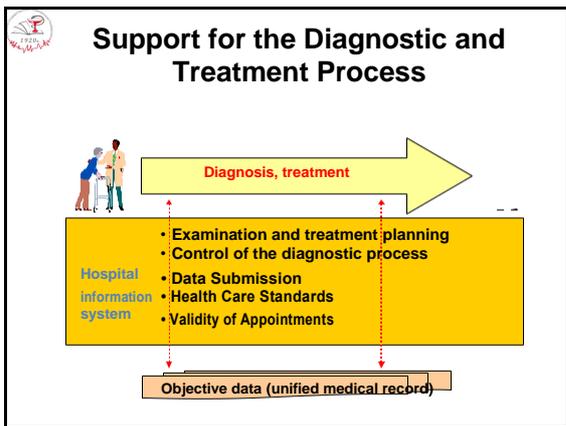
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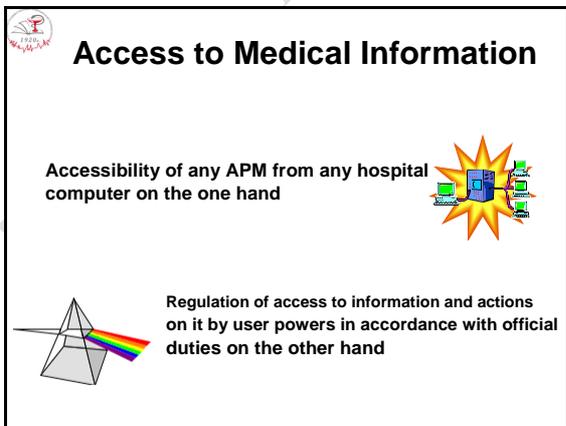
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4



5



6

Telemedicine

The MIS architecture in Interin technology can allow access to patient data using special APM and remotely through global networks, in accordance with the authority and established regulations.

Thus, a specialist doctor will have access to all the necessary information from the patient's medical record.

7

Visualization Sheet

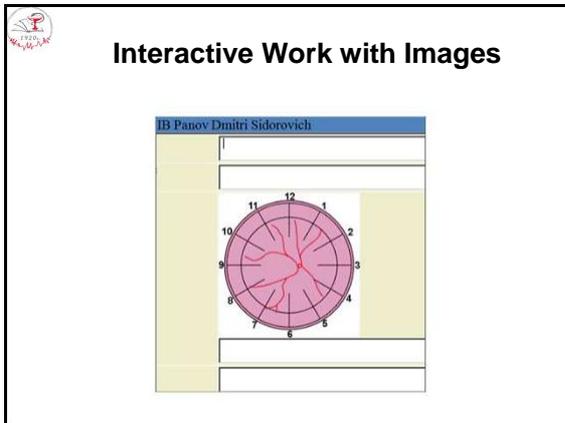
Visualization of information from a single patient medical record in accordance with the requirements of the treatment and diagnostic process and user authorities

8

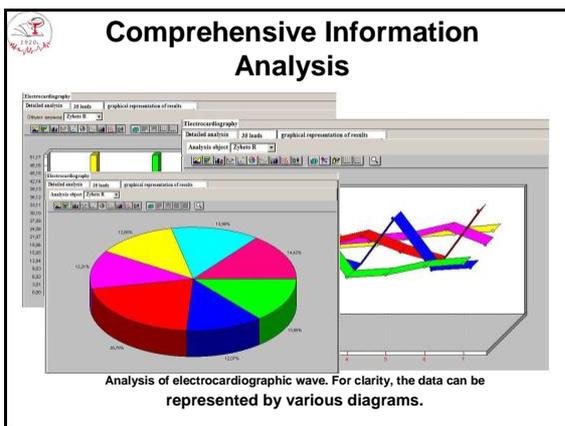
The Integration of Different Data Types

The system operates with various types of information, such as text, graphic, etc.

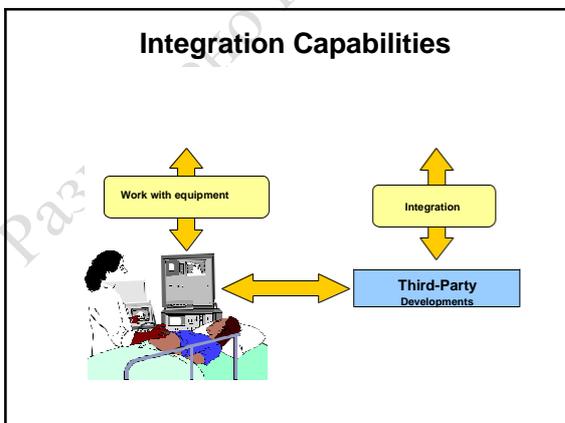
9



10



11



12

 **Functionality of the diagnostician (laboratory assistant)**

Diagnostic-specific functionality:

- List of prescription viewing.
- Execution of prescriptions.
- Appointment of additional studies to the patient.
- Formation of a motivated refusal in the performance of a prescription.
- Patient's medical record viewing.
- Obtaining a report on the activities of the doctor (unit) in forms 30 and 39 for the period.



16

 **Senior Nurse Functionality**

Automated functions of a senior nurse:

- Maintaining a first aid kit unit.
- Patient movement.
- Portion control.
- Information about absenteeism.



17

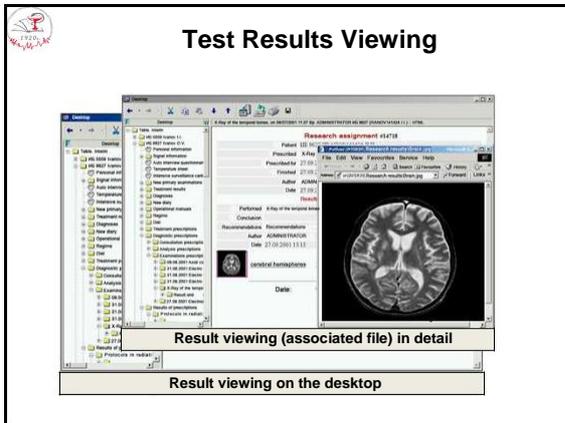
 **Desk Nurse Functionality**

Automated functions of a desk nurse:

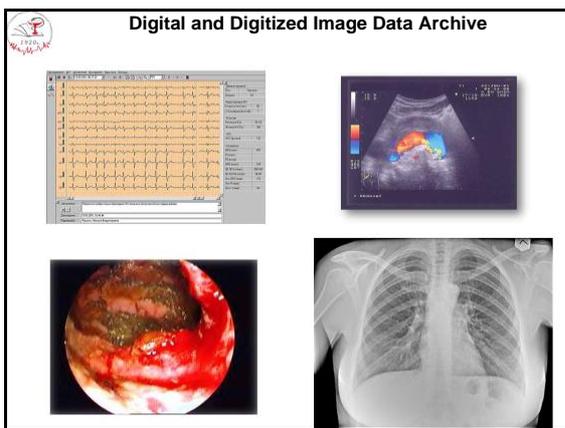
- List of prescription viewing.
- Temperature sheet data entering.
- Prescriptions scheduling.
- Prescriptions execution.
- Maintaining a first-aid kit post.
- Prescribing medicines to the patient.



18



22



23

“Laboratory” Module

allows to automate the workflow between the doctor and the laboratory serving his areas

The module offers:

- a control mechanism for incoming applications, as well as a form for filling out the results;
- work with a barcode referral containing information about the upcoming examination, the diagnosis of the patient, as well as the referring doctor;
- entering the results of analyzes in special forms designed for certain types of analyzes, with the possibility of manual correction of the norms of results;
- automatic completion of analysis results using automatic analyzers;
- printing and saving the results of analyzes in a database with an indication of indicators whose values do not meet the standards;
- informing the doctor about the study.

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“Laboratory” Module
 provides work with an appointment card barcode

CLINIC OF THE GOU VPO SSMU
 DEPARTMENT OF LABORATORY MEDICINE

Barcode: 825
 DIRECTION FOR ANALYSIS N 818
 24.04.2012

To laboratory MC312
 Surname, Name, Name: Ivan Ivanovich
 Age: 22.12.1990 (12) Clinic of the GOU VPO SSMU
 Department: _____
 Hospital room: _____ Section: 1 medical card N: _____
 Diagnosis, group of dependency accounting: OSL & Osm. Base Syndrome

Examine (indicate preservative):
 Biochemical blood test
 Total protein, Glucose, Creatinine, Urea, Cholesterol
 Doctor: Dr. Petrva Vera Aleksandrovna
 Signature: _____



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“Laboratory” Module
 provides entry of analysis results in specialized forms

Substrates

Substrate	Glucose	Glucose Min	Glucose Max	Glucose Unit
Common protein	10	10	10	mg/dl
Albumin	10	10	10	mg/dl
Common bilirubin	10	10	10	mg/dl
Direct bilirubin	10	10	10	mg/dl
Indirect bilirubin	10	10	10	mg/dl
Urea	10	10	10	mg/dl
Urea Min	10	10	10	mg/dl
Urea Max	10	10	10	mg/dl
Urea Unit	10	10	10	mg/dl
Urea acid	10	10	10	mg/dl
Urea acid Min	10	10	10	mg/dl
Urea acid Max	10	10	10	mg/dl
Urea acid Unit	10	10	10	mg/dl
Cholesterol	10	10	10	mg/dl
Cholesterol Min	10	10	10	mg/dl
Cholesterol Max	10	10	10	mg/dl
Cholesterol Unit	10	10	10	mg/dl
Serumtotal	10	10	10	mg/dl
Serumtotal Min	10	10	10	mg/dl
Serumtotal Max	10	10	10	mg/dl
Serumtotal Unit	10	10	10	mg/dl

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“Diagnostics” Module
 designed for diagnostic rooms using various medical devices

The module allows to:

- identify the patient in the system by personal card or by direction;
- enter and save research descriptions;
- save (attach to the patient’s electronic map) and work with medical images obtained in the form of graphic files, as well as using various medical imaging devices (ultrasound devices, digital X-ray machines, X-ray computer tomographs, magnetic resonance tomographs, positron emission tomographs and other);
- inform the doctor about the study.

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Cloud Technologies

Cloud technology is the provision of users with remote access to services, computing resources and applications (including operating systems and infrastructure) via the Internet through the hosting sphere.



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Hosting

a service for the placement of customer equipment on the territory of the provider with the provision of connecting it to communication channels with high bandwidth the need for software and digital services, the hardware and software of which is located outside the organization (user) and which could be managed from the inside, but which would be more economical and efficient



32

A - cloud characteristics
B - cloud models
C - implementation methods

	Self service on request	Network access from different devices	Instant elasticity	Measurability of service
A	Multitenant resource pool			
	SaaS	PaaS	IaaS	
B	• Software as a Service • Rent	• Platform as a Service • Development	• Infrastructure as a Operation	
C	Private	Communal	Hybrid	Public

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 **Implementation Methods**

- private cloud;
- public cloud;
- community cloud;
- hybrid cloud.



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 **Private Cloud**

- a cloud developed for use by a single organization;
- may be owned by this organization, or any other.



35

 **Public Cloud**

- a cloud developed for free use by various users of various companies.



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Community Cloud

- a cloud intended for use by a specific community of consumers from organizations that have common tasks (for example, security requirements);
- the public cloud may be in the cooperative (joint) ownership, management and operation of one or more community organizations or a third party (or any combination thereof).



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Hybrid Cloud

here a cloud is a combination of two or more different cloud infrastructures (private, public or public) that remain unique objects, but interconnected by standardized or private data and application transfer technologies.



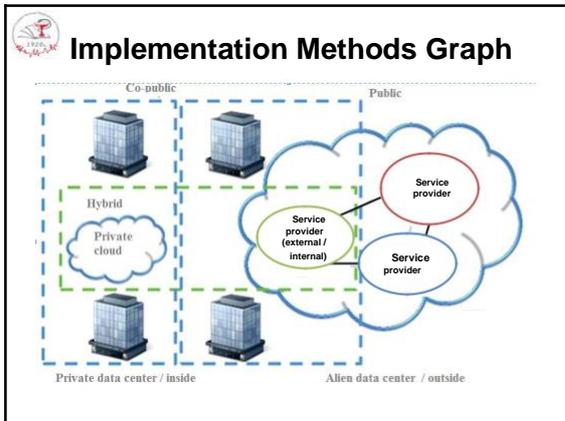
38



4 Ways to Implement the Cloud

- Private (for onerself)
- Co-public (for the group)
- Public (for all)
- Hybrid (a combination of the 3 above)

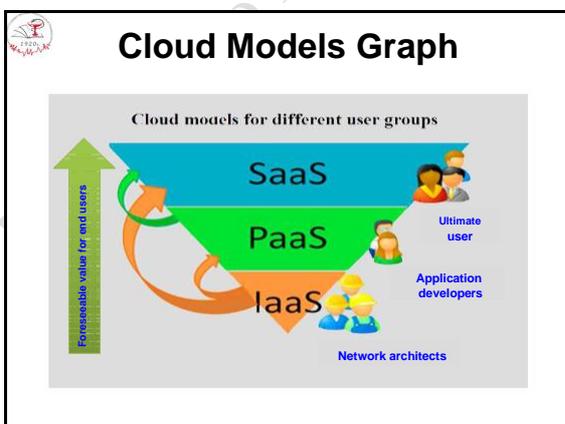
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40

-
- Cloud Service Models**
- 3 models of the sale of services:**
1. Cloud Software as a service (SaaS)
 - Applications as a service
 2. Cloud Platform as a Service (PaaS)
 - Cloud Platform as a Service
 3. Cloud Infrastructure as a Service (IaaS)
 - Information infrastructure as a service

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Software as a Service (SaaS)

- The SaaS concept provides the ability to use software as a service and do it remotely over the Internet.
- This approach allows you not to buy a software product, but simply temporarily use it when a need arises.



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Platform as a Service (PaaS)

- PaaS can be thought of as a virtual platform, ready to work, consisting of one or several virtual servers with installed operating systems and specialized applications.
- Most cloud providers offer the user a choice of masses of ready-to-use cloud environments.



44

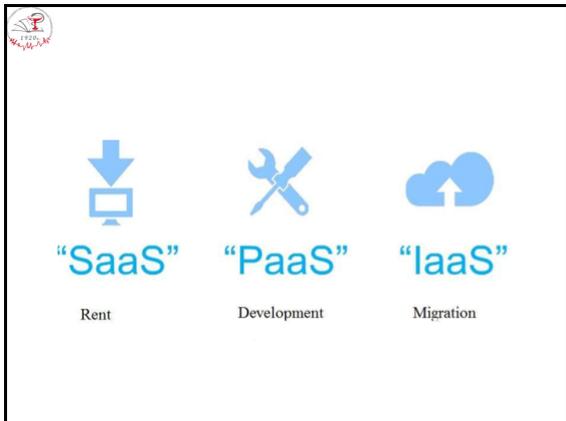


Infrastructure as a Service (IaaS)

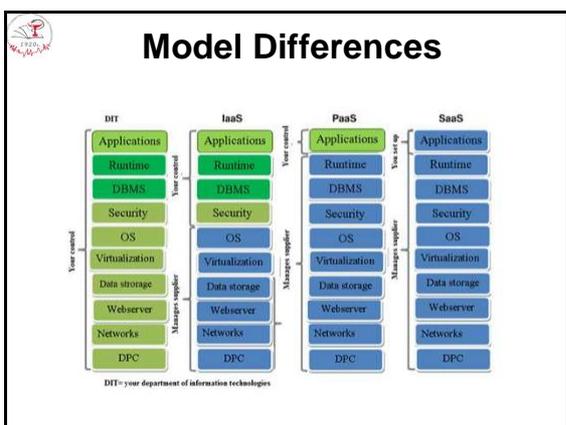
- Infrastructure for rent. The user is provided with a "clean" copy of the virtual server with a unique IP address or set of addresses and part of the storage system.
- To manage the parameters, start, stop this instance, the provider provides the user with a program interface (API).



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Data Storage as a Service (dSaaS)

- dSaaS - storage as a service - model as a special case of dSaaS, in which the supplier provides the customer with storage space.
- In this case, usually the size of the service payment depends on the maximum storage volume and access conditions determined by the channel capacity.

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The Advantages of Cloud Computing

- The user pays for the service only when he needs it, and most importantly, he pays only for what he uses.
- Cloud technology allows you to save on the acquisition, support, modernization of software and equipment.
- Scalability, fault tolerance and security and automatic allocation and release of necessary resources depending on the needs of the application. Maintenance, software updates are performed by the service provider.
- Remote access to data in the cloud i.e. one can work from anywhere on the planet where there is Internet access.

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The Disadvantages of Cloud Computing

- The user is not the owner and does not have access to the internal cloud infrastructure. The safety of user data is highly dependent on the provider company.
- A drawback that is relevant for Russian users: in order to receive quality services, the user needs to have reliable and fast access to the Internet.
- Not all data can be entrusted to an Internet provider, not only for storage, but even for processing.

50



The Disadvantages of Cloud Computing

- Not every application allows us to save, for example, on a flash drive the intermediate stages of information processing, as well as the final result of work, and online results are not always convenient.
- There is a risk that the provider of online services will one day not make a backup of the data, and they will be lost as a result of a server crash.
- By entrusting your data to an online service, one loses control over them and limits the freedom (the User will not be able to change any part of his information, it will be stored in conditions not subject to him).

51



The Use of Cloud Technology (in Education)

1. electronic diaries and magazines, personal accounts for students and teachers, an interactive reception and more;
2. thematic forums where students can exchange information with each other;
3. information search, where students can solve certain educational problems even in the absence of a teacher or under his guidance.

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Examples:

- electronic textbooks;
- simulators;
- diagnostic, test and training systems;
- applied and tool software;
- laboratory complexes;
- systems based on multimedia technology;
- telecommunication systems (e.g. email, newsgroups);
- electronic libraries;
- etc.

53

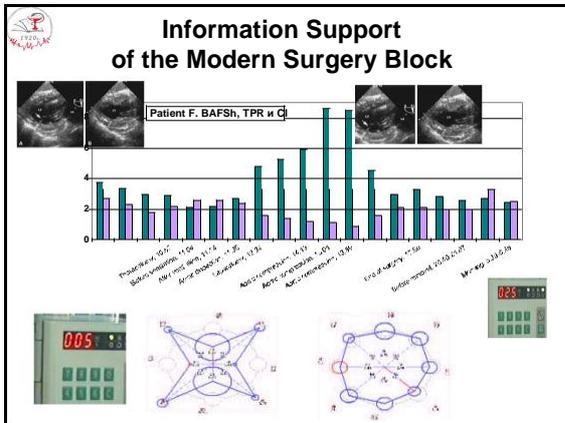


Future

- The proof that cloud technology is not a temporary hobby, but a new path for the development of high technology, is the following fact: no matter how strong the contradictions between the three giants - Microsoft, Apple, and Google, - almost simultaneously they entered this new (so far) territory, and they're not going to leave at all.
- Moreover, it is with cloud technologies that all three companies connect their future.



54



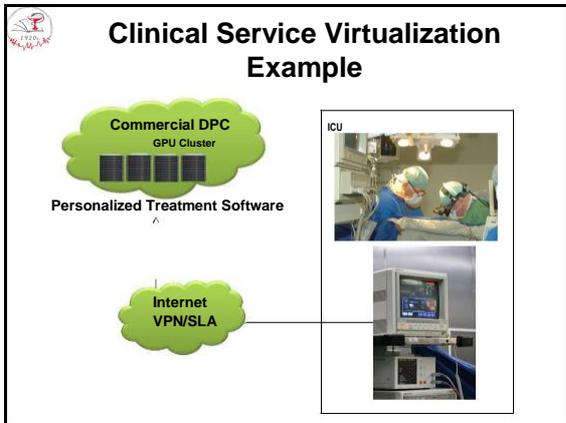
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-
- Modern Types of Control in the Operating Room**
- Patient control;
 - Environmental control;
 - Equipment control;
 - Video telemetry (including the transmission of video and audio images);
 - Total recording of information (saving to the database);
 - Central distributed console;
 - Medical staff control;
 - Recommendations for managing medical manipulations (IEM/AWFS).

5

-
- Clinical Service Virtualization**
- 1. Target is to provide a real-time remote clinical services.**
- 2. CS Virtualization provides:**
- Remote application program or algorithm over the Internet
 - Considerable savings compared with the implementation of own services
 - Productive work of a remote application using parallel and hybrid server technologies
 - User-friendly intelligent interface Short-term doctor training

6

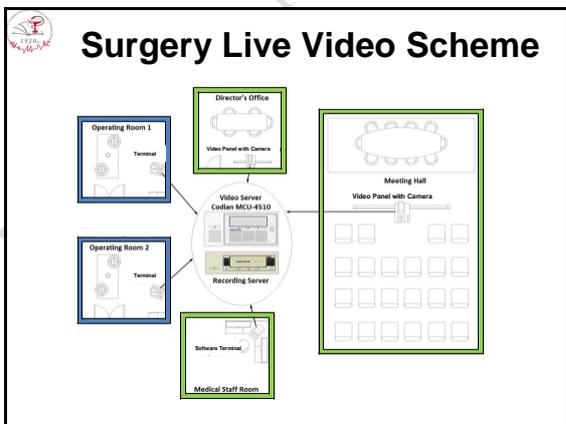


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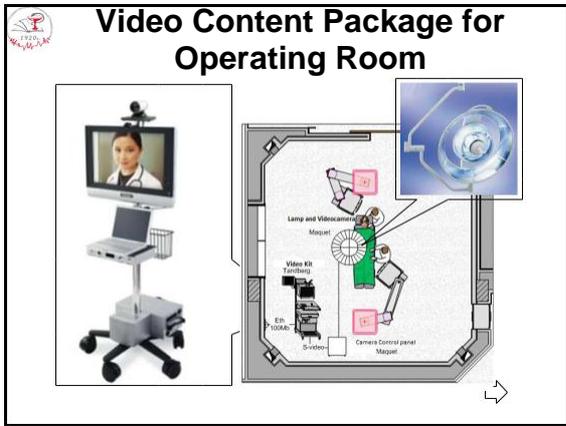
Operating Room Live Video System

- **Tasks and targets** are to improve the health care quality and the interaction efficiency of the medical staff in surgery, as well as in meetings, board of doctors and staff training (including remote ones).
- **In surgery the system allows:**
 - > to transmit images of the surgical area (including endoscopic surgery) from the operating room in HD quality;
 - > to transmit background information: sound, text information, telemetry of the patient and the environment;
 - > simultaneous transmission of audio and video signals between several participants, including on-line remote consultations of specialists;
 - > to provide live video logging for subsequent playback of records.

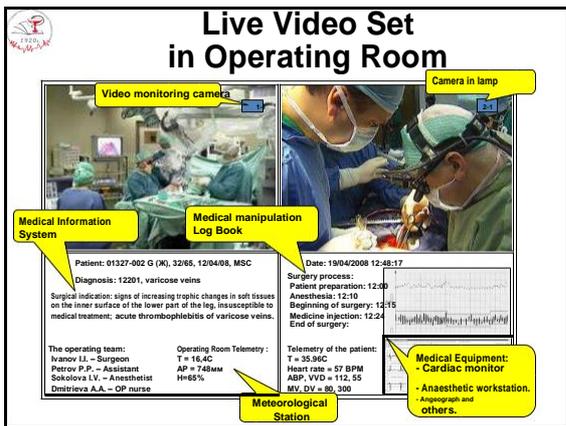
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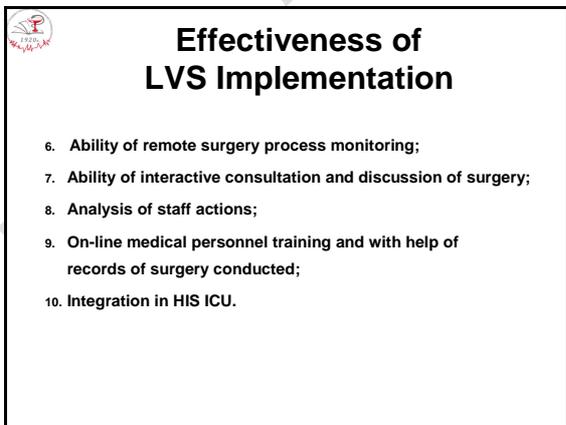
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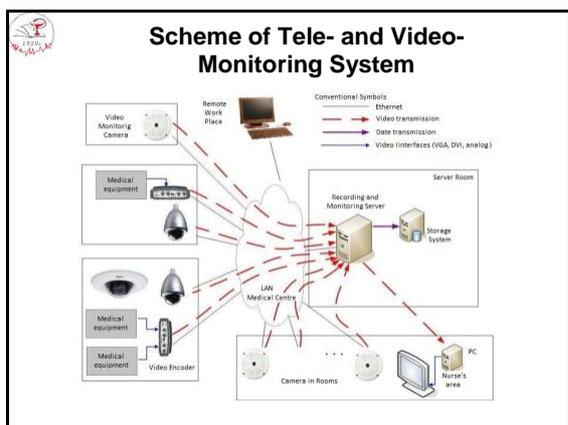
Tele- and Video- Monitoring System

Targets are improving the medical services quality, objective analysis of disputable situation related to patient treatment.

Tasks:

- live video, information recording and storage of the staff actions and the situation in rooms associated with the conduct of potentially dangerous manipulations that can cause complications of patients' conditions;
- internal regulations compliance control and treatment regimen by patients and visitors;
- prompt response by the personnel of the medical institution in case of emergency in patient's rooms.

13



14

Set of Tele- and Video- Monitoring System

The system consists of:

- special design and performance video cameras installed in the patient's, operating, treatment and diagnostic rooms;
- monitors for displaying video information at medical posts in departments;
- hardware-software complex for processing, storage and playback of video data;
- remote workplaces to monitor the situation and analyze events.

15

 **Video Data Storage and Processing System**

A complex of special-purpose servers and software that :

- receives video, audio and tele-metric data;
- records and backups data;
- playbacks records;
- forms user interface of workplaces.




16

 **Effectiveness of LVS and TMS Implementation**

- Reduction of risks arising from potentially dangerous Diagnostic and Treatment Process (DTP);
- Improving the patient service quality;
- Upgrade training and responsibility of medical staff, optimization and improvement of DTP;
- Improving patient satisfaction with the quality of medical care provided.

17

 **Medical Staff Monitoring System**

- Objective time control provided by medical staff for each particular patient who is being treated in MPI;
- Control of patient location in MPI;
- Environmental Monitoring in drug storage facilities;
- Mobile equipment search reduction.



18

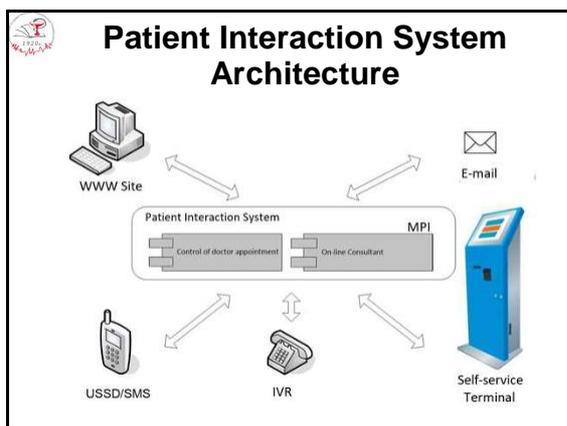
 **Patient Interaction System**

Targets: easy interaction between MPI and their patients.

Health care service for a patient at a distance with help of phone, Internet, self-service terminal including:

- new patient registration;
- control of doctor appointments: registration, confirmation, counsel, information of appointment status, automatic notification before an appointment;
- helpful information: doctor appointment consultant, information on preparing the patient for research/analysis;
- information of prescriptions, diagnostic and analysis results;
- control of these prescriptions.

22



23

Размещено кафедрой

www.kasma.ru

TESTS

Theme number 1

№1

The EXPLORE button of the standard Windows window is intended for

5.00: maximize the window in full screen monitor

0.00: minimize the window

0.00: return to the original view window

№2

Windows have:

0.00: many colors

0.00: same value

5.00: the same control buttons and appearance

№3

Is it possible for several programs to work simultaneously in Windows?

0.00: no

0.00: sometimes

5.00: yes

№4

If you type WIN at the command prompt and press the Enter button, then

0.00: text is highlighted

0.00: computer shuts down

0.00: this is necessary to save information on disk

5.00: Windows will boot

№5

Specify the correct file name

0.00: nc.exe / exe

0.00: professor_doc

5.00: prof.exe

0.00: p ? 24. txt

№6

A text editor is needed for:

5.00: Typing and editing text

0.00: Printing text on paper

0.00: Writing text to a floppy disk

0.00: Mail

№7

The graphic editor is intended for:

5.00: Creating and editing graphic images

0.00: Leisure activities

0.00: Cartooning

0.00: Holographic image processing

№8

File - this is:

5.00: Part of the program or the whole program

0.00: Run command

0.00: Program Group

0.00: Diskette Part

№9

File name extension indicates to:

5.00: File Type

0.00: How to run the program

0.00: What volume of information

0.00: file name

№10

Choose the correct file name

5.00: BABY.EXE

0.00: B ? Y.BABY

0.00: EXE. + 2

0.00: HELLO.EX

№11

In order, to interrupt the operation of the program need to press

0.00: Enter

0.00: Caps Lock

5.00: Esc

0.00: Alt

№12

The computer will automatically recognize the program by

0.00: length

5.00: extension

0.00: latin letters

№13

In order to turn off the computer in Windows it is necessary

0.00: select the necessary operation command

0.00: press the Power button

5.00: turn off all programs, then exit Windows and press Power

№14

The EXPLORE button of the standard Windows window is intended for

5.00: maximize the window in full screen monitor

0.00: minimize the window

0.00: return to the original view window

№15

The BLOCK NOTE program is intended for

0.00: Drawing Pictures
0.00: Creating and editing tables
5.00: Creating and editing small texts

№16

To save the file under a new name, use the command:

0.00: create
0.00: open
0.00: save
5.00: save as
0.00: save all

№17

The taskbar serves to

5.00: switching between running applications
0.00: Windows shutdown
0.00: data exchange between applications
0.00: running DOS programs
0.00: view directories

№18

The tetris.com file is located on drive C : in the GAMES directory, which is subdirectory of the DAY directory. Select full file name:

0.00: C : \ tetris.com \ GAMES \ DAY
0.00: C : \ GAMES \ tetris.com
5.00: C : \ DAY \ GAMES \ tetris.com
0.00: C : \ GAMES \ DAY \ tetris.com
0.00: C : \ GAMES \ tetris . com

№19

To move a piece of text from one place in a document in another it is necessary to execute the commands y (s):

0.00: Copy, Paste
0.00: Cut
5.00: Cut, Paste
0.00: Save, Paste
0.00: Paste

№20

Text and image editors are:

0.00: texts and figures
5.00: programs
0.00: data banks
0.00: database

№21

The minimum set of functions that must perform text editor, not included:

0.00: save files
0.00: file upload

0.00: text formatting
5.00: work with graphics
0.00: text editing

№22

Program is

5.00: file or group of files designed to perform a task
0.00: wire between the monitor and the system unit
0.00: computer network

№23

Use a computer to solve math problems

0.00: not allowed
5.00: it is possible

№24

Windows is

0.00: company name
0.00: processor type
5.00: operating system
0.00: word processor
0.00: graphical editor

№25

In which menu are the teams with which we work collected with document files

5.00: File (file)
0.00: Format
0.00: View Take (kind of)

№26

What extension do executables have?

5.00: .exe
0.00: .com
0.00: .doc
0.00: .txt
0.00: .bmp

№27

How does the Notepad program start?

0.00: select Start menu
5.00: double-click on its icon
0.00: by clicking on its icon

№28

In which menu are the teams with which we work collected with document files?

5.00: File (file)
0.00: Format
0.00: View Take (kind of)

№29

What is part of Windows?

5.00: File Manager

0.00: WORD

0.00: MS Excel

№ 30

To exchange text and graphic information between open windows documents can be used

5.00: clipboard

0.00: database

0.00: dialog box

№31

What is the insertion point of an object?

0.00: character insertion mode

0.00: inverse line position

5.00: text cursor position

№32

How to paste text into a text document from a buffer?

0.00: move the cursor to the place of text entry and type text

5.00: move the cursor to the desired location and select the command B to put in the menu

0.00: type text and move to the desired location

№33

What is a menu?

0.00: list of objects that appears on the screen

5.00: list of teams

0.00: sequence of records grouped together

№34

How to unselect text?

0.00: select the menu command in the Highlight

5.00: click with the mouse anywhere in the window outside the selected area

0.00: double-click outside the selected area

№35

What is horizontal and vertical intended for scroll bars?

0.00: for word processing

5.00: to scroll through the editor window

0.00: to scroll through tables and texts

№36

The tools in the graphics editor are ...

0.00: line, circle, rectangle

0.00: highlight, copy, paste

5.00: pencil, brush, eraser

0.00: color sets (palette)

Theme number 2

№1

What is called the minimum unit of textual information?

0.00: offer

0.00: line

5.00: symbol

0.00: story

№2

The «End» key sets the cursor:

0.00: start of line

0.00: top of page

5.00: end of line

0.00: end of paragraph

№3

Which key deletes the character to the right of the cursor?

0.00: Page Down

0.00: Insert

0.00: Backspace

5.00: Delete

0.00: Page Up

№4

Which key deletes the character to the left of the cursor?

5.00: Backspace

0.00: Insert

0.00: Page Down

0.00: Delete

0.00: Page Up

№5

What letter is typed when you press the key combination Shift + S (Ы), if the keyboard works in Russian capital letters mode?

5.00: capital letter S

0.00: S (Ы)

0.00: lowercase letter ы

0.00: lowercase letter s

0.00: capital letter S

№6

Which key is used to reject the selected action, to exit from the menu?

0.00: Enter

5.00: Esc

0.00: Alt

0.00: Shift

0.00: Insert

№7

Key for connecting digital mode additional keyboard?

0.00: Insert

0.00: Page Down

5.00: Num Lock

0.00: Caps Lock

0.00: scroll

№8

Which key moves the cursor to the beginning of the line?

0.00: End

0.00: Page Up

0.00: Esc

5.00: Home

0.00: Page Down

№9

Pressing the Shift key together with any letter key will result in:

0.00: computer freezes

0.00: user change

5.00: capitalization

0.00: spacing between letters

0.00: digits appear

№10

Font Type - All Except

0.00: normal

0.00: italics

0.00: bold

5.00: special

№11

To navigate typed text using the keyboard keys apply

0.00: alphanumeric

0.00: functional

5.00: management

№12

How to paste a fragment of text or picture into a document from the clipboard?

0.00: move the cursor to the place of text entry and type text

5.00: move the cursor to the desired location and select the command B to put in the

menu

0.00: type text and move to the desired location

№13

How to paste a fragment of text or picture into a document from the clipboard?

0.00: Ctrl + C

0.00: Ctrl + W

5.00: Ctrl + V
0.00: Ctrl + X
0.00: Ctrl + Z

№14

In all cases, does WORD need to go to a new line press enter ?

0.00: as you wish
5.00: no
0.00: yes

№15

The document page in which the text cursor is located is called

0.00: special
5.00: current
0.00: normal

№16

WORD can be used on Windows to work with

0.00: spreadsheets
5.00: text documents
0.00: text programs

№17

WORD is an integral part

0.00: MS DOS
5.00: Microsoft Office
0.00: Windows

№18

What extension do work files in WORD have?

-2.50:.. ex e
2.50:.. docx
-2.50:.. bat
2.50:.. doc

№19

To undo the last action, you need

0.00: double-click anywhere on the screen
5.00: press Cancel button
0.00: in the File menu, select the Exit command

№20

To undo the last action, you need

0.00: Ctrl + C
5.00: Ctrl + Z
0.00: Ctrl + W
0.00: Ctrl + V
0.00: Ctrl + X

№21

To select an arbitrary sequence of characters, you need

a) set the cursor to the left of the first character and press the left button mouse, without releasing it, select text

b) enter the menu and select the command in the Highlight

c) set the cursor to the left of the first character and press Enter

5.00: a

0.00: b

0.00: c

№22

Working files in which application have the extension .doc?

0.00: MS Access

0.00: MS Excel

5.00: MS WORD

0.00: Paint

0.00: MS PowerPoint

№23

What does the gray (faded) color of the menu command in WORD mean?

5.00: this menu command is currently unavailable

0.00: after selecting this command a dialog box will appear

0.00: this command is currently available

№24

What is called a symbol?

0.00: arbitrary sequence of letters and numbers

5.00: minimum unit of text information

0.00: arbitrary sequence of words between two points

№25

In WORD used fonts

0.00: WORD

5.00: Windows

0.00: Excel

0.00: Access

№26

What is horizontal and vertical intended for scroll bars?

0.00: for word processing

5.00: to scroll through the editor window

0.00: to scroll through tables and texts

№27

Why do we use the Page Layout tab?

0.00: to insert pagination

0.00: to insert a table

0.00: to change page color

0.00: to check spelling

5.00: to arrange transfers

№28

In the row "symbol " - ... - " line" - "text fragment" is missing:

5.00: "word"

0.00: paragraph

0.00: page

0.00: text

№29

The character entered from the keyboard during typing is displayed on the screen, display at the position determined by:

0.00: settable coordinates

5.00: cursor position

0.00: address

0.00: by the position of the previous letter typed

№30

When typing, one word is separated from another:

0.00: point

0.00: comma

5.00: space

0.00: colon

№31

The text editor menu is:

a) part of its interface, providing the transition to execution various operations on the text

b) a subprogram that provides PC resource management when document creation

c) a kind of "window" through which the text is viewed on the screen

d) information about the current state of the text editor

5.00: a

0.00: b

0.00: c

0.00: d

№32

Text editing is:

0.00: the procedure for saving text to disk as a text file

5.00: process of making changes to the existing text

0.00: process of transmitting text information over a computer network

0.00: procedure for reading previously created text

№33

Set the format use sequence patterned:

1) Put the cursor on the paragraph in the format of which will be produced formatting

2) left-click on the desired paragraph

3) Select a brush tool

4) The mouse pointer becomes a brush

0.00: 1,2,3,4
0.00: 2,3,4,1
0.00: 1,3,4,2
0.00: 4,3,2,1

№34

What is a font size?

0.00: letter tracing
0.00: font type
5.00: letter height size

№35

Which keyboard key should be pressed to join below the paragraph if the text cursor is at the end of the current paragraph?

0.00: Enter
0.00: BackSpace
5.00: Delete
0.00: Esc

№36

How to single out one word in the text of a document?

0.00: double-click the right mouse button on the word
0.00: left-click on a word
0.00: right click on the word
5.00: double-click the word left mouse button

№37

What extension do Word 2007 document files have?

0.00: .xls
0.00: .rtf
5.00: .docx
0.00: .jpeg
0.00: .pdf

№38

To deselect text in Word, you need to:

5.00: click anywhere in the document area
0.00: close document
0.00: restart the computer
0.00: save document

№39

What is a document template?

1) file containing document settings
2) a file in which statistics about the document are stored
3) a file that is a working copy of an open file
4) a file that stores information about the content of the created document
5.00: 1
0.00: 2

0.00: 3

0.00: 4

№40

A file containing document settings, such as elements AutoText , fonts, assigned keyboard shortcuts, macros, menus, page options, formatting and styles

0.00: sample document

0.00: document preparation

5.00: document template

0.00: example document

№41

What is Microsoft Office Word for?

0.00: to create animations, multimedia objects

5.00: for creating, viewing and printing text documents

0.00: for creating presentations, i.e. performance illustrations

0.00: to create spreadsheets

№42

When, when entering text into a document, press Enter in a Word program?

5.00: at the end of each paragraph

0.00: after each word

0.00: at the end of each page

0.00: at the end of each line

№43

Name the main function of the MS Word screen item "Rulers"

0.00: contains the name of the program and the current document

0.00: contains buttons of the most frequently used commands

5.00: shows field boundaries, position and types of tabs

№44

What font settings can I change?

1.67: size

1.66: tracing

-2.50: offset relative to document fields

1.67: letter spacing

-2.50: word spacing

№45

How to save a previously created document under a different name?

5.00: use the C save as command

0.00: use the command Send

0.00: use the command C safeguard

0.00: use the command With proof create

№46

What font styles are there?

1.25: italics

-5.00: thickened
1.25: bold
1.25: bold italics
1.25: normal

№47

What is called formatting?

-2.50: change document save options
-2.50: replace text
2.50: change paragraph settings
2.50: change font settings

№48

To print an active Word document, click

0.00: Home - Printing
0.00: Insert - Print
0.00: View - Print
5.00: Office - Print

№49

Choose the fastest way to select the entire document

0.00: hold the left mouse button, stretch down
0.00: select the first word, hold Shift, select the last word
0.00: Home - Select - Select All
5.00: Ctrl + A

№50

In a word processor, the Copy operation becomes possible after:

0.00: setting the cursor in a specific place
5.00: selection of a fragment of text
0.00: save file

№51

When typing, a space is set:

5.00: after the punctuation mark
0.00: to punctuation mark
0.00: before and after the sign

№52

Italicization is achieved by a key combination

0.00: Ctrl + A
0.00: Ctrl + Shift + Space
0.00: Ctrl + Backspace
5.00: Ctrl + I
0.00: Ctrl + U

№53

Bold text is achieved by a keyboard shortcut

5.00: Ctrl + B

0.00: Ctrl + Shift + Space
0.00: Ctrl + Delete
0.00: Ctrl + I
0.00: Ctrl + Z

№54

The default quick access toolbar is located
5.00: top of the Word window
0.00: next to the clock
0.00: to the right of the start button
0.00: on the main tab

№55

Punctuation marks . , ; ! ? are written:
5.00: merged with the word followed by
0.00: space after word followed by

№56

Non-printing characters (control characters) are intended for :
0.00: grammar checks in a document
5.00: Correct and fast text formatting
0.00: move through the document
0.00: finding stylistic errors

№57

Between the words put:
5.00: one space
0.00: two spaces
0.00: spaces are placed automatically

№ 58

A non-breaking space is inserted using the key combination:
0.00: Ctrl + N
5.00: Ctrl + Shift + Space
0.00: Ctrl + Delete
0.00: Ctrl + Alt + Delete
0.00: Ctrl + shift + 8

№59

Shift + F 10 keyboard shortcut :
0.00: closes the document
5.00: calls the context menu
0.00: calls the start menu
0.00: reboots the PC
0.00: opens the Save File menu

№60

Command Cut achieved by a combination of keys:
5.00: Ctrl + X

0.00: Ctrl + Shift + Space
0.00: Ctrl + O
0.00: Ctrl + P
0.00: Ctrl + S

Theme number 3

№1

The standard font for official documents In the Russian Federation is:

5.00: Times New Roman
0.00: Arial
0.00: Tahoma
0.00: Calibri

№2

Changing the case for typed text is possible:

0.00: selecting text and pressing Tab on the keyboard
0.00: Ctrl + Shift
5.00: by pressing the button on the Main tab in the Font group
0.00: style change

№3

The heading level in the text is determined by:

0.00: page number
5.00: number format in the header
0.00: order in the text
0.00: font size

№4

Go to the appropriate section through the Table of Contents:

0.00: achieved by double-clicking
0.00: achieved by pressing Shift + left mouse button
0.00: achieved by pressing Shift + right mouse button
5.00: achieved by pressing Ctrl + left mouse button
0.00: impossible

№5

Auto hyphenation function in the window Microsoft Office Word is located:

0.00: on the main tab
5.00: on the Page Layout tab
0.00: in the context menu
0.00: on the View tab

№6

In a text editor, when setting page parameters, the following are set:

0.00: Headset, size, style
0.00: Indent, interval
5.00: Fields, orientation
0.00: Style, template

№7

To correct a mistake in the word should:

0.00: send fault report

0.00: right-click on a word and select an option

0.00: restart the computer

0.00: contact help and support using F 1

№8

How to quickly select a sentence in a text?

a) while holding the CTRL key, click on any word in the sentence

b) move the pointer to the left edge of the line so that he turned into an arrow pointing to the right, after which click the mouse

c) double-click the text

0.00: a

5.00: b

0.00: in

№9

The style is called:

a) a set of font formatting options

b) a set of formatting options that apply to text, tables, and lists to quickly change them appearance

c) paragraph formatting options

d) the way to align the text of the paragraph

0.00: a

5.00: b

0.00: c

0.00: d

№10

How does zooming a document affect to print a document?

0.00: increases font size when printing

5.00: no effect

0.00: requires page resizing

0.00: increases the size of drawings when printing

№11

How can I go into the mode of creating or editing footers?

0.00: by double-clicking on the vertical ruler

5.00: by double-clicking in the upper or lower margin of the document

0.00: using the Footer group on the Main tab

0.00: using the Structure command from the “View” menu

№12

How can I go into the mode of creating or editing footers?

0.00: by double-clicking on the vertical ruler

0.00: by double-clicking on the horizontal ruler

5.00: using the Header and Footers group on the Insert tab

0.00: using the Structure command from the “View” menu

№13

The Font item on the Main tab allows:

0.00: restart Word program

0.00: set bullet list

5.00: set the font type, color, size and style

0.00: break text into columns

№14

To center the title, you must

0.00: press Tab until the text is centered

5.00: press the P button about the center in the Paragraph group

0.00: press Spacebar until the text is centered

№15

What kind of alignment is not in the MS Word Processor?

5.00: height alignment

0.00: right alignment

0.00: left align

0.00: center alignment

№16

The number of the current page of the document can be seen:

0.00: on the main tab

5.00: in the status bar

0.00: upper right corner of the Word window

0.00: in the Quick Access Toolbar

0.00: in the context menu

№17

How to fix the error if you accidentally deleted part of the text?

2.50: click About Cancel on the Quick Access Toolbar

-2.50: press P repeat on the Quick Access Toolbar

2.50: keyboard shortcut Ctrl + Z

-2.50: keyboard shortcut Ctrl + Shift + F8

№18

You have highlighted several lines in the document. Why is the size in the field font on the main tab has the value disappeared?

0.00: Characters in selected text are too large

5.00: Symbols in the selected text have different sizes

0.00: Character size not set in selected text

0.00: Characters in selected text are too small

№19

How to quickly select text at the end of a line using keyboard keys?

0.00: SHIFT + HOME

5.00: SHIFT + END

0.00: SHIFT + right arrow

№20

How to quickly select text at the beginning of a line using keyboard keys?

5.00: SHIFT + HOME

0.00: SHIFT + END

0.00: SHIFT + right arrow

№21

What mode allows you to display in the process of working with a document him the way he will be printed?

0.00: Structure Mode

0.00: Normal mode

0.00: Page Layout

5.00: Document preview mode

№22

What sets the indent option on the left 2 cm in the Paragraph dialog box?

0.00: Offset the entire paragraph 2 cm to the left of the left margin

5.00: Offset the entire paragraph 2 cm to the right of the left margin

0.00: Page margin size

0.00: Offset only the first row 2 cm to the left of the left margin

№23

The clipboard stores several different fragments. Is it possible paste multiple fragments from the clipboard at the same time?

5.00: yes, any number of fragments

0.00: yes, but only nearby fragments

0.00: yes, but only all fragments at once

0.00: no

№24

How can I remove all pagination in a Word 2007 document?

2.50: press U to delete page numbers in the Page Number menu

2.50: delete one of the numbers in the header change mode

-2.50: save the file with a new name

-2.50: by pressing Ctrl + Alt + Delete

№25

How to delete a number only on the first page of a document?

5.00: by clicking the Special footer for the first page in the Design tab

0.00: by clicking Custom footer for the first page in the View tab

0.00: delete one of the numbers in the header change mode

№ 6

How to insert an express block into a document?

0.00: Insert-Text Box -Add Label

5.00: Insert-Text-Express blocks

0.00: Page Layout-Text-Express Blocks

№27

How are special characters inserted?

0.00: typed on the keyboard

0.00: copied from other documents

0.00: copied from templates

5.00: Insert tab Symbol button

№28

How to insert current time and date into a document?

5.00: Insert-Text-Date and time

0.00: Page Layout - Date and Time

0.00: Links-insert link

0.00: Links-Insert footnote

№29

Creating an AutoCorrect element is performed:

0.00: Button Office Parameters Word -Pravopisanie (correct writing)-Custom dictionaries

0.00: Links- Word Options-Spelling- AutoCorrect Options

5.00: Button Office Parameters Word -Pravopisanie (correct writing)-Options AutoCorrect

№30

How to change pages in the Table of Contents when changing them in the text:

5.00: press About Refresh table in the Table of Contents menu

0.00: re-create the table of contents

0.00: enter page numbers using keyboard

Theme number 4

№1

The standard indentation for the first line is:

5.00: 1.25 sm

0.00: 0.7 sm

0.00: 1.0 sm

0.00: 2.0 sm

№2

You can adjust the fields in the document:

1.66: choosing from the list when clicking the Fields button

1.67: manually

-2.50: by clicking the Size button on the Page Layout tab

1.67: in the Custom Fields menu

-2.50: adjusting the scale

№3

The default sheet orientation is

0.00: large book

5.00: book

0.00: landscape
0.00: diagonal

№4

The indentation in the document is governed by:

5.00: buttons in the paragraph group
0.00: buttons in the Font group
0.00: buttons in the Page Settings group

№5

You can set a specific numerical value for the indentation in the document:

0.00: in the window of the Font button
5.00: in the Paragraph button window
0.00: in the Office Button Options menu

№6

The indentation of the first line can be changed:

2.50: in the Paragraph button window
-2.50: in the window of the Font button
2.50: using the top ruler
-2.50: using the side ruler

№7

By default, the line spacing in the document should be set:

0.00: double
0.00: one and a half
0.00: multiplier
5.00: single

№ 8

Center text alignment should be performed:

0.00: repeatedly pressing Space
5.00: combination Ctrl + E
0.00: by pressing Tab

№9

Center text alignment should be performed:

0.00: repeatedly pressing Space
0.00: Ctrl + I combination
0.00: by pressing Tab
5.00: with the same button in the paragraph group

№10

Right alignment should be performed:

5.00: Ctrl + R combination
0.00: repeatedly pressing Space
0.00: by pressing Tab

№11

Center text alignment should be performed:

0.00: repeatedly pressing Space

5.00: with the same button in the paragraph group

0.00: Ctrl + U combination

0.00: by pressing Tab

№12

The graphic image of the formula is inserted into the Word document :

0.00: regular characters

0.00: from the Symbol menu on the Insert tab

5.00: using the Formula toolbox in the Symbols group

0.00: from the graphical editor Paint

№13

The graphic image of the formula is inserted into the Word document :

5.00: using the Eq field in the Express Blocks menu

0.00: from the graphical editor Paint

0.00: regular characters

0.00: from the Symbol menu on the Insert tab

№14

You can exit the footer editing menu by pressing:

0.00: Ctrl + Alt + Delete Combinations

5.00: Esc keys

0.00: Alt + F 4 combinations

№15

Lists in a document can be:

2.50: numbered

-2.50: simple

-2.50: difficult

2.50: labeled

№16

Lists in a document can be:

2.50: numbered

2.50: multi-level

-2.50: ordered

-2.50: chaotic

№17

Which field is not among compulsory at registration of the title page:

0.00: department head

5.00: rector

0.00: teacher

0.00: performed

№18

In column B performed during registration of the title page is not indicated

0.00: Surname of the author
0.00: Course
0.00: Group Number
0.00: Faculty
5.00: home address

№19

The footers in the document are located:

2.50: at the top of the sheet
2.50: bottom of sheet
-2.50: on the left side of the sheet
-2.50: on the right side of the sheet

№20

It is possible to avoid captions in the footer area on the first sheet:

5.00: by selecting the Special footer option for the first page
0.00: manually deleting them
0.00: in the menu of the button View and print

№21

Clip-art objects are intended for:

0.00: inserting video clips into a document
5.00: insert graphic clips into a document
0.00: drawing in the document field

№22

What are WordArt objects?

0.00: Drawing tools in the document field
5.00: A variety of graphic shapes in the text area
0.00: Table creation tool
0.00: Macro Recording Tool

№23

How is it possible to go to a new page, not filling out the previous one completely?

2.50: inserting Page Break from the Insert tab
-2.50: Enter repeatedly
2.50: inserting a page break with the key combination Ctrl + Enter
-2.50: repeatedly pressing Space

№24

The output of the document for viewing and printing is possible:

2.50: by clicking the View and print icon
2.50: keyboard shortcut Ctrl + P
-2.50: keyboard shortcut Ctrl + B
-2.50: by pressing a button on the printer

№25

You cannot add to the footer:

0.00: ClipArt object

5.00: video clip
0.00: building blocks

№26

Footnotes in the document are intended for:

0.00: plagiarism protection
5.00: add comments, indicate the source of information
0.00: document orientation

№27

The index in the document is:

0.00: item name index
5.00: a list of terms found in the document
0.00: table of contents
0.00: where the cursor is positioned

№28

Choose your list options in Microsoft Word documents

1.67: numbered
1.67: marked
-1.66: drop down
-1.67: two-level
-1.67: ordered
1.66: layered

№29

What points can we implement when printing a document?

1.25: Select a printer
1.25: Specify printing multiple pages on one
-5.00: Indicate printing 5 pages on one
1.25: Print single pages only
1.25: Select to print multiple copies

№30

A Word 2007 document has a cover page. Which tab Should I use to select a different cover page?

0.00: Home
5.00: Insert
0.00: Links
0.00: Review

Theme number 5

№1

Where is the Shapes team located?

5.00: Insert - Illustrations
0.00: Insert - Text
0.00: Home - Paragraph
0.00: View - Window

№2

Flowchart tool in Microsoft Office Word bears the name :

0.00: WordArt

5.00: SmartArt

0.00: ArtHouse

0.00: ArtViewer

№3

Purpose of using illustrations in text documents:

1.67: improved perception

-2.50: solidifying a document

1.67: help in memorizing material

1.66: motivation for action

-2.50: uplifting

№4

What type of SmartArt drawing is optimal for displaying inconsistent information?

0.00: Cycle

0.00: Process

5.00: List

0.00: Hierarchy

0.00: Communication

№5

What type of SmartArt drawing is optimal for displaying process steps or timeline?

0.00: Cycle

5.00: Process

0.00: List

0.00: Hierarchy

0.00: Matrix

№6

What type of SmartArt drawing is optimal for displaying continuous process?

0.00: Pyramid

5.00: Cycle

0.00: List

0.00: Hierarchy

0.00: Communication

№7

How can I add a table to a document?

1.67: draw with the Pencil tool

-2.50: draw using Shapes

1.67: Insert - Table - Insert table

-2.50: Insert - Figure

1.66: Insert - Table - Express tables

№8

To move between cells, you can use:

-2.50: Space
2.50: Tab
2.50: Shift + Tab
-2.50: BackSpace

№9

To go to the next cell in the table, you must use:

0.00: Space
0.00: Ctrl
0.00: Shift
5.00: Tab

№10

To move between cells, you can use:

-2.50: Space
-2.50: Delete
2.50: Tab
2.50: arrow keys

№11

To move between cells, you can use:

2.50: Mouse pointer
-2.50: Space
-2.50: Shift + Esc
2.50: Shift + Tab

№12

To return to the previous cell in the table, you must use:

0.00: Shift + Space
5.00: Shift + Tab
0.00: Shift
0.00: Tab

№13

It is possible to select the entire table:

1.67: by clicking on the square symbol in the upper left corner of the table
-2.50: keyboard shortcut Ctrl + A
1.67: using the left mouse button
-2.50: using the right mouse button
1.66: select the first cell , while holding Shift , select the last cell

№14

How can cells be combined?

2.50: select cells and select About merge cells in the context menu
2.50: using the Eraser tool
-2.50: using the H tool draw a table
-2.50: select cells and press Delete

№15

How can I split a cell?

2.50: using the H tool draw a table

-2.50: select cells and press Enter

2.50: select the context menu of a specific cell P azbit cell

-2.50: using the Eraser tool

№16

Where is the function for inserting express tables?

0.00: Insert - Shapes

5.00: Insert - Table

0.00: Insert - Express Blocks

0.00: Insert - Caption

№17

How the value of calculations in the cell is updated when changing the initial numerical values in the cells?

0.00: automatic

0.00: only when inserting the formula again

5.00: About the update field command

0.00: About command to clean the field

№18

How is the insertion of a diagonal line in Word table cell ?

0.00: using the Shapes - Lines function

5.00: using the H tool draw a table

0.00: using the function P beat cells

№19

Using which function is it possible to change the background of cells in Word table?

0.00: Font - Text color

0.00: Font - Text highlight color

5.00: Constructor - Fill

№20

How is it possible to align the width of columns in a Word table?

a) select the columns and select In Align in the context menu row height

b) select the columns and select In Align in the context menu column width

c) manually, moving borders

d) using the function Merge cells

0.00: a

5.00: b

0.00: c

0.00: d

№21

How can I change the thickness of the lines (borders) of the table?

0.00: select the table and go to the menu Borders and fill

0.00: by choosing the Layout tab - Cell Fields

5.00: select the thickness of the line and specify the desired borders with Tool H arisovat table

0.00: using the lines in the Shapes menu

2.50: a

-2.50: b

2.50: c

-2.50: d

№22

When performing calculations in Word tables, the LEFT function touches:

0.00: cells located in the row to the right of the cell with the formula

5.00: cells located in the row to the left of the cell with the formula

0.00: cells located in the row above the cell with the formula

0.00: cells located in the row below the cell with the formula

№23

When performing calculations in Word tables, the RIGHT function touches:

0.00: cells located in the row to the left of the cell with the formula

5.00: cells located in the row to the right of the cell with the formula

0.00: cells located in the row above the cell with the formula

0.00: cells located in the row below the cell with the formula

№24

When performing calculations in Word tables, the ABOVE function touches:

0.00: cells located in the column to the left of the cell with the formula

0.00: cells located in the column to the right of the cell with the formula

5.00: cells located in the column above the cell with the formula

0.00: cells located in the column below the cell with the formula

№25

When performing calculations in Word tables, the BELOW function touches:

0.00: cells located in the column to the left of the cell with the formula

5.00: cells located in the column below the cell with the formula

0.00: cells located in the column to the right of the cell with the formula

0.00: cells located in the column above the cell with the formula

№26

It is possible to add rows to the end of the table:

1.67: placing the cursor to the right of the last cell and pressing Enter

1.66: highlighting the last line and pressing B put lines below

-2.50: using the R command to kill cells

1.67: use the H tool to draw a table

-2.50: inserting a new table from the bottom

№27

How to make a shape contour invisible?

5.00: Select a shape - Shape styles - Outline - No outline

0.00: change the color of the lines to white

0.00: using the Eraser tool

№28

It is possible to set the exact value of the column width in the table:

0.00: by choosing Layout - Properties - Cell

5.00: by choosing Layout - Properties - Column

0.00: manually moving borders

№29

To insert a formula into a cell in a Word table:

5.00: place the cursor in the cell - select Layout - Formula

0.00: place the cursor in the cell, put the = sign, enter the formula

0.00: place the cursor in the cell - select Insert - Formula

№30

Adding a column to a table is possible:

1.67: select a column, next to which you need to insert a column and select B in menu - set - select columns to the right or left

1.66: use the P command to kill cells

-2.50: using the O merge cells command

1.67: use the H tool to draw a table

-2.50: select a column and press Ctrl + N

Theme number 7

№1

In spreadsheets, the range of cells A1:B3 is highlighted. how many cells are in this range?

0.00: 3

0.00: 4

0.00: 5

5.00: 6

0.00: 12

№2

How are the lines on the working field of the Ex program with el marked?

0.00: Points.

0.00: Letters.

5.00: Figures.

0.00: Pictures.

0.00: Nothing

№3

When calculating a formula in a cell, an error message appears *lattice*. It means

0.00: invalid argument value in the formula

0.00: that the name used in the formula is not recognized

0.00: the divisor in the formula takes the value? H ul?

0.00: invalid data type

5.00: cell overflow

№4

Where is the contents of the current cell displayed?

0.00: In status bar

0.00: In the upper left corner under the standard toolbar

0.00: On a horizontal formatting ruler

5.00: In the formula bar

0.00: Not displayed anywhere

№5

In EXCEL with spreadsheet cells you cannot perform the following actions:

0.00: enter and correct information

0.00: copy and delete information

5.00: resize one individual cell

0.00: mark and unmark

№6

What are the columns on the Ex workspace with el marked?

0.00: Points.

5.00: Letters.

0.00: Pictures.

0.00: Nothing

№7

What does the \$ symbol mean in cell name record B \$ 2?

0.00: only the column number will not change in the address.

5.00: only the line number will not be changed in the address.

0.00: the cell name will remain unchanged.

0.00: the beginning of the range is strictly fixed and does not change when copying

0.00: this cell will be given an arbitrary name

№8

A spreadsheet formula cannot include:

0.00: cell names

0.00: numbers

5.00: drawings

0.00: text

0.00: signs of arithmetic operations

№9

What is displayed in the cell after writing the formula and pressing the Enter key?

0.00: Record of the formula itself, an equal sign and the result of the calculation.

0.00: Special characters

5.00: The result of calculating the formula based on the available data.

0.00: Nothing displayed.

0.00: Just numbers.

№10

How to write the formula for summing the cell range from b2 to b8?

0.00: = sums (b2, b8)

5.00: = sums (b2: b8)

- 0.00: = sums (b2-b8)
- 0.00: = sums (b2; b8)
- 0.00: = sums (b2 + b8)

№11

When building the EXCEL diagram, it turned out to be empty. Why?

- 0.00: Not enough RAM.
- 0.00: Invalid chart type selected.
- 0.00: Data in the selected area is too small.
- 5.00: A block of data cells is not selected.
- 0.00: The chart does not fit on the screen because it is too large.

№12

When calculating the formula in the cell, a message appeared about the error №NAME? It means:

- 0.00: invalid argument value in the formula
- 0.00: that the name used in the formula is not recognized
- 0.00: the divisor in the formula takes the value? H ul?
- 0.00: cell overflow
- 5.00: wrong data type

№13

A group of 8 cells was selected in the spreadsheet. Could these be cells?

- 0.00: A 1 : B8
- 0.00: A 1 : C 4
- 5.00: A 1 : B 4
- 0.00: B 2 : C 4
- 0.00: A 2 : B 4

№14

A spreadsheet cell is called current if:

- 0.00: cell visible on screen
- 0.00: it contains information
- 0.00: cell is empty
- 0.00: cell contains the formula
- 5.00: the cursor is in it

№15

The range of cells in the spreadsheet is

- 0.00: many cells forming an arbitrary shape region
- 0.00: many filled cells in a spreadsheet
- 0.00: a lot of cells forming a rectangular area
- 0.00: many empty cells in a spreadsheet
- 5.00: many square-shaped cells

№16

The cell address of the spreadsheet is

- 0.00: name consisting of any sequence of characters
- 0.00: name consisting of column name and row number

0.00: address of the byte of RAM allocated for the cell

0.00: address of the machine word of random access memory allocated to the cell

5.00: name consisting of column number and row number

№17

The introduction of the formula into the cell begins with the sign:

0.00: plus

0.00: minus

0.00: stars

0.00: lattice

5.00: equalities

№18

The introduction of the formula into the cell ends:

0.00: moving to another cell

5.00: by pressing the Enter key

0.00: closing the sheet

0.00: activating the formula bar

№19

To select a range of cells, you must:

a) move the mouse cursor to the column numbering and click left mouse button

b) clicking on the upper left cell of the range and not releasing left mouse button, bring to the bottom right cell range

c) move the mouse cursor to line numbering and click left mouse button

d) move the mouse cursor to the intersection of the numbering of columns and rows in the upper left corner of the whole table and click the left mouse button

0.00: a)

5.00: b)

0.00: c)

0.00: d)

№20

To select the entire column of cells, you must:

a) move the mouse cursor to the column numbering and click left mouse button

b) clicking on the upper left cell of the range and not releasing left mouse button, bring to the bottom right cell range

c) move the mouse cursor to line numbering and click left mouse button

d) move the mouse cursor to the intersection of the numbering of columns and rows in the upper left corner of the whole table and click the left mouse button

5.00: a)

0.00: b)

0.00: c)

0.00: d)

№21

To select the entire row of cells, you must:

a) move the mouse cursor to the column numbering and click left mouse button

b) clicking on the upper left cell of the range and not releasing left mouse button, bring to the bottom right cell range

c) move the mouse cursor to line numbering and click left mouse button

d) move the mouse cursor to the intersection of the numbering of columns and rows in the upper left corner of the whole table and click the left mouse button

0.00: a)

0.00: b)

5.00: c)

0.00: d)

№22

To select the whole list of cells you need:

a) move the mouse cursor to the column numbering and click left mouse button

b) clicking on the upper left cell of the range and not releasing left mouse button, bring to the bottom right cell range

c) move the mouse cursor to line numbering and click left mouse button

d) move the mouse cursor to the intersection of the numbering of columns and rows in the upper left corner of the whole table and click the left mouse button

0.00: a)

0.00: b)

0.00: c)

5.00: g)

Theme number 8

№01.

Select the main types of diagrams in Excel :

-2.50: Linear

1.67: Histogram

1.67: Circular

-2.50: Circumference

1.66: Graph

№02.

The main elements of the diagram include:

2.50: Chart name

-1.67: Chart font name

2.50: Name of the ordinate of the chart

-1.67: Chart file name

-1.66: Chart data series name

№03.

The main elements of the diagram include:

1.67: Elements of the legend

-2.50: name of the legend

1.67: legend

1.66: Legend Key

-2.50: Legend Font

№04.

The main elements of the diagram include:

- 2.50: Rows of Permanent
- 1.67: Data Series
- 2.50: Rows of logical operators
- 1.67: name of the abscissa
- 1.66: Ordinate Name

№05.

The main elements of the diagram include:

- 1.67: Data Labels
- 2.50: legend tags
- 1.67: Build Area
- 2.50: Data area
- 1.66: chart area

№06.

What type of chart will you choose for analysis:

- 0.00: Histogram
- 0.00: Pie chart
- 5.00: Schedule
- 0.00: Inside the bar graph

№07.

What type of chart will you choose to identify interestratiois:

- 0.00: Histogram
- 5.00: Pie chart
- 0.00: Graph
- 0.00: Inside the bar graph

№08.

What kind of diagram will you choose for the most clarity:

- 0.00: Histogram
- 5.00: Pie chart
- 0.00: Graph
- 0.00: Inside the bar graph

№09.

What type of chart do you choose for the most informative:

- 0.00: Histogram
- 0.00: Pie chart
- 5.00: Schedule
- 0.00: Inside the bar graph

№10.

The **Chart** Tool contains tabs

- 1.67: View
- 1.67: Constructor
- 1.67: Data
- 1.67: Layout

1.66: Format
-1.66: Font

№11.

Using the *Designer* tab, you can perform the following operations:

2.50: Chart type selection
-2.50: Formula selection
2.50: Layout selection
-2.50: Font style selection

№12.

The *Design* tab contains panels:

2.50: Data
-1.25: Sort
-1.25: Signatures
-1.25: Paste
-1.25: Size
2.50: Location

№13.

The *Layout* tab contains panels:

-1.25: Data
-1.25: Sort
2.50: Signatures
2.50: Paste
-1.25: Size
-1.25: Location

№14.

The *Format* tab contains panels:

-1.25: Data
2.50: Sort
-1.25: Signatures
-1.25: Paste
2.50: Size
-1.25: Location

№15.

Which tab on the ribbon contains the *Illustrations* panel:

0.00: Home
5.00: Insert
0.00: Links
0.00: Page Layout

№16.

What native objects are used in Excel?

-1.67: Photos
2.50: WordArt Objects
2.50: SmartArt Drawings

- 1.67: Video files
- 1.66: Audio files

№17.

What external objects can be imported and pasted into Excel:

- 1.67: Photos
- 2.50: WordArt objects
- 2.50: SmartArt Drawings
- 1.67: Video files
- 1.66: Audio files

№18.

Legend is:

- a) descriptive text along axes
- b) a signature with additional data marker information
- c) descriptive text centered at the top of the chart
- d) a frame in which patterns or colors of rows or categories are defined chart data

0.00: a)

0.00: b)

0.00: c)

5.00: d)

0.00: a), c)

0.00: b), d)

№19.

The Chart Title is:

- a) descriptive text along axes
- b) a signature with additional data marker information
- c) descriptive text centered at the top of the chart
- d) a frame in which patterns or colors of rows or categories are defined chart data

0.00: a)

0.00: b)

5.00: c)

0.00: g)

0.00: a), c)

0.00: b), d)

№20.

The name of the axes is:

- a) descriptive text along axes
- b) a signature with additional data marker information
- c) descriptive text centered at the top of the chart
- d) a frame in which patterns or colors of rows or categories are defined chart data

5.00: a)

0.00: b)

0.00: c)

0.00: g)

0.00: a), c)

0.00: b), d)

№ 21.

Data labels are:

- a) descriptive text along axes
- b) a signature with additional data marker information
- c) descriptive text centered at the top of the chart
- d) a frame in which patterns or colors of rows or categories are defined chart data

0.00: a)

5.00: b)

0.00: c)

0.00: d)

0.00: a), c)

0.00: b), d)

Theme number 9

№ 01

The general complex is

0.00: part of the objects of the complex

5.00: all studied objects

0.00: imaginary objects

№ 02

The sample complex is

a) retaining all the properties of a real object

b) maintaining the essential properties of a real object

c) not preserving a single property of a real object

5.00: part of the objects of the complex

0.00: all studied objects

0.00: imaginary objects

№ 03

Quantitative features of the objects of the complex are characterized by:

0.00: numerical definition

5.00: numerical distribution

0.00: numeric name

№ 04

The characteristics of numerical distributions include parameters:

1.67: average

1.67: variance

1.66: standard deviation

-5.00: average deviation

№ 05

Estimation of a numerical parameter can be

1.25: pitting

-2.50: rough

-2.50: not rude

1.25: interval
1.25: offset
1.25: unbiased

№ 06

A point estimate of the general characteristic is called selective characteristic:

a) which is the number that is used in as an approximate value of the unknown general characteristics

b) which is determined by two numbers: the ends of the interval covering the estimated parameter

5.00: a)

0.00: b)

№ 07

The interval estimate of the general characteristic is called selective characteristic:

a) which is the number that is used in as an approximate value of the unknown general characteristics

b) which is determined by two numbers: the ends of the interval covering the estimated parameter

0.00: a)

5.00: b)

№ 08

In the field of biometry, the types of statistical criteria are used:

-2.50: accurate

2.50: parametric

2.50: nonparametric

-2.50: not accurate

№ 09

Parametric criteria are criteria:

a) built on the basis of the parameters of this population and representing the functions of these parameters

b) representing functions that depend directly from a variant of this aggregate with their frequencies

5.00: a)

0.00: b)

№10

Nonparametric criteria are criteria:

a) built on the basis of the parameters of this population and representing the functions of these parameters

b) representing functions that depend directly from a variant of this aggregate with their frequencies

0.00: a)

5.00: b)

№11

Student's method of comparing the mean values of two samples refer to:

0.00: exact methods
5.00: parametric methods
0.00: nonparametric methods
0.00: inaccurate methods

№12

Functional link is link

a) in which each specific value is independent the variable corresponds to the only value of the dependent variable

b) in which each specific value is independent variable corresponds to more than one value of the dependent variable

5.00: a)

0.00: b)

№13

Correlation is a relationship

a) in which each specific value is independent the variable corresponds to the only value of the dependent variable

b) in which each specific value is independent variable corresponds to more than one value of the dependent variable

0.00: a)

5.00: b)

№14

The degree of connection between the phenomena is estimated using

a) correlation coefficient

b) standard deviation

c) dispersion

5.00: a)

0.00: b)

0.00: c)

№15

The degree of connection between the phenomena may be

a) weak

b) moderate

c) strong

d) complete

e) be absent

0.00: a) e) c)

0.00: b) a) c) d)

0.00: c) a) b) d)

5.00: d) a) b) c) e)

0.00: d) d)

№16

Determining the average of a numerical distribution in Excel using the Function Wizard, you can carry out in the tabs:

a) mathematical

- b) statistical
 - c) financial
 - d) logical
 - e) 10 recently used
- 0.00: a) c)
0.00: b) e)
0.00: c) b)
0.00: g) e)
5.00: d) b)

№ 17

Determining the standard deviation of a numerical distribution in Excel using the Function Wizard, you can carry out in the tabs:

- a) mathematical
 - b) statistical
 - c) financial
 - d) logical
 - e) 10 recently used
- 0.00: a) c)
0.00: b) e)
0.00: c) b)
0.00: g) e)
5.00: d) b)

№18

Determining the correlation coefficient of samples in Excel using the Function Wizard, you can carry out in the tabs:

- a) mathematical
 - b) statistical
 - c) financial
 - d) logical
 - e) 10 recently used
- 0.00: a) c)
0.00: b) e)
0.00: c) b)
0.00: g) e)
5.00: d) b)

№19

To determine the average value, you must activate the function

- 5.00: AVERAGE
0.00: STD
0.00: CORREL
0.00: TEST

№20

To determine the standard deviation function must be activated

- 0.00: AVERAGE
5.00: STD

0.00: CORREL
0.00: TEST

№ 21

To determine the linear correlation coefficient function must be activated

0.00: AVERAGE
0.00: STD
5.00: CORREL
0.00: TEST

№ 22

To apply the student method function must be activated

0.00: AVERAGE
0.00: STD
0.00: CORREL
5.00: TTEST

Theme number 10

№ 01

The database is:

0.00: part of the objects of the population
0.00: all studied objects
0.00: data set
5.00: structured data set
0.00: imaginary objects

№ 02

Types of database structuring:

1.67: network
1.67: hierarchical
1.66: tabular
0.00: designer

№ 03

The table database field names are displayed:

0.00: in lines
5.00: in the first line
0.00: in columns
0.00: in the first column

№ 04

Table database entries displayed:

5.00: in lines
0.00: in the first line
0.00: in columns
0.00: in the first column

№ 05

The fields in the table database are displayed:

0.00: in lines

0.00: in the first line

5.00: in columns

0.00: in the first column

№ 06

Limitations on Database Structure

a) the first row of the database must contain non-duplicate field names

b) records contain empty rows

c) field information should be uniform

0.00: a)

0.00: b)

5.00: c) a)

0.00: b) c)

№ 07

Limitations on Database Structure

a) field information may be heterogeneous

b) contain records that are not empty rows

c) the first row of the database must contain duplicate field names

0.00: a)

5.00: b)

0.00: c) a)

0.00: b) c)

№ 08

Limitations on Database Structure

a) field information may be heterogeneous

b) field information should be uniform

c) the first row of the database must contain duplicate field names

0.00: a)

5.00: b)

0.00: c) a)

0.00: b) c)

№ 09

Limitations on Database Structure

a) the first row of the database must contain non-duplicate field names

b) the first row of the database must contain duplicate field names

c) records contain empty rows

5.00: a)

0.00: b)

0.00: c) a)

0.00: b) c)

№10

DBMS is:

0.00: managed database structure

0.00: universal database system
5.00: database management system

№11

What is the main work with the database?

0.00: in the data set
0.00: in data table entry
5.00: in the search for information on certain criteria
0.00: in creating databases

№12

Excel refers to DBMS?

5.00: no
0.00: yes

№13

Excel manages many databases?

5.00: no
0.00: yes

№14

Excel manages a single database?

0.00: no
5.00: yes

№15

What options are used to search information on certain criteria in the database

a) Filter
b) Insert
c) Data
5.00: a) c)
0.00: b)
0.00: a) b)
0.00: c)
0.00: b) c)

Theme number 11

№ 01

Specify the program that creates the files with the extension .ppt:

5.00: Power Point
0.00: Excel
0.00: Access
0.00: Word
0.00: Paint

№ 02

A program designed to create and edit presentations:

0.00: Paint

5.00: Power Point
0.00: Access
0.00: Word
0.00: Excel

№ 03

What is a presentation?

0.00: Self-introduction
0.00: Theatrical performance
5.00: This is a set of slides and special effects used for display on the screen
0.00: A set of pictures
0.00: A set of text files

№ 04

What command is used to insert a chart and a fragment of the data table to it on a slide in PowerPoint 2007?

5.00: Insert Chart
0.00: Start-Figure-Chart
0.00: Taskbar-Organization Chart
0.00: File-Import

№ 05

Which version of Power Point allows you to save your presentation as video file?

0.00: All versions allow
0.00: All of the following versions do not allow
0.00: Power point 2003
0.00: Power point 2007
5.00: Power point 2010

№ 06

The minimum element of the presentation within which the content is:

0.00: Template
0.00: Presentation
0.00: Layout
5.00: Slide
0.00: Animation

№ 07

The hotkey for pasting clipboard information into MS PP is:

0.00: Esc
0.00: Ctrl + P
5.00: Ctrl + V
0.00: Alt + R
0.00: Shift

№ 08

Tools for formatting text contains:

0.00: Office Button
5.00: Home tab
0.00: Design tab

0.00: Menu? Start?

0.00: Review tab

№ 09

The optimal number of sentences on one slide for the most convenient perception of information:

0.00: 1-2 sentences

0.00: 10-20 sentences

5.00: 3-5 offers

0.00: 50-100 offers

0.00: 100-120 offers

№10

To change the presentation topic you need:

0.00: Open the Add-Ins tab

0.00: On the Animation tab, select Slide Change

5.00: In the Themes group of the Design tab, click the desired document theme

0.00: Click Start? Run? Change Themes

0.00: This option does not exist

№11

To select the desired option to move the slide to another slide you need:

0.00: Click File? Create? New transition option

0.00: On the Formatting tab, select a group. Go to this slide

0.00: On the Home tab, select the Animation group.

5.00: On the Animation tab, select the group Go To This Slide

0.00: Click Start? Run? Slide transition

№12

To switch from Slide Show Mode to Normal Mode you need to:

0.00: press the F5 key

0.00: press the caps lock key

5.00: press the Esc key

0.00: just move the mouse cursor

0.00: do not click anything

№13

How many operating modes are presented in MS PP?

5.00: 3

0.00: 2

0.00: 1

0.00: 4

0.00: There are no operating modes in MS PP

№14

How to proportionally resize inserted pictures, photos:

0.00: Horizontal

5.00: Diagonal

0.00: Vertical

№15

What actions can be performed on slides in the mode? Slide sorter ??

0.00: Insert SmartArt elements into slides

0.00: Change the contents of the selected slides

0.00: Adding Graphics and Tables

5.00: Removing whole slides

0.00: Removing text from individual slides

№16

In which of the following modes of the text formatting command will be unavailable?

0.00: Mode? Normal?

5.00: Mode? Slide Show?

0.00: Inaccessible in any mode

0.00: Available in any mode

№ 17

What command can add Excel tables in MS PP?

0.00: Left-click and select Table

0.00: On the Animation tab, select the Insert command.

5.00: Table command in the Insert tab

0.00: On the Review tab, Excel team

0.00: No such command

№18

With the .PPTM file extension, the MS PP presentation is saved:

0.00: With table

5.00: With macro support

0.00: With clip support

0.00: With multiple drawings

0.00: With support for animation elements

№19

List the elements that can be entered on the slide:

0.00: Text

0.00: Tables

0.00: Charts

0.00: Pictures

5.00: All of the above is true

№20

If the text on the slide goes beyond the text placeholder, then it (the place) can be increased by following these steps:

1) Click File? Create? New placeholder

2) On the Home tab, select the Edit command

3) Select the placeholder, move the mouse pointer to its borders

and after changing the shape of the cursor, stretch

4) Select the placeholder and press one of the keys? Up ?? Down ?? right? or? to the

left?

5) Such an action cannot be performed.

0.00: 1)

0.00: 2)

5.00: 3)

0.00: 4)

0.00: 5)

№21

What is the most convenient way to design a slide?

0.00: Bright red text on a black background

0.00: The borders of the inserted photo or picture coincide with the borders of the slide

0.00: Black text on a bright green background

5.00: There is a gap between the border of the slide and the inserted photo

№ 22

What are animation effects used for?

0.00: To transmit fun information

0.00: To overload the presentation

5.00: To attract the attention of the public

0.00: For the entertainment of the public

№ 23

Which of the following fonts is best used in a presentation?

5.00: Arial

0.00: Symbol

0.00: Wingdings

0.00: Any Gothic

№ 24

What needs to be done to accurately position various objects on a slide?

0.00: Objects can be positioned with the mouse? By eye?

5.00: Objects can be positioned using guides

0.00: Objects themselves are positioned

0.00: Objects can be positioned using a wooden ruler

№ 25

What does the concept include? Unified styling ??

0.00: The same number of slides on all presentations

0.00: Mandatory presence on all slides of animation effects

5.00: Single color and typeface, single background color

0.00: A single number of photos on each slide

№ 26

What information is desirable to place on the first slide of the presentation?

0.00: Brief conclusions on the topic of presentation

0.00: List of literature used to create a presentation

0.00: Thanks to the public for the attention given

5.00: On what topic and by whom the presentation was created

№ 27

Charts, drawings, photographs are used in the creation of the presentation as:

5.00: As additional to text information

0.00: As entertainment information

0.00: As advertising information

№ 28

The main findings of the report are:

0.00: On the first slide of the presentation

5.00: On the final slide of the presentation

0.00: On an intermediate presentation slide

0.00: The report does not draw any conclusions

№ 29

How to add a fixed date?

0.00: Fixed dates cannot be added to presentations

5.00: The Date and Time command on the Insert tab

0.00: Command Add to menu? Start?

0.00: The Date and Time command on the Formatting tab

№30

With what extension do you need to save the presentation so that it always opened in a slide show?

0.00: .doc

0.00: .ppt

5.00: .ppsx

0.00: .pptm

№ 31

The collection of slides collected in one file form:

0.00: impression

5.00: presentation

0.00: frames

0.00: drawings

Theme number 12

№1

Internet proxy server

0.00: provides the user with a secure communication channel

0.00: allows you to encrypt electronic information

5.00: provides anonymization of access to various resources

0.00: used for the exchange of electronic signatures between subscribers

№2

As you know, the IP address of a computer consists of four numbers, separated by dots. Each of the numbers of the IP address can take decimal values from 0 to:

5.00: 255

0.00: 256

0.00: 999

0.00: 192

№ 3

Instant messaging system called

0.00: HTP

5.00: ICQ

0.00: URL

0.00: GPS

№4

POP works on the Internet

0.00: mail server for sending messages

5.00: mail server for receiving messages

0.00: file sharing management server

0.00: hypertext transfer server

№5

Service system with which you can communicate through the network Real-time internet with other people, has the name

0.00: Windows Chat

0.00: Slideshare

0.00: FTP

5.00: IRC

№ 6

The term “communication channel” in computer science means

a) telephone, telegraph or satellite communications; and hardware used to transmit information

b) a technical device providing signal coding when transmitting it from an information source to an information receiver

c) a set of technical devices providing reception electric discharge information in a circuit

5.00: a)

0.00: b)

0.00: c)

№ 7

In order to go online, you need the following

5.00: modem, computer, telephone line

0.00: printer, computer, modem, scanner

0.00: modem, printer, driver, memory

0.00: monitor, mouse, keyboard, system unit

№8

The Internet - this is:

0.00: local area network

0.00: corporate network

5.00: global network
0.00: regional network

№9

The address of the Internet server is set: www.ksma.ru. Top Domain Name level is

0.00: www.ksma.ru
0.00: ksma.ru
5.00: ru
0.00: www

№10

The host organization of the WAN site is

0.00: host computer (host)
5.00: provider
0.00: server
0.00: domain

№11

The IP address is as follows:

5.00: 193.126.7.29
0.00: 34.89.45
0.00: 1.256.34.21
0.00: edurm.ru

№12

Transport Protocol (TCP) provides

- a) delivery of information from the sending computer to the recipient computer
- b) receiving, transmitting and issuing a single communication session
- c) user access to processed information
- d) splitting files into ip-packets in the process of transferring and assembling files in

the process

0.00: a
0.00: b
0.00: in
5.00: g

№13

WWW is:

0.00: Wide World Web
0.00: Web Wide World
0.00: World Web Wide
5.00: World Wide Web

№14

Email allows you to transfer:

0.00: messages only
0.00: files only
5.00: messages and attached files
0.00: attached files only

№15

The connection of a word or image with another resource is called

0.00: Webpage

5.00: Hyperlink

0.00: URL

0.00: Website

№16

The email subscriber's mailbox is

a) some area of RAM of the file server

b) the area on the hard drive of the mail server allocated for the user

c) part of the memory on the hard disk of the workstation

d) a special electronic device for storing text files

0.00: a

5.00: b

0.00: in

0.00: g

№ 17

Programs for viewing web pages are called

0.00: viewers

5.00: browsers

0.00: multimedia programs

0.00: by email

№18

Select a top-level domain on the Internet belonging to Russia.

0.00: .kz

0.00: .org

0.00: .net

5.00: .ru

№19

Which browser is part of the Windows operating system?

5.00: Internet Explorer

0.00: Netscape Navigator

0.00: Windows Messenger

0.00: Opera

№20

Modem this device is designed to

0.00: Print information

0.00: Information storage

0.00: Processing information at a given time

5.00: Transmission of information via telephone communication channels

№ 21

Hypertext? this is:

0.00: very large text
0.00: text typed on a computer
0.00: text that uses a large font
5.00: text in which transitions can be made on selected marks

№ 22

Data rate- this is

5.00: the number of bits of information transmitted through the modem per unit time
0.00: number of bytes of information transferred from one computer to another
0.00: time for which the computer connects to the Internet
0.00: number of bytes of information stored on the server

№ 23

Internet page address starts with

5.00: http: //
0.00: mail: //
0.00: http: // mail
0.00: mail

№ 24

Web pages may have a format (extension)

0.00: .txt
5.00: .htm
0.00: .doc
0.00: .exe

№ 25

Domain this is

0.00: unit of information
5.00: part of the address that defines the address of the user's computer on the network
0.00: name of the program for communication between computers
0.00: name of the device communicating between computers

№ 26

Specify the purpose of the Internet FTP service

5.00: File Transfer Service
0.00: Real-time communication service (chat conference)
0.00: Testing Service
0.00: Weather forecast service

№ 27

WWW (World Wide Web)? literally means

5.00: World Wide Web
0.00: teleconference
0.00: local area network
0.00: email

№ 28

A dedicated computer dedicated to sharing network participants is called

5.00: server
0.00: admin
0.00: directory
0.00: disk

№ 29

In order to open a site in Internet Explorer, which you recently visited

5.00: find his address in the Journal
0.00: change connection settings
0.00: restart browser
0.00: click on the Home button

№30

To make calls on the Internet, you must have special programs

0.00: Word, Excel, etc.
5.00: Skype, Messenger and others .
0.00: Power Point et al .
0.00: Internet Explorer e al .

№ 31

On the menu – Favorite- Internet Explorer programs are stored

0.00: addresses of all sites in the world
0.00: list of the most popular sites in the world
5.00: addresses of sites that you often visit
0.00: list of all sites you have ever visited

№ 32

Information on the Internet can be found using

0.00: email services
0.00: Browser Log
5.00: search sites
0.00: Internet telephony services

№ 33

Which country does the domain part of bks mail.online.kz point to?

0.00: USA
5.00: Kazakhstan
0.00: Russia
0.00: Germany

№ 34

Network protocol is

0.00: www
5.00: PPP
0.00: ECP
0.00: URL

№ 35

Administrative device independent communication networks it

0.00: host
5.00: router
0.00: domain
0.00: hub
№ 36

The speed of data transmission over the network at the physical layer network OSI or TCP / IP models can be measured in

0.00: kb / min
0.00: Kbps
0.00: Kb / s
5.00: Kbps

№ 37

Local Area Network hardware includes

0.00: workstations, personal computers
5.00: workstations, server, communication equipment
0.00: communication equipment, server

№ 38

Computers can be connected to each other using

0.00: twisted cable
0.00: optomagnet cable
0.00: photoelectric cable
5.00: coaxial cable

№ 39

A device is used to interface a computer with one communication channel

0.00: hub
5.00: adapter
0.00: repeater
0.00: bridge

№ 40

When transmitting information, it is mandatory Availability

0.00: two people
5.00: source and receiver of information, communication channel between them
0.00: media
0.00: worldwide computer network

№ 41

To connect two computers over telephone lines, must have

0.00: modem on one computer
0.00: modem and network program on one computer
0.00: by modem on each computer
5.00: modem on each computer with a network program

№ 42

A modem is a special peripheral device for

0.00: output information from a computer to paper

5.00: telecommunications

0.00: storage and transfer of information from computer to computer

0.00: copy and duplicate text documents

№ 43

Computers in the same organization linked by transmission channels information for sharing common resources and peripherals and located in the same building, called a network

0.00: regional

0.00: territorial

5.00: local

0.00: global

№ 44

The option of connecting computers to each other when the cable passes from one computer to another, sequentially connecting computers and peripherals between by yourself- this is

5.00: linear bus

0.00: star type compound

0.00: tree topology

0.00: roundabout

№ 45

Cable used to connect computers to LAN called

0.00: coaxial cable

5.00: twisted pair

0.00: fiber optic

0.00: all listed

№ 46

A computer sharing its resources with other computer when working together, called

0.00: switch

5.00: server

0.00: modem

0.00: adapter

№ 47

The local area network information transfer rate is usually found in the range

0.00: 10 to 100 Mbps

0.00: 10 to 100 Kbps

5.00: 100 to 500 bps

0.00: 10 to 100 bps

№ 48

Networks connecting computers within the same region are called

0.00: local

5.00: regional

0.00: corporate

0.00: postage

№ 49

Network protocol is

5.00: a set of agreements on interactions in a computer network

0.00: sequential recording of events occurring in a computer network

0.00: rules for interpreting data transmitted over the network

0.00: rules for establishing communication between two computers on a network

0.00: coordination of various processes in time

№50

Teleconference- this is

0.00: global email exchange

0.00: information system in hyperlinks

5.00: system for the exchange of information between subscribers of a computer

network

0.00: file reception and transmission service of any format

0.00: the process of creating, receiving and transmitting web pages

№ 51

The local network is used for:

5.00: data exchange between computers

0.00: computer performance improvements

0.00: increase print speed

0.00: computer security

№ 52

Computers are connected to a local network by:

0.00: connector

5.00: cable

0.00: loopback

0.00: telephone cord

№ 53

Why do I need to know the name of a computer on the network?

0.00: in order to know the name of the user

0.00: for aesthetic look

5.00: to search for a computer on the network

0.00: in order to turn it off

№ 54

What desktop icon is designed to work with the local network?

0.00: My computer

0.00: Cart

0.00: My documents

5.00: Network environment

№ 55

Network printer- this is

0.00: laser printer

5.00: printer shared with individual users

0.00: printer on each computer on the local network
0.00: color printer

№ 56

A folder that is fully shared allows other users to:

5.00: change the files in it
0.00: only view folder contents
0.00: only rename files in it
0.00: only copy files in it

№ 57

Folder sharing settings open:

0.00: through the context menu of the network environment
0.00: when left-clicking on a folder
5.00: through the folder context menu
0.00: when double clicking on the folder

№ 58

You can open access to a folder on your computer using the commands

5.00: context menu of the folder? Sharing and security? Access
0.00: Network environment? Sharing and security? Access
0.00: click on the folder? Sharing and security? Access
0.00: double click on a folder? Sharing and security? Access

№ 59

What does the user need to know in order to find the computer he needs in the local network?

0.00: does the computer have a connected printer
0.00: does the computer have a modem
0.00: system unit color
5.00: computer name

№ 60

You can see which computers are in your workgroup using the commands:

5.00: Start? Network ? Display workgroup computers
0.00: My computer? Display workgroup computers
0.00: Start? Display workgroup computers
0.00: My documents? Display workgroup computers

№ 61

Computer network protocol- this is:

0.00: program for communication of subscribers
5.00: a set of rules governing the exchange of information on the network
0.00: a program that allows you to convert information to ASCII codes

№ 62

Local Area Network (LAN)- this is

5.00: network function within the unit or units of the enterprise
0.00: unification of computer networks at the state level

0.00: planetary networking

№ 63

Symptom- Network typology- characterizes:

5.00: scheme of drive connections in the network (server and workstations)

0.00: how the network works

0.00: composition of technical means

Theme number 13

№ 001.

The database is used for:

5.00: data storage and organization

0.00: conducting computational operations

0.00: text processing documentation

0.00: graphic information processing

№ 002.

What makes up the table structure?

0.00: record

5.00: field

0.00: cell

0.00: column

№ 003.

Field length is measured in:

5.00: bytes

0.00: millimeters

0.00: pixels

0.00: characters

№ 004.

The text field allows you to enter information up to:

5.00: 256 characters

0.00: 20 characters

0.00: 65536 characters

0.00: 1 characters

№ 005.

The auto-build property has a field:

0.00: numeric

5.00: counter

0.00: memo

0.00: logical

№ 006.

Relational databases have:

0.00: statistics

5.00: fields of identical properties

0.00: required embedded objects
0.00: related tables

№ 007.

A field is considered unique if:

5.00: its values are not repeated
0.00: its values are repeated
0.00: its length is minimal
0.00: its name is not duplicated in the database

№ 008.

The key field should be:

0.00: certainly by the counter
0.00: required numeric
5.00: unique
0.00: must not contain long entries

№ 009.

Ways to create MS Access tables:

0.00: using the constructor
0.00: using the wizard
0.00: by entering data
5.00: all answers are correct

№ 010.

What is not an access database item?

5.00: panels
0.00: modules
0.00: macros
0.00: tables

№ 011.

Records are considered:

0.00: headers
0.00: columns
5.00: lines
0.00: tables

№ 012.

Logical data is:

0.00: cash data
0.00: text
5.00: one of two values
0.00: numbers

№ 013.

To establish relationships between tables, use:

0.00: communication menu
5.00: Data Schema / Relationships button

0.00: Properties button
0.00: no correct answer

№ 014.

Queries create to fetch data:

0.00: from multiple tables
0.00: from only one table
0.00: from other requests
5.00: from tables and queries

№ 015.

What actions does the update request allow?

0.00: Display selected entries on screen
5.00: Change the values of the fields in the table
0.00: Add records to table
0.00: Delete records from the table

№ 016.

Specify the wrong type of form

0.00: single
0.00: related
0.00: push button
5.00: settlement

№ 017.

Indicate what actions are possible when working with a form in form mode?

0.00: Adding a record
0.00: Delete record
0.00: Editing tabular data
5.00: all answers are correct

№ 018.

Work with reports is performed in the following modes:

0.00: Preview
0.00: Constructor
0.00: Sample
5.00: all answers are correct

№ 019.

DBMS is:

5.00: this is a software package that implements all the necessary operations with databases

0.00: special devices for creating and processing a database
0.00: a set of data related to a specific subject area
0.00: no correct answer

№ 020.

A record in the database is:

0.00: table title

5.00: table row
0.00: table column
0.00: table cell

№ 021

To start ACCESS you need to run the commands

0.00: Start - Documents - Microsoft Access
5.00: Start - Settings - Microsoft Access
0.00: Start - Programs - Accessories - Utilities - Microsoft Access
0.00: My Documents - Microsoft Access

№ 022.

The most common types of relationships are:

0.00: one to many
0.00: many to many
0.00: one to one
5.00: all answers are correct

№ 023.

In the database table containing three columns "Last Name", "First Name", "Phone" 200 people are entered. How many fields and records are in the table?

0.00: fields - 200, records - 3
0.00: fields - 600, records - 200
5.00: fields - 3, records - 200
0.00: fields - 3, records - 600

№ 024.

The database contains information about the students of the school: last name, class, grade for the test, grade for the practical task, the total number of points. What type of field should be "Total points"?

0.00: character
0.00: logical
5.00: numeric
0.00: any type

№ 025

The database file has the extension

0.00: .txt
0.00: .ppt
5.00: .mdb
0.00: .mbd

№ 026.

Key Access Objects:

0.00: tables, forms, queries, reports, pages
0.00: queries, reports, forms, macros, tables
0.00: queries, reports, forms, macros, tables
5.00: tables, queries, forms, reports, pages, macros, modules

№ 027

The underlying Access object is

0.00: form

5.00: table

0.00: report

0.00: module

№ 028.

To enter, view and modify a table or query, the object is intended:

0.00: table

0.00: request

0.00: macro

5.00: form

№ 029

Queries create to fetch data:

0.00: from multiple tables

0.00: from only one table

0.00: from other requests

5.00: all answers are correct

№ 030.

To create a request:

5.00: Requests - Create

0.00: Insert - Request

0.00: Insert - Auto Query

0.00: Service - Parameters

№ 031. As a result of the requests are created:

0.00: request forms

0.00: relational tables

0.00: result tables

5.00: reports

№ 032

The calculated field in the request:

0.00: cannot be created

5.00: you can create

0.00: using the build button

0.00: using the Group operations button

№ 033

Forms serve for:

0.00: editing table data

0.00: entering data into tables

5.00: both answers are correct

0.00: both are not true

№033

You can work with a form in the following modes:

5.00: all answers are correct

0.00: form constructor

0.00: forms

0.00: tables

№ 034

The area of these forms consists of:

5.00: all answers are correct

0.00: fields

0.00: labels

0.00: headers

№ 035

How to create a new form:

5.00: Forms - Create

0.00: Insert - Form

0.00: Tables - Create

0.00: Edit - Paste

№ 036.

Ways to create forms:

0.00: summary table

0.00: chart

0.00: form wizard

0.00: constructor

5.00: all answers are correct

№ 037

When creating forms use:

5.00: all fields of the table

0.00: tables and queries

0.00: background image

0.00: item bar

№ 038

Appearance of the form:

0.00: single column

0.00: in one line

0.00: tape

0.00: tabular

5.00: all answers are correct

№ 039

To automate data entry into forms, use:

0.00: switches

0.00: flags

5.00: list

0.00: windows

№ 040

Reports are created for:

5.00: printing of the necessary information

0.00: data entry

0.00: display the information you need

0.00: fetch information

№ 041

Reports are created based on:

0.00: base tables

5.00: requests

0.00: other reports

0.00: forms

№ 042

Work with reports is performed in the following modes:

0.00: preview

5.00: all are true

0.00: sample

0.00: constructor

№ 043.

The report structure contains the following parts:

0.00: header and footer

0.00: data area

0.00: report title

0.00: signature

5.00: all right

№ 044.

Access data controls do not include:

0.00: fields

0.00: buttons

0.00: flags

5.00: everything applies

№ 045.

The desired font in access can be set with the command:

5.00: format - font

0.00: text - format

0.00: table - font

0.00: view - format

№ 046.

Which command sets toolbars?

0.00: insert

0.00: edit

5.00: view

0.00: file

№ 047

Specify the wrong data type in access

0.00: text

5.00: parametric

0.00: numeric

0.00: logical

№ 048

Specify invalid link types

0.00: one to one

0.00: one to many

5.00: two to one

0.00: many to many

№ 049

The form provides opportunities for:

0.00: entering and viewing database information

0.00: data changes

0.00: print

5.00: all right

Theme number 14

№ 001.

Automatic build property has a field:

0.00: numeric

5.00: counter

0.00: memo

0.00: logical

№ 002.

Relational databases have:

0.00: statistics

5.00: fields of identical properties

0.00: required embedded objects

0.00: related tables

№ 003.

What is not an access database item?

5.00: panels

0.00: modules

0.00: macros

0.00: tables

№ 004.

Records are considered:

0.00: headers

0.00: columns

5.00: lines

0.00: tables

№ 005.

Logical data is:

0.00: cash data

0.00: text

5.00: one of two values

0.00: numbers

№ 006.

To establish relationships between tables use:

0.00: communication menu

5.00: data scheme / relationships button

0.00: property button / properties

0.00: no correct answer

№ 007.

What actions does the update request allow?

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0.00: add entries to the table

0.00: delete records from the table

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Specify the wrong type of form

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№ 009.

Indicate what actions are possible when working with the form in form mode?

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0.00: delete record

0.00: editing tabular data

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№ 010.

Work with reports is performed in the following modes:

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0.00: sample

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0.00: table column

0.00: table cell

№ 012.

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0.00: from only one table

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As a result of requests are created:

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0.00: result tables

5.00: reports

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5.00: all answers are correct

0.00: form constructor

0.00: forms

0.00: tables

№ 016.

The form data area consists of:

5.00: all answers are correct

0.00: fields

0.00: labels

0.00: headers

№ 017

When creating forms use:

5.00: all fields of the table

0.00: tables and queries

0.00: background image

0.00: item bar

№ 018.

The appearance of the form may be:

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0.00: in one line

0.00: tape

0.00: tabular
5.00: all answers are correct

№ 019.

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0.00: flags
5.00: list
0.00: windows

№ 020

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0.00: other reports
0.00: forms

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5.00: all are true
0.00: sample
0.00: constructor

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The report structure contains the following parts:

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0.00: data area
0.00: report title
0.00: signature
5.00: all right

№ 024.

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0.00: fields
0.00: buttons
0.00: flags
5.00: everything applies

№ 025

The desired font in access can be set with the command:

5.00: format - font

0.00: text - format
0.00: table - font
0.00: view - format

№ 026.

Which command sets toolbars?

0.00: insert
0.00: edit
5.00: view
0.00: file

№ 027

Specify the wrong data type in access

0.00: text
5.00: parametric
0.00: numeric
0.00: logical

№ 028.

The form provides opportunities for:

0.00: entering and viewing database information
0.00: data changes
0.00: print
5.00: all right

№ 029

When creating a request in constructor mode:

0.00: select information sources
0.00: selection conditions
5.00: indicate from which table
0.00: field composition

№ 030.

In table access it is impossible

5.00: make calculations
0.00: Enter data
0.00: change structure

№ 031.

Which command sets toolbars?

0.00: insert
0.00: edit
5.00: view
0.00: file

№ 032

What cannot be done with the access request?

0.00: grouping
0.00: sort

0.00: calculation
5.00: printing a document

№ 033

Specify the wrong data type in access

0.00: text
5.00: parametric
0.00: numeric
0.00: logical

№ 034

What does the SUMM function mean?

0.00: selects the minimum value in the records of a specific field
0.00: defines the first value in the specified field of records
5.00: calculates the sum of all values of a given field
0.00: defines the last value in the specified field of records

№ 035

Specify the wrong data type in access

0.00: text
5.00: basic
0.00: date
0.00: logical

№ 036.

Which statement is true?

0.00: total queries are divided into 2 types
0.00: queries can be created based on data from several tables
0.00: grouping in the final query is made only for one field
5.00: all right

№ 037

Specify the correct expression

0.00: table with parameter
0.00: form with parameter
5.00: request with parameter
0.00: report with parameter

№ 038

What cannot be done in the access request?

0.00: grouping
0.00: sort
5.00: selection by condition
0.00: build chart

№ 039

What cannot be done in the access request?

0.00: grouping

0.00: sort
0.00: conditional selection
0.00: build chart

№ 040

Specify the wrong display mode (view) of the access form

5.00: request mode
0.00: table mode
0.00: form mode
0.00: constructor

Theme number 15

№1

An information system is an object representing a combination of:

0.00: only homogeneous elements
0.00: only heterogeneous elements
0.00: homogeneous elements and heterogeneous elements
5.00: tools, software, methods and personnel
0.00: structured data
0.00: information software

№ 2

Among the properties of information systems, the following are distinguished:

1.25: Dynamic
1.25: Development
1.25: Systematic Approach
-2.50: Consistency
-2.50: Static
1.25: Human Machine Environment

№ 3

Any system is an object representing:

a) a highly specific part, an element of the whole
b) a set of only homogeneous elements
c) the totality of only heterogeneous elements
d) scoop of homogeneous elements and heterogeneous elements
e) a scoop of homogeneous and non-uniform elements as a whole

0.00: a)
0.00: b)
0.00: c)
0.00: g)
5.00: d)

№ 4

The objectives of the implementation of information systems:

1.25: Creation of new information for solving management problems
1.25: Freeing Users from Routine Work
1.25: Replacing paper media with electronic
1.25: Reducing the cost of manufacturing products and services

- 2.50 :: Creation of artworks
- 2.50 :: Creation of material values

№ 5

Types of classification of information systems:

- 2.50: Functional
- 1.67: Modeling
- 2.50: Structural and technological
- 1.67: By design
- 1.66: By database

№ 6

How many classes are distinguished in functional classification of information systems

- 0.00: Three
- 0.00: Four
- 5.00: Five
- 0.00: Seven
- 0.00: Nine

№ 7

What classes distinguish in functional classification medical information systems:

- 1.25: Medical Technology IP
- 2.50: Static MIS
- 1.25: Educational MIS
- 2.50: Supervisory IIAs
- 1.25: Statistical IIAs
- 1.25: Research IP

№ 8

Intensive Health Monitor Systems patients include:

- 5.00: Medical and technological IP
- 0.00: Static MIS
- 0.00: Learning MIS
- 0.00: Controlling MIS
- 0.00: Statistical IIAs
- 0.00: Research IP

№ 9

Computing diagnostics systems relate to:

- 0.00: Static MIS
- 0.00: Learning MIS
- 0.00: Controlling MIS
- 0.00: Statistical IIAs
- 0.00: Research IP
- 5.00: Medical and technological IP

№ 10

Clinical and laboratory research systems relate to:

0.00: Static MIS
5.00: Medical and technological IP
0.00: Learning MIS
0.00: Controlling MIS
0.00: Statistical IIAs
0.00: Research IP

№ 11

Expert systems relate to:
5.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
0.00: Statistical IIAs
0.00: Research IP

№ 12

Image transmission and processing systems relate to:
5.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
0.00: Statistical IIAs
0.00: Research IP

№ 13

Information system -Popular health- refers to:
0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
5.00: Statistical IIAs
0.00: Research IP

№ 14

The information system - Habitat - refers to:
0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
5.00: Statistical IIAs
0.00: Research IP

№ 15

The information system -Health institutions- refers to:
0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS

5.00: Statistical IIAs
0.00: Research IP

№ 16

The information system - Healthcare personnel - refers to:

0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
5.00: Statistical IIAs
0.00: Research IP

№ 17

The information system -Medical Industry- refers to:

0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
5.00: Statistical IIAs
0.00: Research IP

№ 18

Organizational IP containing a description of the themes of the grants relate to:

0.00: Medical and technological IP
0.00: Static MIS
0.00: Learning MIS
0.00: Controlling MIS
0.00: Statistical IIAs
5.00: Research IP

№ 19

IP, controlling knowledge on the basis of the question-answer-relate to:

0.00: Medical and technological IP
0.00: Static MIS
5.00: Learning MIS
0.00: Statistical IIAs
0.00: Research IP

№ 20

Specialist workstations correspond to the level of structural and technological classifications:

5.00: level 1
0.00: 2 level
0.00: 3 level
0.00: 4 level

№ 21

How many levels are distinguished when structurally technological classification of information systems?

0.00: Three
5.00: Four
0.00: Five
0.00: Seven
0.00: Nine

№ 22

Clinical Laboratory IPs are consistent level of structural and technological classification:

5.00: level 1
0.00: 2 level
0.00: 3 level
0.00: 4 level

№ 23

IP of dental departments correspond level of structural and technological classification:

5.00: level 1
0.00: 2 level
0.00: 3 level
0.00: 4 level

№ 24

Clinic IPs correspond level of structural and technological classification:

0.00: 1 level
5.00: level 2
0.00: 3 level
0.00: 4 level

№ 25

IC diagnostic centers correspond level of structural and technological classification:

0.00: 1 level
5.00: level 2
0.00: 3 level
0.00: 4 level

№ 26

IP of the regional ministry of health corresponds level of structural and technological classification:

0.00: 1 level
0.00: 2 level
5.00: level 3
0.00: 4 level

№ 27

Unified State Information System (EGIS) corresponds to the level of structural and technological classification:

0.00: 1 level
0.00: 2 level

0.00: 3 level

5.00: level 4

№ 28

Which medical information systems presented below do not correspond to the third level:

- a) IP of the territorial health authority
- b) IP for solving medical and technological problems, providing information support to the activities of medical workers of specialized medical services
- c) IS of polyclinics, hospitals
- d) computer telecommunication medical networks that ensure the creation of a single information space at the regional level.

0.00: a)

0.00: b)

5.00: c)

0.00: g)

№ 29

To personalized registers include databases:

- a) attached or observed contingent based on a formalized medical history or outpatient card
- b) to support doctors in counseling, diagnosis and decision-making in emergency conditions
- c) preventive examination of the population and risk groups
- d) various types of activities of the health care institution

5.00: a)

0.00: b)

0.00: c)

0.00: g)

№ 30

The following systems are referred to screening systems:

- a) attached or observed contingent based on a formalized medical history or outpatient card
- b) to support doctors in counseling, diagnosis and decision-making in emergency conditions
- c) preventive examination of the population and risk groups
- d) various types of activities of the health care institution

0.00: a)

0.00: b)

5.00: c)

0.00: g)

№ 31

How many levels have MIS health facilities:

5.00: Three

0.00: Four

0.00: Five

0.00: Seven

0.00: Nine

№ 32

What tasks does the minimum level of MIS health care facilities solve:

1.67: statistics

1.67: maintenance of data to pay for treatment

1.66: interaction with the integration gateway (transmission, reception)

-1.67: maintaining all sections of the EMC

-1.67: interaction with analytical systems

-1.66: interaction with supporting healthcare facilities

№ 33

What tasks are in addition to the tasks of the minimum IIA level? solves the basic level of MIS health care facilities:

0.00: statistics

0.00: interaction with the integration gateway (transmission, reception)

5.00: maintaining all sections of the EMC

0.00: interaction with analytical systems

0.00: interaction with supporting healthcare facilities

№ 34

What tasks in addition to the tasks of the minimum and basic levels of MIS are solved by the advanced level of MIS of an MPI:

-1.25: statistics

-1.25: maintaining data to pay for treatment

-1.25: interaction with the integration gateway (transmission, reception)

-1.25: maintaining all sections of the EMC

2.50: interaction with analytical systems

2.50: interaction with supporting healthcare facilities

GLOSSARY

Access - a universal database management system. Designed to create and maintain databases, to organize queries, all kinds of samples and reports. Contains tools for linking tables and for linking with other application packages.

Application: An application is a set of codes designed to allow specific tasks to happen. Microsoft Windows and Internet Explorer are common examples.

Application Server: Application Server is a specialized server that is based on client/server architecture. Its sole responsibility is to run specific applications within the network.

API: API refers to Application Programming Interface. It's the platform used by a program to access different services on the computer system.

Archivers - programs designed to compress selected files, place them in the archive and write the resulting archive to a diskette. Naturally, the archiver must be able to unzip files, that is, return them to their original state.

Archiving - the process of compressing a file or group of files.

Array: An array is similar data saved on a computer system in a sequential form.

BIOS: BIOS stands for Basic Input/Output System. It gives the computer a platform to run the software using a floppy disk or a hard disk. BIOS is responsible for booting a PC.

Bit: Bit is Binary Digit. It refers to a digit number, either a 0 or a 1. The binary digit is used to represent computerized data.

Boolean: An expression, the value of which is either true or false.

Buffer: Buffer is a location, especially in RAM, for storage of temporary data to speed up an operation such as disk access or printing.

BUS: A bus is a set of wires that enables flow of data from one location of the computer to another.

Byte: Eight bits is equal to 1 byte.

Cache memory is a buffer between the central processor and RAM and serves to increase the speed of the computer.

Computer network. It occurs if at least two computers are connected together and exchange information.

Compact disk (CD-ROM) - is designed to enter traditional programs and data, as well as for multimedia.

CGI: CGI stands for Common Gateway Interface. It defines how an auxiliary program and a Web server would communicate.

Class: A group of objects having same operations and attributes is defined as a class.

Client: A client is a program that asks for information from other processes or programs. Outlook Express is a great example of a client.

CMOS: CMOS is an abbreviation for Complementary Metal-Oxide-Semiconductor. It is the battery powered chip that is situated on the Motherboard that retains system information such as date and time.

Cursor - the moved visible mark used to indicate the position on the screen over which the operation will be performed.

Data: Data refers to the information that is saved on a computer.

Database - a set of interconnected data stored in the external memory of a computer, organized according to certain rules, providing general principles for their description, storage and processing.

Directory - the named area of the disk. Used by the user to organize storage and facilitate the search for files.

Dialog box - a kind of window that allows the user to enter information into the computer.

Dialog mode - the operating system operating mode in which it is waiting for a user command, having received it, starts execution, and after completion returns a response and waits for the next command.

DOS: DOS is an acronym for Disc Operating System. It is a command line operating system launched by Bill Gates.

DTP: Desk Top Publisher (ing) is a term that describes a program that enables users to create, design, and print items such as business cards, birthday cards, letterheads, calendars, invitations, and so on.

Entity-relationship diagram: It's a diagram that represents entities and how they are related to each other.

Environment: Environment refers to the interaction among all factors external to a physical platform. An environment is made of specific software, hardware, and network protocols that allow communication with the system.

Event Listener: It is an interface of JAVA responsible for handling events.

FAT: FAT is an acronym for File Allocation Table. It resembles a table of contents so that files can be located on a computer.

Fault: Hardware or software failure.

File manager - a program that performs file system maintenance operations.

Front End: It is an interface through which a program can be accessed by common users.

Hardware: Hardware is a set of physical objects such as monitor, keyboard, mouse, and so on.

Hard magnetic disk (HDD) - external computer memory designed for permanent storage of data, operating system programs and commonly used software packages.

Information - information about someone or something transmitted in the form of signs and signals; in computer technology - data to be input into a computer stored in its memory, processed on a computer and issued to the user.

Icon: Icon is a small visual display of an application which can be activated by clicking on it.

IDE: It stands for Integrated Development Environment. IDE is a programming system that combines several tools of programming to provide an integrated platform for programming. For instance, Visual Basic provides an IDE.

Instance: It is an object described by its class.

Internet: Internet is a network that accommodates several computers to facilitate exchange and transfer of data.

Kernel: It is a program called when a computer system is started. Kernel is responsible for setting up system calls in order to manage hardware and system services, and allocate resources to applications.

Keyboard is a computer control keyboard device.

Keyboard shortcuts (Hotkeys) - a combination of the [Shift], [Ctrl], [Alt] keys with other keys to perform operations when the mouse does not work for some reason.

LAN: LAN is an acronym for Local Area Network that spans small area. A LAN can be connected to another LAN to accommodate more computers.

Memory: Memory is the internal storage location where data and information is stored on a computer.

Modem: Modem is a term created from the beginning letters of two other words viz. MOdulation and DEModulation. The term implies changing of data from digital to analog and then back to digital.

Network: A Network is a group of computers connected to each other in order to send and receive data.

Notepad is an editor program for working with small text files, included in standard Windows programs.

Operating System: An Operating System provides the software platform required for various applications to run on. Its responsibility is to manage memory storage and security of Data.

Packet: Sections in which message or data are divided to transfer it over a network.

Paint is the default program WINDOWS OS and comes along with it.

Paragraph - a piece of text ending with pressing the Enter key.

Pixel: Pixel is formed by combining the two words viz. Picture Element. It represents one point within an image.

Port: Port is a connecting component mainly a hardware that enables two computers to allow data sharing physically. Examples are USB and HDMI.

Process: It's a series of commands that changes data values.

Protocol: Protocol refers to a set of rules that are followed by two devices while interacting with each other.

Query: Query is a request made by a computer from a database residing in the same system or a remotely located system.

RAM: RAM is an acronym for Random Access Memory. It is a configuration of storage cells that hold data so that it can be processed by the central processing unit. RAM is a temporary storage location.

Recycle bin is the place where deleted files are automatically placed. You can optionally either restore them from there or throw them out of the Trash.

ROM: ROM is an acronym for Read-Only Memory. It is semiconductor-based storage system that saves information permanently.

Software: Software is a program (coding) that the computer reads. The system then carries out functions as directed by the code. Adobe Photoshop is software.

TCP/IP: TCP/IP is an acronym for Transmission Control Protocol/Internet Protocol. It's a set of communication protocols used to connect host computers on the Internet.

The clipboard - an area of RAM that all applications have access to and into which they can write data or read it. Bit. This is the smallest unit of data. A bit can have one of two values: either 0 or 1. Larger units of measurement of the amount of information - bytes, megabytes, etc. One byte is 8 bits; one megabyte is 1024 bytes.

The folder name is set according to the same rules as the file name. We recommend naming folders even more expressive and concise than files.

The file name consists of two parts. The first part, with the name itself, can be up to 255 characters long and consist of any characters, including a space, except \ /: * [? []), The second part of the name, the extension, can contain any number of characters, if only the full file name did not exceed 255 characters and did not contain prohibited characters.

The Root catalog - main directory or top-level directory.

URL: URL stands for Universal Resource Locator. It's a way of accessing the Internet.

Virtual Memory: Virtual Memory is the unused memory on the hard disk used when certain applications require more RAM than is available on the machine.

Virus: Virus is a program that is loaded onto your computer without you knowing about it and it runs to hinder the normal functioning of the computer.

WWW: WWW stands for World Wide Web. It's a term used to define the Internet.

WAN: WAN is an acronym for Wide Area Network. Such a network spans over an area larger than a LAN.

Window border - vertical and horizontal lines running along the perimeter of the window.

Window title - the first line of the window containing the name of the application running in this window, or the name of the dialog window.

Windows Document - any file processed using applications running on the Windows operating system.

ZIP: ZIP is an acronym for Zone Information Protocol. ZIP application enables transfer of data using compression of files.

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