Министерство образования и науки Украины
Севастопольский национальный технический университет
Гуманитарный факультет

ИСПОЛЬЗОВАНИЕ ДЕНОТАТНЫХ КАРТ В МОНОЛОГИЧЕСКОЙ РЕЧИ СТУДЕНТОВ ТЕХНИЧЕСКИХ СПЕЦИАЛЬНОСТЕЙ

Методические указания
к практическим занятиям
для студентов
технических специальностей
дневной формы обучения

Севастополь
2012

УДК 800

«Использование денотатных карт в монологической речи студентов технических специальностей». Методические указания для практических занятий по английскому языку для развития умений и навыков монологической речи у студентов технических вузов на основе денотатных карт / Сост. Л.М. Абросимова, доцент кафедры ТПП, Е. Н. Трощихина. – Севастополь: Изд-во СевНТУ, 2012 г. – 36 с.

Цель методических указаний – развитие и совершенствование умений и навыков устной монологической речи у студентов технических специальностей на основе использования денотатной карты. Методические указания предназначены для студентов начальных курсов технических специальностей, изучающих английский язык, а также для магистров и аспирантов.

Методические указания рассмотрены и утверждены на заседании кафедры теории и практики перевода (протокол №10 от 24 мая 2011 г.)

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СОДЕРЖАНИЕ:

TASK I

Which denotatation card corresponds to the given text? Give the title to the denotation cards. Speak on the: a) memory types; b) pendulum features.

Text 1

There are a number of types of memory which can be used as ICs in digital electronics. These include:

a) Random-Access Memory, where in each memory word is accessed for reading or writing via a specific address, access time being approximately equal for any combination of successive locations.

b) Serial Access Memory, where in the memory consists of a circular shift register (serial output connected to serial input). A counter keeps track of the «address» of the bit available for reading and writing (the serial output and input bits). To read or write a given address, the register is shifted until the counter matches the desired address: clearly a large change of address takes longer than a short one.

c) Read-Only Memory, in which the binary contents are wired in at the factory as a step in the 1C manufacturing procedure. These act like Serial Access Memory, except it is not possible to change the contents. Although it is possible to obtain custom-designed Read-Only Memories, they are too expensive for production in small quantities.

d) Programmable Read-Only Memories, which can be written using special equipment. These hold their contents until erased with high-intensity ultraviolet light and re-programmed.

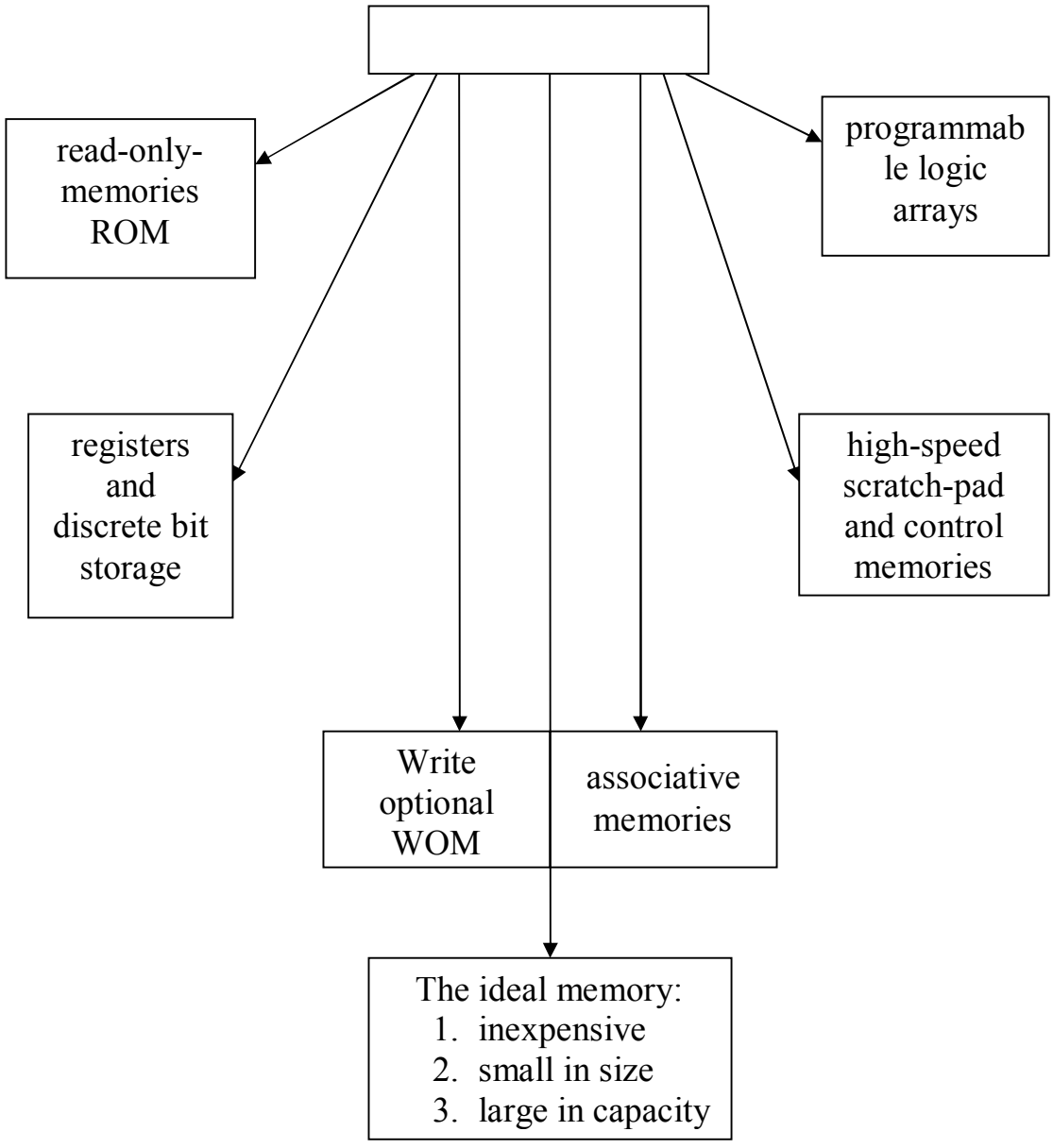
Random-Acces Memories are used for temporary data storage because They are volatile: that is their contents are lost if power is removed.

A number of new memory types have recently appeared. We can expect corelike Random-Acces Memories to become available in the near future.

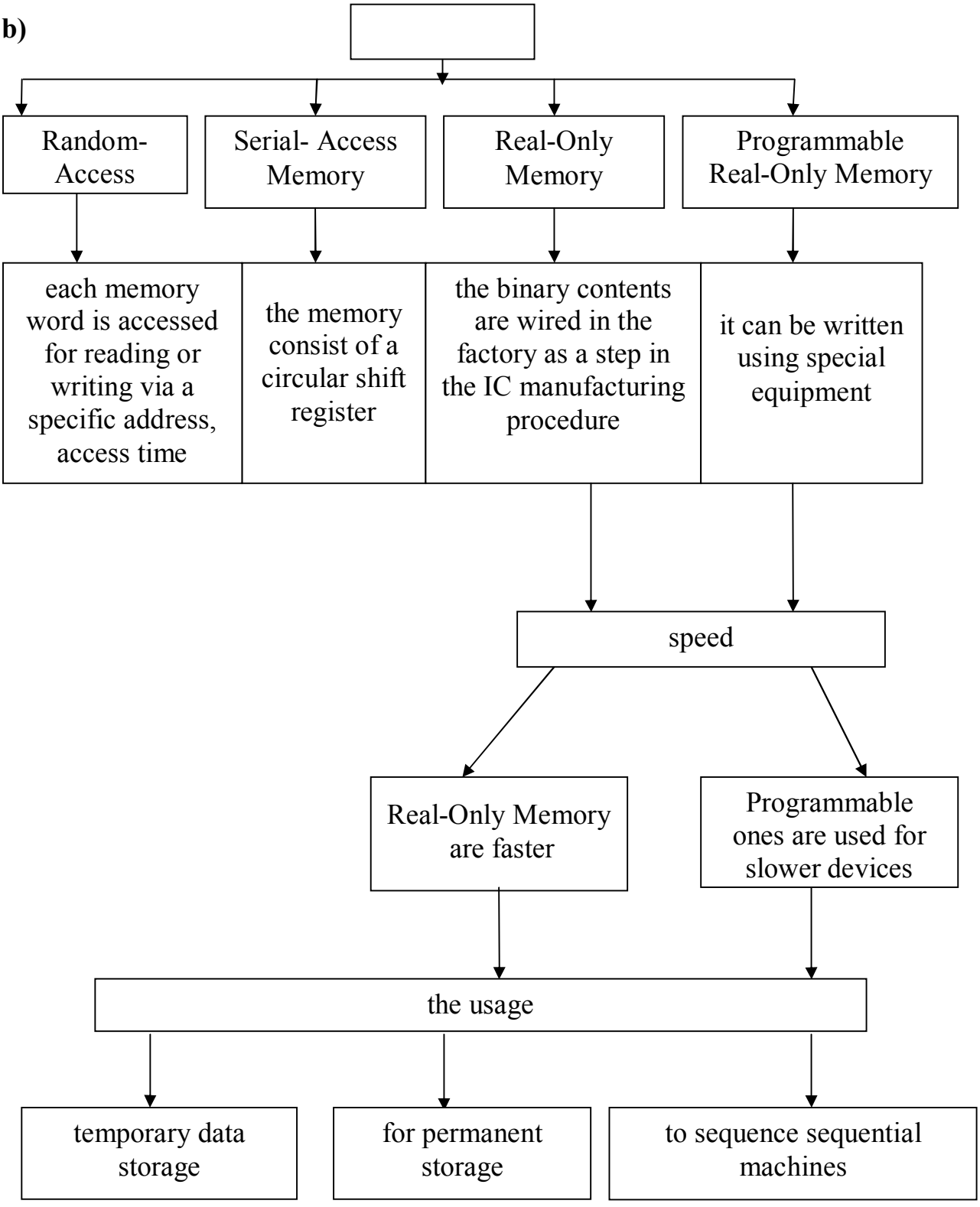
Random-Acces Memories, being used for temporary data storage, are good «scratch pads» for digital devices; they are used as computer memories for the full range of computer sizes, often in a mixture of Read-Only Memories, Random-Acces Memories, and core memory.

Read-Only Memories and Programmable Read-Only Memories are used for permanent storage, such as the programs in microcomputers, and start-up programs in larger machines. They are also used to sequence sequential machines from one state to the next, and they are very useful for data conversion, table lookup (trigonometric tables, for example), and generation of complex logical functions. A FROM is used to test a new memory content: if it is correct, a Read-Only Memories is manufactured with the same content if the number of devices or speed requirements (Read-Only Memories are faster) justify the expense; Programmable Read-Only Memories are used for slower devices produced in smaller quantities.

a)



b)



Text 2

A pendulum is a simple but important notion in dynamics. It indicates the point to which the system is attracted in time. For example, consider a simple pendulum. No matter where you start it swinging, it finishes its to-and-fro session in the same place: at rest, with its string precisely vertical.

It can help to consider the state of the system at any particular time as a point in phase space - the space defined by the dimensions of the system in question. This point will move around phase space until - in the case of the simple pendulum -it finally comes to rest at a particular point. This point is the attractor - the state in which the system ends up if left to settle.

The pendulum - or rather an idealised version of it - was studied by 19th Century French mathematician Henri Poincare and Swedish mathematician Ivan Bendixson. Together they gave their names to the Poincare-Bendixson theorem. This posits that for a system represented by a differential equation in a plane (i.e. with two degrees of freedom -like a pendulum). There are typically only four types of behaviour -called sinks, sources, saddles and limit cycles. These are steady states, though with different types of stability. A limit cycle is a repeating sequence which, once started, goes on forever. Other types of behaviour exist, but are vanishingly rare. However, Poincare and Bendixson could not prove their theorem for higher dimensional systems.

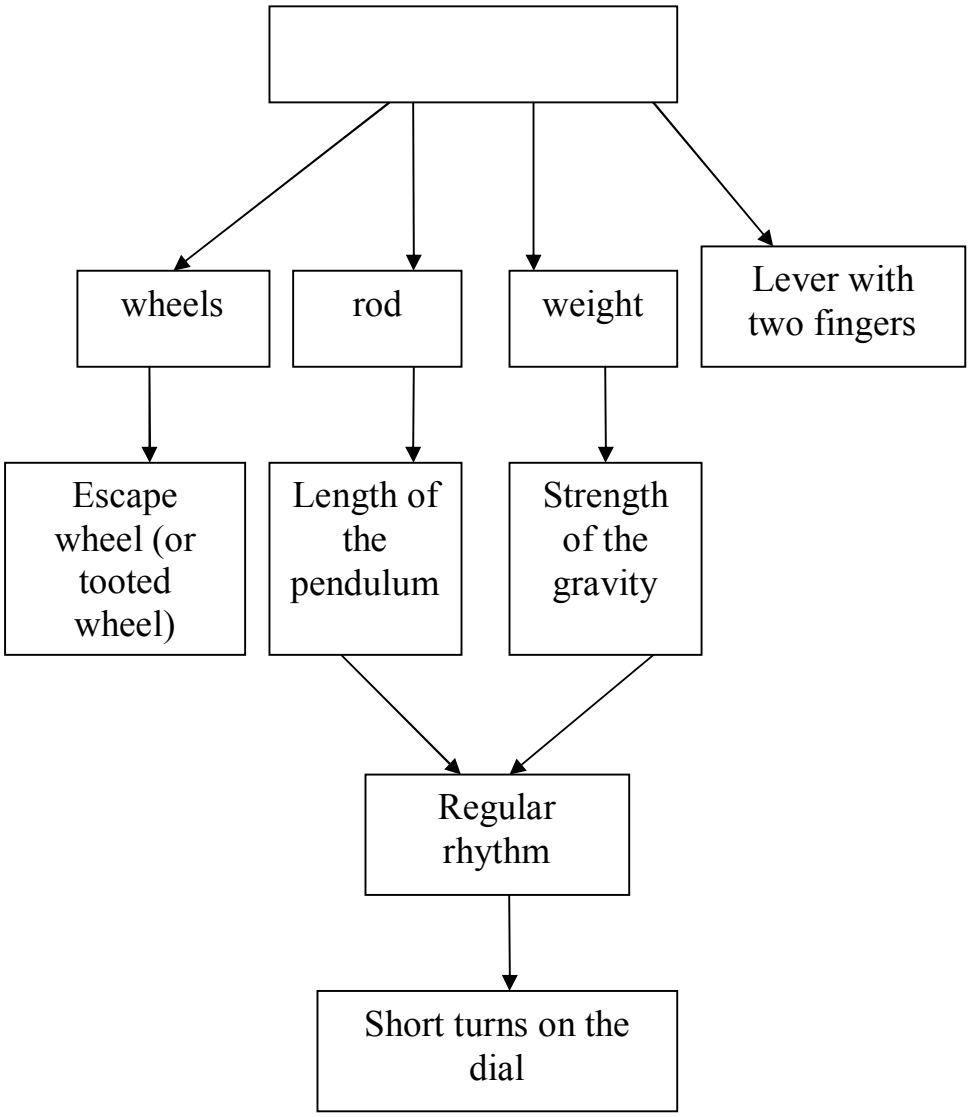
In the 1960s, Stephen Smale joined in. He couldn't either – but he succeeded in finding a new type of attractor in systems of higher dimension. These pendulums - neither points nor circles – were called strange pendulum by mathematicians Floris Takens and David Ruelle. They have become a hallmark of chaos. Strange attractors have complex shapes in high-dimensional space. The important point is that although the trajectories of the system remain bounded by a region of phase space, they never converge onto a unique closed curve or limit cycle.

How do we know that these things exist and have any meaning for real dynamical systems? How do we get to see a strange ? The mathematical description of a strange attractor developed by Takens and Ruelle is abstract - it is not built of measurable variables. You cannot take the equations that describe some real physical system (like the Navier-Stokes equations for fluid dynamics) and mathematically derive a topological description of a strange attractor. Instead, Takens derived a strange attractor from an experimental time series. The principle is simple. The signature of the overall (multi-dimensional) system behaviour is visible in each of its single

dimensions. This is not unlike being able to guess what someone is doing in three dimensions from a silhouette.

To reconstruct a 3D image of an attractor from a time series, two dimensions of dummy measurements are derived by using three successive values along the time series as coordinates: the actual coordinate and its two neighbours. This is a process of embedding the data in higher dimensions. Surprisingly, this gives a good approximation of the attractor shape. This is sometimes called reconstructing the phase portrait. Ideally, the results of embedding the data in successively higher dimensions should converge on similar dynamical properties.

a)



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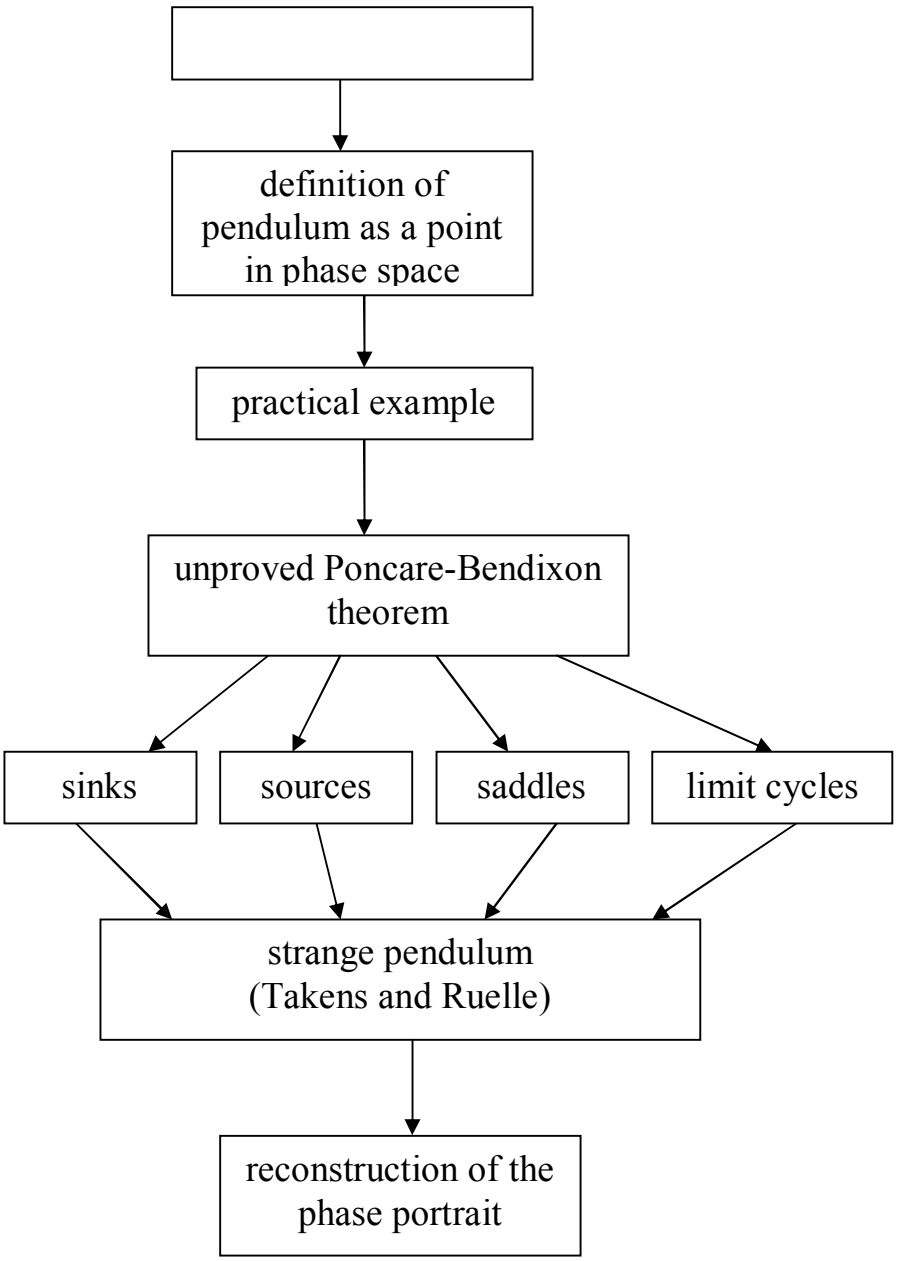


TASK II

Read the texts and fill in the gaps in the denotation cards that follow them. Give the summary of each text using the corresponding denotation card.

Text 1

General Description of a Ship

The main body of a ship is called a hull. The hull is divided into three main parts: the foremost part is called the bow; the rearmost part is called the stern; the part in

between is called midships. The hull is the main part of the ship. This is the area between the main deck, the sides (port and starboard) and the bottom. It is made up of frames covered with plating. The part of the hull below water is the ship's underwater body. The distance between the waterline and the main deck is the vessel's freeboard. The hull is divided up into a number of watertight compartments by decks and bulkheads. Bulkheads are vertical steel walls going across the ship and along.

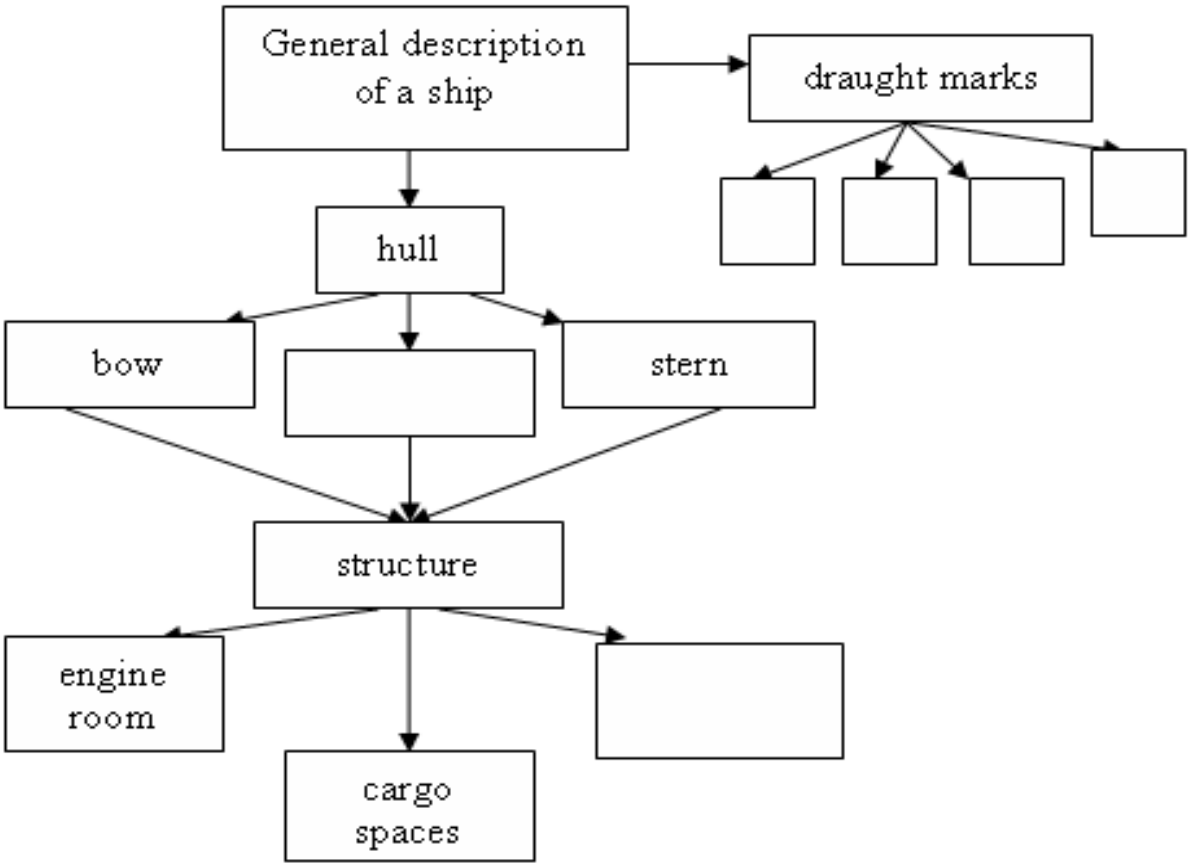
The hull contains the engine room, cargo spaces and a number of tanks. In dry cargo ships the cargo space is divided into holds. Openings giving access to holds are called hatches. In liquid cargo vessels the cargo space is divided into tanks.

At the fore end of the hull are the forepeak tanks, and at the after end are afterpeak tanks. They are used for fresh water and fuel. If a ship has double sides, the space between the sides contains wing tanks. The space between the tank top and the space contains double bottom tanks.

All permanent housing above the main deck is known as superstructure. Nowadays, cargo vessels are normally built with the after location of the engine room and bridge superstructure to gain more space for cargo. The forward raised part of the deck is called the forecastle and its after raised part is the poop. On deck there are cargo handling facilities, such as cranes, winches, derricks etc. Ships having derricks also have cargo masts and cargo posts (or Samson posts) on deck.

Since a ship is supported by fluid pressure, it will incline in any direction in the process of loading according to the position of the weights placed on her. Therefore the ship's position below water must be closely watched. The angle that a ship is making fore and aft with the water is known as trim. An extreme difference between the water levels at each end of the ship indicates bad loading. The levels are read by numbers painted on the ship's stem and called draught marks. A list or inclination from one side to another, caused by faulty loading, is known as heel. In the course of loading load lines must be watched above all. The load lines are engraved and then painted on the both sides of ships. The divided circle on the left shows the depth to which the ship may be loaded in summer time. Below this line are, on the grid to the right, two lines. The one marked W means winter loading, the lower one marked

WNA means the maximum depth to which the ship may be loaded if she is going across the North Atlantic in winter. The other marks above these are: T for tropical, F for fresh water. These lines are shown on the ship's Load Line Certificate. In case of overloading a ship, so that these lines are under water, the penalties are severe.



Text 2

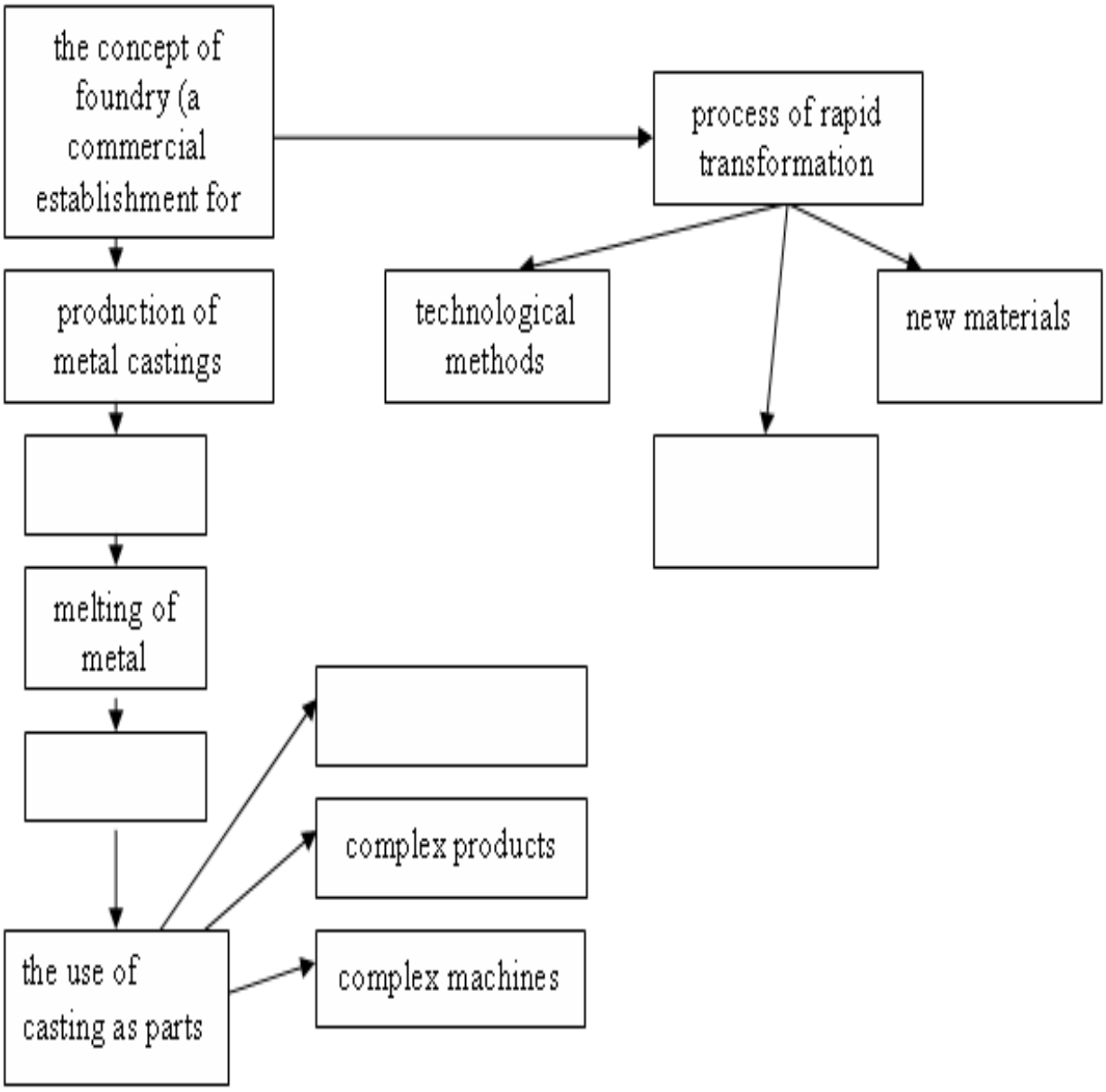
Foundry. Metal Casting – a Basic Manufacturing Process

One of the basic processes of the metal-working industry is the production of metal castings. A casting may be defined as "a metal object obtained by allowing molten metal to solidify in a mold", the shape of the object being determined by the shape of the mold cavity. A foundry is a commercial establishment for producing castings.

Numerous methods have been developed through the ages for producing metal castings but the oldest method is that of making sand castings in the foundry. Primarily, work consists of melting metal in a furnace and pouring it into suitable sand molds where it solidifies and assumes the shape of the mold.

Most castings serve as details or component parts of complex machines and products. In most cases they are used only when they are machined and finished to specified manufacturing tolerances providing easy and proper assembly of the product.

At present the foundry industry is going through a process of rapid transformation, owing to modern development of new technological methods, new machines and new materials. Because of the fact that casting methods have advanced rapidly owing to the general mechanical progress of recent years there is today no comparison between the quality of castings, the complexity of the patterns produced and the speed of manufacture with the work of a few years ago.



Text 3

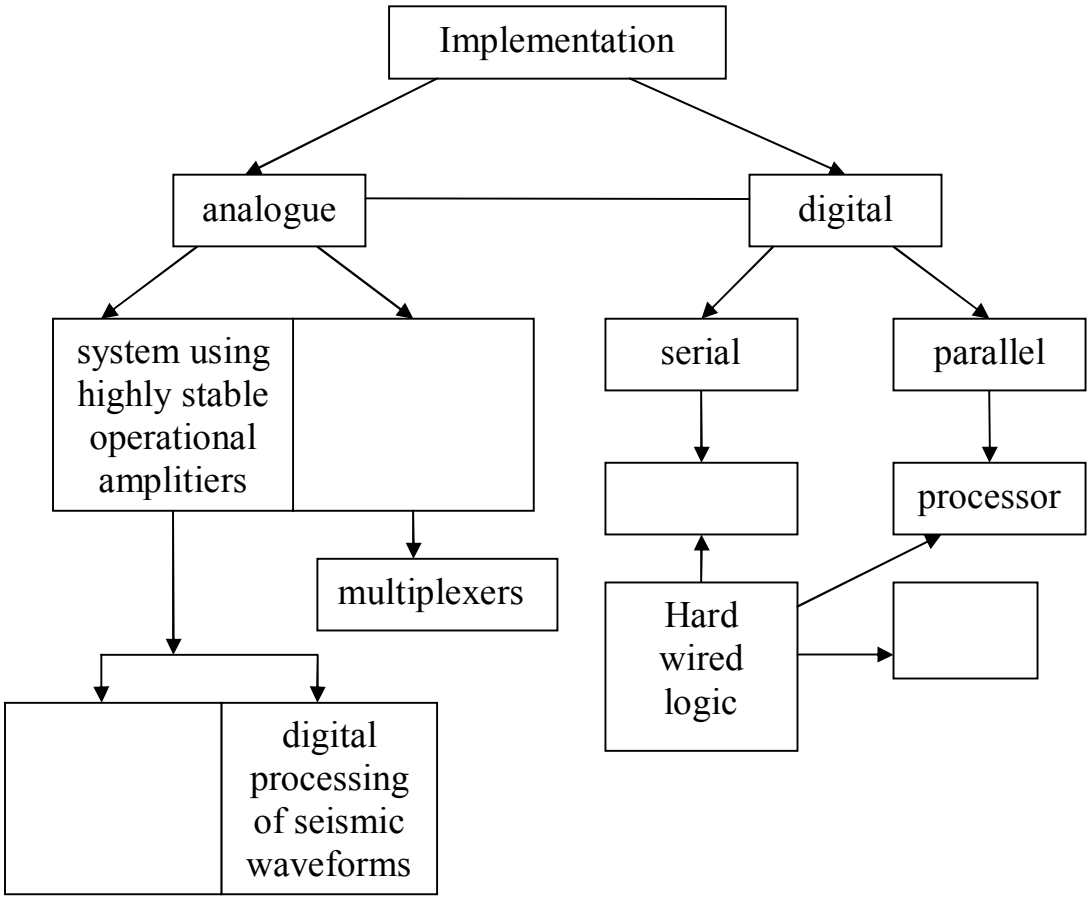
Choosing the Right Technology

An electronic designer, faced with the problem of engineering a system today, is confronted with a wide choice of implementation methods. Even problems which are basically analogue in nature can now be solved effectively using digital or computer based techniques.

Analogue design techniques are well established and understood and therefore need little comment here. Suffice is to say that modern analogue components are in general easy to use, and the designer can implement a system using highly stable operational amplifiers and other module-like integrated circuits such as multiplexers. The main problems, however, are still in the areas of noise, capacitive cross coupling and calibration. These areas do not usually cause problems in digital implementations, though of course there are others. It is now becoming economical to process analogue signals digitally by digitising the signal, carrying out the required function digitally and then converting back with a digital to analogue convertor. Application, of this technique include digital speech transmission using pulse code modulation and digital processing of seismic waveforms.

Digital techniques fall into two main groups, namely serial and parallel. Computer implementations are essentially serial in that they implement the various parts of the total process sequentially. The concept of a parallel processor refers to the fact that a processor deals with a group of bits, i. e. a word at once or in parallel.

The user of microprocessors needs at least a familiarity with the major characteristics of different semiconductor technologies if he is to be able to select suitable devices to meet his system requirements. He also needs to understand when to use the various implementation techniques, such as hard wired logic, custom LSI and minicomputers, etc., in preference to microprocessors.



TASK III

Which of these texts corresponds to the given denotation card? Find the coinciding points and differences of these texts and speak on: a) loading / unloading of ships; b) microprocessor features.

Text 1

Discharging (unloading) is accomplished under the supervision of a stevedore and it is performed by dockers usually headed by a foreman. When the ship is to be unloaded the Second Mate (Cargo Officer) gives a Cargo plan and Bill of Lading to the stevedore. According to these documents the latter begins unloading the ship.

The crewmen get ready winches and cranes, derricks, shackles, blocks, slings, sling hooks, chain slings, timber dogs, falls of tackle, guys.

All these appliances should be preliminary inspected for possible signs of wear. When the stevedore made sure that cargo gear was all right, he should arrange some wire nets, trays, pallets, wire slings, rope slings and canvas slings for unloading cargo from the holds. The unloading operation is the process of lifting the cargo pieces fro

the holds and lowering them down on the quay. The number of cargo units placed either on a pallet, tray or any sling is called a draft.

Fork-lift trucks and lorries deliver cargoes to the warehouses. Sometimes the cargoes may be unloaded directly from the ship's holds into lighters. If there are some extraweights in the holds they may be unloaded by heavy lift cranes, heavy derricks, gantries or even by floating cranes. The cranes mentioned above (except floating ones) are of lifting capacity up to 10 tons. The floating cranes can handle heavy cargo pieces up to 300 tons. The condition of cargo pieces should be noted on the spot. Damaged packages, torn sacks and leaky barrels are put aside immediately.

Text 2

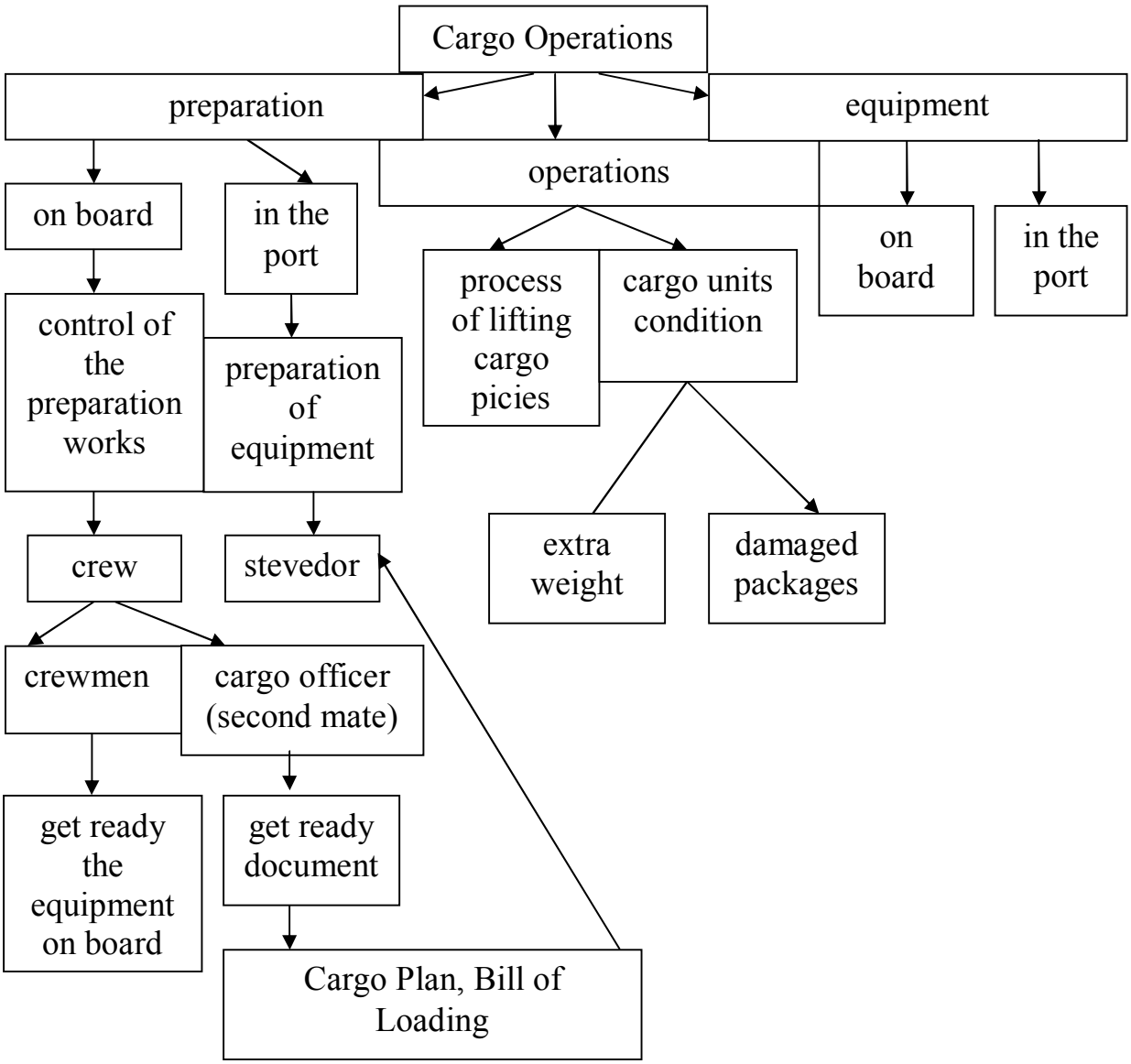
Before the commencement of loading the ship all necessary preparations should be made both in the port and on board, ship to be loaded. First of all, the cargo plan must be drawn up. In Russian ports this document is usually drawn up at the Chief Controller's Office since this office directs cargo work in the port, while in foreign ports the Ship Agent and the Master draw up the cargo plan.

Before loading the Chief Stevedore (or Boss.Stevedore as he is called sometimes), who is in charge of loading the ship, secures the necessary number of stevedore gangs, obtains port cargc handling facilities, if necessary, and supplies the tackles which the stevedores need. He also supervises the correct tonnage allotment for the holds. In the process of loading the Chief Stevedore checks up if cargoes are properly stowed and trimmed, for proper stowage of Cargo ensures the stability of the ship loaded. It is also his duty to see that the cargo should be properly secured from shifting.

On board the ship the Cargo Officer sees that all necessary preparations for loading should be made. Under his supervision the crewmen clear the hatches. They roll back the tarpaulin; from the hatches, remove hatchcovers, remove beams. The crewmen also get ready the ship's winches, derricks and cranes, if any.

Different kinds of cargo require different equipment and appliances. So, for loading cases steel slings, nets and pallets are necessary; bags require nets and canvas slings; heavy lifts are loaded either with heavy duty derricks (or «jumbo» derricks they are also called), the lifting capacity of which is over 5 tons, or with ship's or qu

cranes; for loading flowing cargoes elevators and grabs are used; for loading containers there are gantry cranes and container bridges having container claws; for loading RO-RO vessels or various sorts of vehicles (such as autotrucks, forklift trucks, trailers and others) are used; as to tankers, they are loaded with the help of pipelines and hoses.



Text 3

The microprocessors are so numerous that it is hard to visualize any aspect of contemporary life that will escape its impact.

Modern jet aircraft depends on a variety of sophisticated microprocessor systems for navigation, communication, passenger comfort and safety, engine control and control of aero-dynamic surfaces. Automobiles include microprocessors both for emission control and for optimizing engine adjustments to improve gasoline mileage. Microprocessors will also

connected to safety devices, such as sensors to prevent skidding on wet or icy surfaces. In business offices among the first applications of microprocessors will involve the distribution and control of information. Desk-sized computers will become nearly as common as typewriters. They will handle small, specialized data bases appropriate to each person's job as well as accounting information and personnel data. The transfer of typewritten documents between offices will be largely replaced by electronic memorandum relayed through the office computer system.

In industry microprocessors are now used for such diverse tasks as machine-tool control and remote monitoring of oil fields. Microcomputers will also make possible a new generation of "intelligent" robot arms and hands capable of factory assembly operations heretofore too complex for mechanization.

In the home microprocessors have already appeared in a host of video games and such household appliances as microwave to temperature controls, refrigerators, telephones, solar energy systems and to fire- and burglary-alarm system.

Text 4

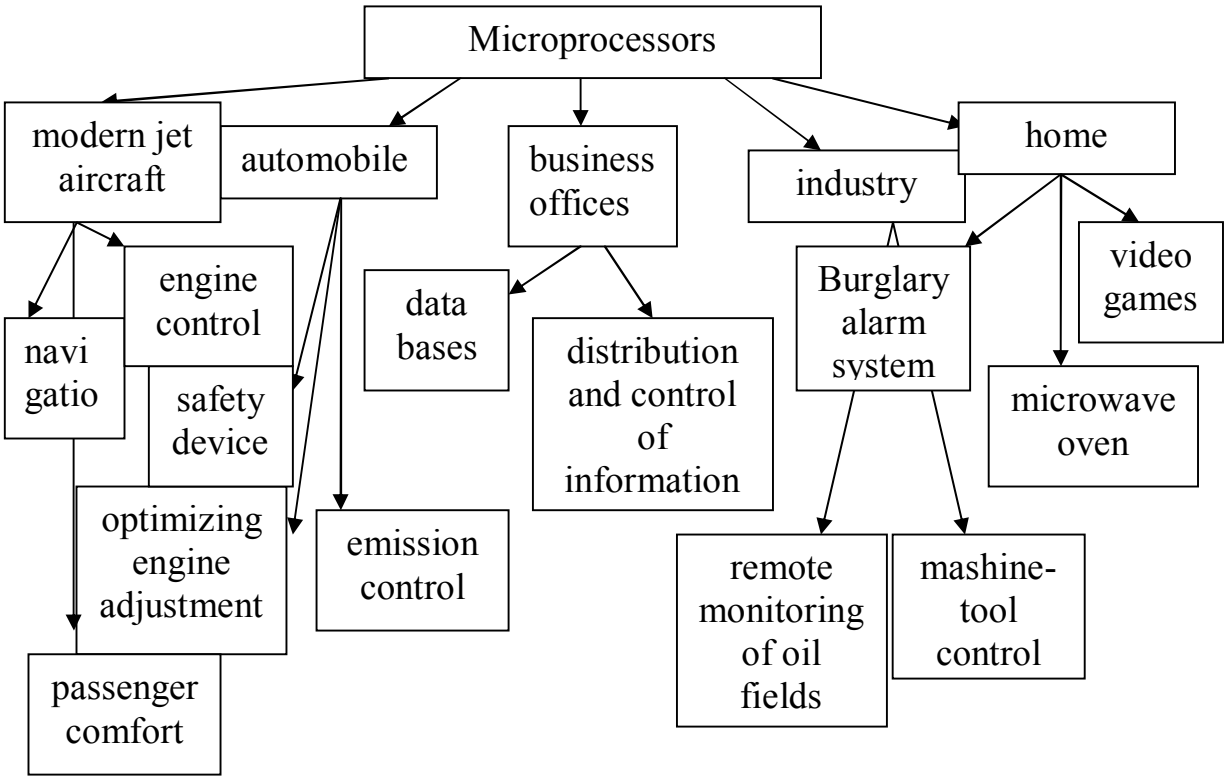
The flood of microprocessors and microcomputers reaching the market combined with the rapid rate of innovation, guarantees that any attempt to catalogue them will be instantly obsolete. A more fruitful introduction to the “micro” marketplace is to classify systems hierarchically according to their capability and function. Along these two dimensions there is a well-defined upward progression in both hardware and software. In hardware the levels are chips, modules, “breadboard” systems, small computer systems, full-development systems and multiprocessor systems.

This hierarchy is not absolute because the evolving technology creates ever more powerful chips, some of which can bridge two or three hierarchic levels. Chips are used to construct a module, modules to construct a small computer system (SCS) and small computers to construct a full-development system (FDS). Multiprocessor systems can incorporate modules, SCS’s, or FDS’s, depending on the application and complexity.

At the first level of the hierarchy are the microprocessor chips, representing the large-scale integration of tens of thousands of individual electronic devices: transistor

diodes, resistors and capacitors. At this level there are also more specialized chips: random-access memories, read-only memories, programmable read-only memories, input-output , interfaces and others. The cutting edge of the technology works most directly at the chip level, providing, for example, Read-Access Memories of ever higher storage capacity. (Currently the most advanced commercially available Read-Access Memories can store 16,384 bits: within a year or two the maximum storage capacity will be 64,536 bits.)

Generally the various kinds of chips are grouped into families that are compatible with particular microprocessors. The families will include a series of Read-Access Memories, Read-Only Memories and Programmable Read-Only Memories chips to create a memory system, a series of interface chips capable of handling both parallel and serial input-output functions and miscellaneous chips to enhance system capabilities, such as high-speed arithmetic operations. Master-control chips are needed to establish priorities and to keep signals flowing smoothly through the complex maze of interconnections. The compatibility of chips and chip families made by different manufacturers varies widely.



TASK IV

Match the texts with the corresponding denotation cards. Give the title to the latter. Speak on the features of the ship types presented in these texts.

Text 1

The most industrial products and semi-manufactured goods belong to general cargoes. General cargoes are the most valuable ones. They require the expenditure of much labour while loading and unloading. Storage and transportation of a lot of tare are very expensive too.

General cargoes comrise goods of the following types: bagged, baled, barreled, boxed, metals and machinery, heavyweights, goods in packages, containers and timber cargoes.

General cargoes are usually transported differently packed.

Units of especially heavy cargo are frequently carried on deck. Locomotives, lorries, crates of heavy machinery such as transformers and extremely large length of heavy timber (logs) and small consignments of general cargoes which may damage other cargo are also given deck stowage.

Cargo carried on deck is shipped at «shipper's risk», unless contracted or otherwise, but nevertheless responsibility falls upon the ship to counteract to any possibility of loss or damage.

Proper means of fastening the cargo must be provided by lashings. Protection from the sun and weather can be obtained by the use of tarpaulins.

Let's consider some types of general cargoes which are carried by dry-cargo ships.

Cotton cargo. It is shipped in tightly pressed bales but it is accompanied by fire risk. The preparation of a hold or compartment: for this cargo is primarily directed towards lessening the risk of fire. Cotton is liable to produce heat and is also a subject to spontaneous combustion. Any space in which cotton is to be stowed should be perfectly dry, well aired and absolutely free from any oil stains.

If cotton cargo follows a clean general cargo efficient sweeping and airing will be sufficient, but if cotton follows a coal or the like cargo, it is necessary to wash the space of holds, due to attention being given to drying.

Rice cargo calls for a very elaborate and efficient system of ventilation for two reasons. First, rice evolves a certain amount of carbonic acid gas and secondary it moisture content leads to the sweating of the hold. Condensation will therefore drop on the cargo from certain points of iron work, unless necessary precautions are taken. The rice cargo is liable to heat fairly quickly, and this fact associated with loss of moisture, explains the loss of weight in transit varying from one to three per cent. The floor of the hold should be covered with thick battens laid athwartships, and boards laid fore and aft.

Text 2

Nowadays universal vessels are gradually being transformed into multi-purpose vessels. Multi-purpose vessels, retaining versatility of universal vessels, that is their capability to carry different bulk and general cargoes, are becoming, to a certain extent, specialized. Thus, all multi-purpose vessels are adapted to carry standard containers. Some of them are also adapted to carry rolled vehicles or heavy/bulky cargoes.

Operations in the Arctic require high ice-breaking capability. The «Norilsk» and her sister-ships are capable of moving continuously through ice over one meter thick with two-meter snow on it. As they are intended to sail independently of icebreaker assistance, they are designed to cope with all conditions prevailing in the Arctic.

The «Norilsk»-class ships are two-compartment full ice-breaking vessels. Their hull is mainly of steel suitable for temperatures down to -50°C. They are designed to carry general cargo, lengthy items, pallets and unit loads of-up to 80 tons, 20 ft containers (including refrigerated ones) and 40 ft containers, trailers, trucks, explosives and inflammable liquids on voyages to the northern outposts, and bulk coal, ore and grain in the midship holds or concentrates in special 10 ft containers

carried two layers on the tanktop and one layer on the tweendeck as well as sawn packaged timber on the upper deck on return voyages.

The cargo handling facilities comprise: deck cranes specifically designed for very cold conditions, wide hatches, a quarter ramp leading to the after tweendeck and allowing vehicles to move through bulkhead doors over a tweendeck and a 40 ton cargo capacity non-propelling hover craft for discharging cargo on the ice, water or marshy land.

Hatch covers. The three midship holds are fitted with twinned hydraulically operated folding hatch covers. No. 1 hatch on the raised forecastle has a two piece cover and No. 5 hatch aft of the superstructure is a single-piece hinged cover operated by wire from its crane. All these covers extend right (the edge of coamings to prevent the build-up of ice).

The tweendecks are flush from the after end of No. 5 and up to the forward end of No. 2 and access to the hold below is by a combination of end and side-folding wire-operated covers. The long No. 3 tweendeck covers have portable hatch beams.

Ventilation. All cargo spaces are fitted with forced ventilation system. The rate of air exchange is 6 times per hour in holds 2, 3, 4; in RO-RO tweendeck and in number 1 hold it is 20 times per hour.

Ramp. The quarter ramp giving direct access to No. 5 tweendeck is set at an angle of 65°, to the centre line. It is 18 m long with a driveway 5 m wide.

Cranes. Conventional cargo handling is effected by four electro-hydraulic deck cranes (three of 22 ton capacity 22 m outstretch and a twin 40 ton crane for hatches 2-3 at 20 m outstretch).

Environmental protection. To prevent pollution of the Arctic environment an oil-fired incinerator is installed and a sewage-treatment plant is fitted in the engine room to meet IMO's and other international and national regulations.

Text 3

The idea of a barge carrier is the same as that of any unitized goods transporter: to keep cargo in the same package all the way and not to reload it. Large steel barges

used as containers may be of different sizes and of different cargo carrying capacity. The only difference between a container and a barge is that the latter is much bigger and can float. Barges can be loaded with principal different cargo - from ore to containers. Several barge carrier designs are available, including the lighter aboard ship (LASH) and the sea barge (Sea Bee) designs.

These designs differ in dimensions and design features but provide similar benefits in that the ship is able to load and unload barges in rivers and estuaries away from docks and quays. Thus they reduce the time in port and avoid the usual problems of port congestion. The basic difference between the two systems is that the LASH ship is a "lift-up and lift-over" type, using a 500 ton gantry crane, while the Sea Bee ships float barges on to an elevator jof 2,000 tons capacity, using a roller system for stowage.

The LASH system has three basic elements, the, first of which is the ship itself which has a broad U-shaped stern with structures extending aft of the hull body and forming a docking area. The second element is the barge. The third element is the massive 500 ton gantry crane which can drive along rails fitted to the upper deck and lower a barge into the desired location on the ship and discharge the barges at their delivery points.

The vessel is of the single deck type with the superstructure forward to give maximum clear working space. The holds are covered with pontoon covers capable of sustaining two tiers of barges on deck.

The Sea Bee System. The Sea Bee ship has three continuous cargo decks, there are no hatch openings on the upper deck as a horizontal loading system is adopted.

Both LASH and Sea Bee ships can be operated as container ships. The advantages of the barge carrying system:

1) rapid loading and unloading;

2) the barge carrier can anchor and moor clear of quays and thus avoid port congestion;

3) the life of a barge is 2.5 times that of a container and the depreciation of a barge is about half that of the equivalent number of containers;

4) the organization of the barges is simpler than that involved with the much larger equivalent number of containers.

The disadvantages of the barge carrying system:

1) distribution is limited, since the barge is restricted to a navigable inland waterway suited to the draught of the barge;

2) ice on waterways can restrict barge transport;

3) inland waterway transport is relatively slow; this is important in relation to perishable products;

4) the LASH type ship is more expensive than the equivalent container ship.

Text 4

Fully pressurised ships. The carry cargo in steel pressure vessels designed to withstand about 17kg/cm^2. The ships tend to be small, with a cargo capacity of up to about 1,000 m^3. The tanks are normally cylinders, two in number, mounted horizontally, though some ships use larger numbers of spheres or vertically-mounted cylinders, or a combination of these. The ships normally carry LPG or ammonia in the short sea trade; they normally have double bottom tanks and some have topside ballast tanks. The space in which the cargo tanks are located (the hold space) is air-ventilated, with dry air or inert gas.

Semi-refrigerated ships. This heading covers a wide range. Basically ail have pressure vessel cargo systems which are suitable for cargoes at temperatures below ambient. The grade of steel used dictates the temperature limitation: the common temperatures are -33°C (for ammonia) and -50°C (for LPG). The design pressure of the systems depends on the cargo temperature, but may range from 3-10 kg/cm . These tend to be larger ships, with cargo capacities of up to 12,000 nr. They trade coastal and deep-sea, and tend to use the cargo volume more efficiently (e.g. tapered cylinders, lobed tanks, above-deck tanks). The cargoes carried include LPG, NH and the chemical cargoes such as butadiene, propylene and vinyl chloride. The ships normally have a full double bottom and some have topside ballast tanks. The hold space is ventilated with fresh or dry air.

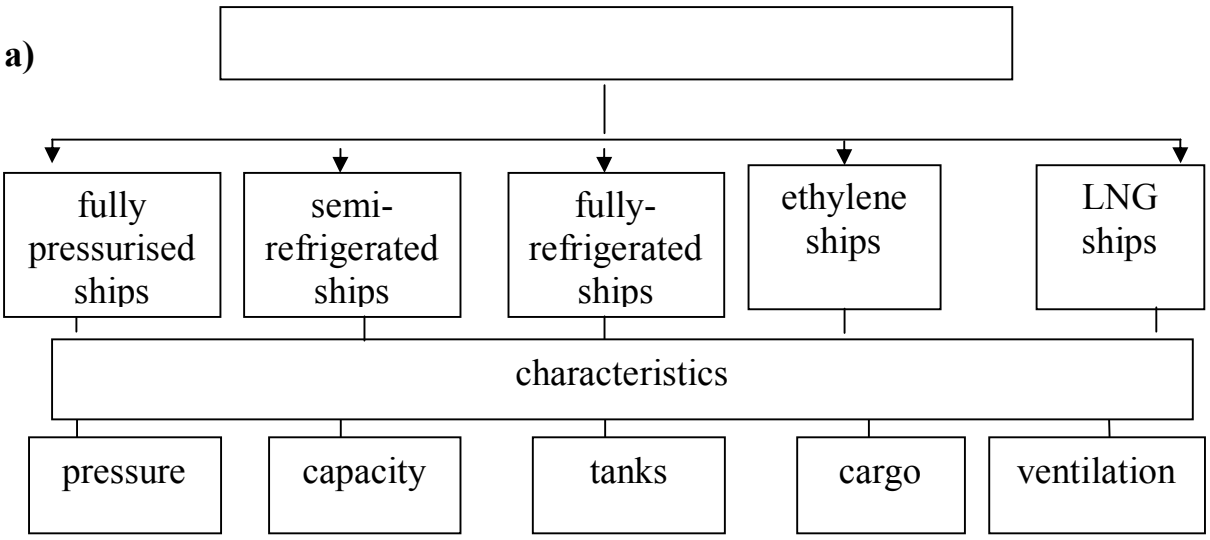
The carry LPG(fully refrigerated) at temperatures between -55°C and -0.5°C. They may be equipped to carry ammonia and are usually suitable for the full

range of hydrocarbons down to -55°C. There are normally between three and six cargo tanks, extending almost the full beam of the ship Double bottom tanks are fitted, together with topside or complete side ballast tanks.

Ethyene ships.The cargo is usually fully refrigerated at -104°C; the cargo tanks are made from aluminium, nickel steel or stainless (austenitic) steel. The cargo tanks used are independent. If a secondary barrier is fitted this is not part of the hull. A full inner hull is provided with double bottom and wing ballast tanks fitted.

LNG ships. The cargo is carried fully refrigerated at - 163°C; the cargo tanks are made from aluminium, nickel steel or stainless (austenitic) steel. Boil-off gas is either vented or burnt in the main machinery.

a)



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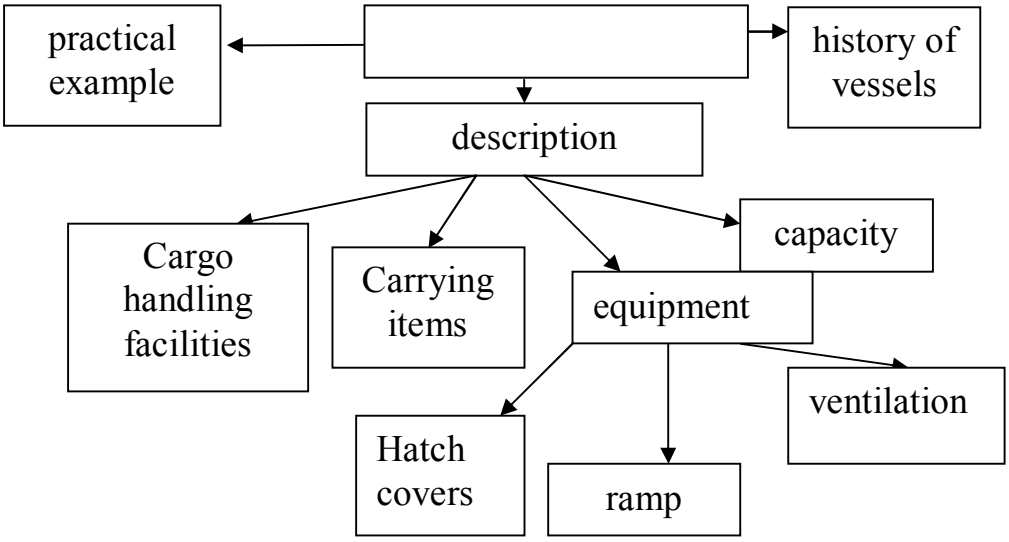
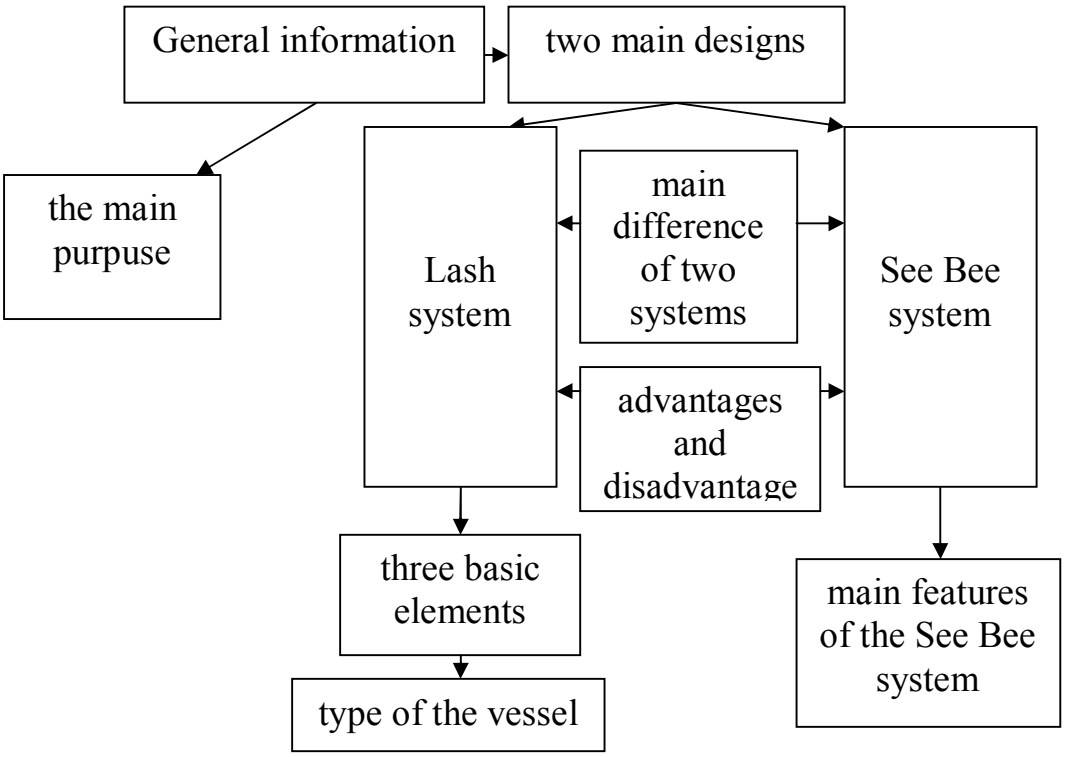


c)



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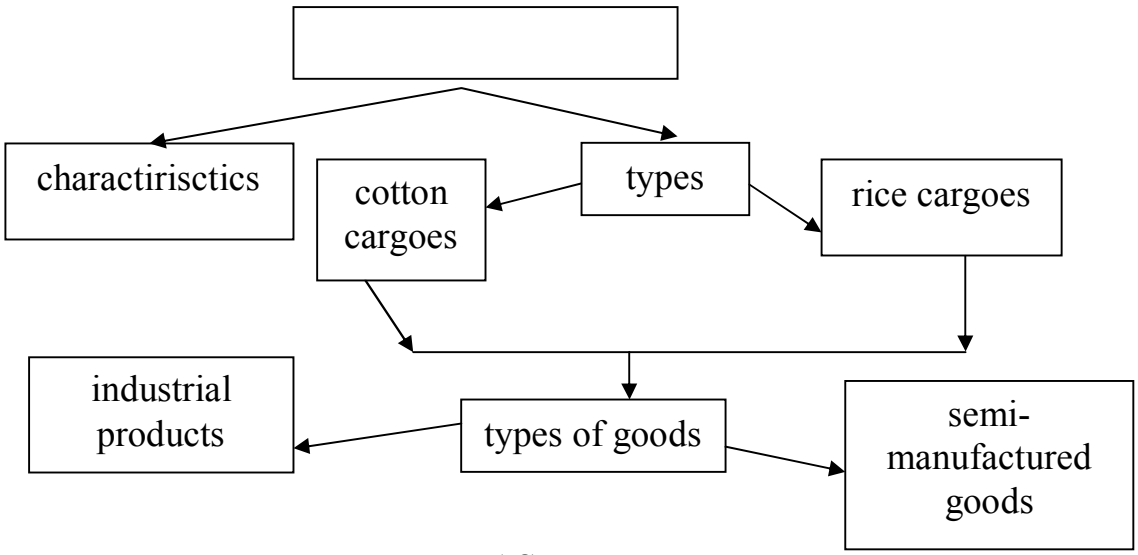


TASK V

Compose the denotation card to the given text and reproduce the latter

Text 1

On one hand, all cargo ships are divided into two types: dry cargo ships and tankers. On the other hand, cargo ships may be divided into universal ships designed to cany principal different types of cargo and specialized ships designed to carry one type of cargo (e.g. bulk cargo, timber, refrigerated, goods, oil etc.). Such specialized

ships as bulkers (= bulk-carriers) timber-carriers, reefer ships, tankers have long been known. Nowadays three kinds of specialized ships are very popular. One is cargo earners with cargo handling equipment on board for special purposes or routers, such as, for example, heavy/bulky cargo ships with derricks or cranes capable of handling single lifts over 500 Ions without requiring outside assistance (these ships are also called special-purpose ships). The second trend is Roll-on/Roll- off ships, in-which bow and stern doors and adjustable steel ramps pennit vehicles to drive on board and drive off again, requiring only minimum dock-side facilities. The third trend is the container ship. The use of containers for cargoes has encouraged the design of ships specifically to cany containers. In then extreme form, as in the LASH barge-carrying ships, the container is a 60-foot sleet lighter, which can be quickly launched over the ship's stem. One (single) purpose ships designed to cany one particular kind of cargo are also widely used, the most popular of them being cellular type full container ships.

There are specialized ships designed to carry different types of cargoes (e.g. OBO ships, PROBO ships, CONBULKERs etc.) These are called combined ships. A comparatively new development is the multi-purpose ship combining characteristic features of both universal and specialized vessels. In dependence of the cargo handling method used dry cargo ships may also be divided into: LO-LO (Lift-on/Hit-off) vessels where handling of cargo is effected by derricks or crances through cargo hatches; RO-RO (roll-on/roll-off) vessels where the cargo is rolled on board and rolled off through cargo ports or doors in the bow, stem or sides of the ship; FO-FO (float-on/float-of) vessels where dock lift cargo handling method is used, that is floating cargo units (e.g. barges) are floated into cargo spaces (usually large holds). But there are also hybrid vessels where combinations of the above mentioned methods are used, such as LO-LO/RO-RO (or LO/RO), RO-RO/ FO-FO (or RO/FO-RO-Flow) vessels and others.

Text 2

In May 2000, an e-mail-borne virus with the phrase "I love you" in the subject field circled the globe in a matter of days,forcing companies to shut down e-mail sys-

tems as computer users proved only too willing to let love into their lives – and their corporate networks.

Last summer the Code Red worm and its variants invaded more than 350,000 servers, causing damage estimated in excess of $2 billion and prompting warnings that the Internet itself was on the verge of collapse. Code Red was followed by Nimda – "admin" spelled backwards – a worm that exploited vulnerabilities in server and browser software, disrupting more than a million computers around the world.

If you happen to think cyber attacks are on the rise, you are absolutely correct. Even excluding last year's massive Nimda and Code Red assaults, a recent global survey found a 79 percent increase in IT security attacks during the second half of 2001. Corporations in the power and energy industries were prime targets, as were high-tech firms, financial-services companies and the media. Even more recently, major security flaws have been uncovered in both the Windows XP operating system and in the routers used by many Internet service providers, corporations and individuals.

As a result, sales of IT security solutions are surging. In Europe alone, the research firm IDC predicts the cyber-security market will soar from $1.8 billion in 2000 to $6.2 billion by 2005. “As awareness increases, the market for security products increases," points out Luca. Bertagnolio, product marketing manager for VPNs and security for Cisco Systems in Europe/Middle East/Africa.

Major IT vendors such vas IBM, Cisco and Sun, as well as security specialists; such as Swiss-based Crypto AG, how offer a virtual arsenal of hardware and software options – including firewalls.

VPNs (Virtual Private Net works), authentication systems, cryptography and intrusion detection devices. But it is security 3A software – gauthorization, authentication and administration – that is both the largest and fastest-growing market segment, according to IDC.

Investors may be organizations or individuals. Organizations as institutional investors buy securities with their funds or funds held in trust for others. Major

institutional investors are insurance companies, pension funds and universities. Insurance companies make their investments generate profits and funds for paying future insurance claims. A pension fund wants, to make money on its investments so that it can pay off pensioners.

The other types of investors are individuals who trade securities for their own accounts. The majority of personal investors have rather small stock portfolios usually valued at less than $50,000. They often use these funds for major purchases such as a home, retirement income, or as a source of cash in case of emergency.

The objectives of investors can be identified in terms of speculation, growth, and income.

Some investors set an objective of achieving big payoffs. They engage in speculation, or assuming large risks in the hope of large returns. One of the ways to speculate is to buy "penny stock". It is highly speculative stock that sells at less than $5. A $1 stock that is in high demand may rapidly run up to $3 thus tripling uhe initial investment. "Penny stock" is typically a share in new ventures.

More investors are interested in long term growth in the value of their investment. They tend to prefer the so called blue chip stocks of large, high quality companies such as IBM, General Motors, American Express. The dividend for blue chip stocks is rather low because these,firms reinvest much of their profits in research in order to remain competitive.

Some investors seek income. They are interested in a stock's yield which, is the percentage return from stock dividends. The highest regular yieids are provided by utility stocks because they have minimal risk.

The investors take risk only within certain limits. Common stock is less safe than preferred stock because preferred stockholders receive dividends before they are paid to the common stockholders. In the case of common stock, utilities are safer than high tech stock. The safest type of securities are government bonds because they are backed by the government.

Text 3

For years, Internet devotees have argued that packet-switched Voiceover Internet Protocol (VolP) systems could dramatically lower telecom costs while paving the way for futuristic IP services such as enterprisewide instant messaging and desktop videoconferencing. Finally, it seems, the message is being heard.

In June, Dow Chemical unveiled plans for DowNET, a custom-designed VolP global communications network. In December Lloyd's of London launched a VolP system from Cisco systems that is expected to save nearly $6 million over the next four years. They join a growing list of companies looking to increase productivity and trim communications costs by combining real-time voice and data together on a single pathway.

With 50,000 employees in more than 100 countries, Dow is seeking to rationalize its telecom assets while moving aggressively into the e-business era. In a bold stroke, the company has turned to VoIP and an enterprisewide network. "DowNET essentially allows us to integrate everything into a single-source, real-time communications solution," says David Kepler, Dow's vice president, e-business and chief information officer. Kepler is counting on VolP to significantly cut costs while simultaneously providing the company with impressive new multimedia communications capabilities. "It will let our employees send and retrieve e-mails, fax documents, send voice and video messages, and access files and LAN services any time, wherever they are."

The objectives of DowNET, however, extend beyond boosting productivity and reducing IT expenditures by an estimated 25 percent. Dow's ultimate reasons for turning to an integrated VolP network also have much to do with long-term business strategy. "Our goal is to expand our presence in the digital economy, combining e-commerce and the Internet to transform the way we interact with customers and new markets," says Kepler.

Joel Martin, research director for IDC in Australia, points out that corporate ClOs have not always been so keen on VolP— primarily because of quality and usability

concerns.That began changing about two years ago. "In 2000, the business market became “more important as Internet telephone service providers enhanced their call quality and began to develop integrated equipment and service offerings geared toward small and medium-sized business,” says Martin. At the same time, large global companies, which rely heavily upon virtual private networks (VPNs), began increasing their VolP spending as well."The corporate market is gaining momentum as major carriers develop integrated VolP offerings to run across corporate VPNs," he says. "This trend is accelerating strongly in 2002."

VoIP investment by telecom carriers is often highest in developing countries, where there is little in the way of existing Internet infrastructure. "VolP uptake has been tremendous in countries such as China and India,"says Martin."But the pace of total revenue and investment in this technology is really coming out of Asian city states such as Hong Kong, Singapore and Kuala Lumpur in Malaysia."

In Israel, VocalTec Communications, based in Herzliya, near Tel Aviv, claims the distinction of having introduced the first Internet telephone software in 1995. "Today, our VolP solutions include international and long-distance calling, voice VPN, calling-card, exchange and voice-enhanced e-commerce," says Dr. Elon Ganor, VocalTec's CEO and a former practicing physician.While the market is clearly expanding, Dr. Ganor points out that VolP has not been immune to the worldwide telecom slump. "Although we are seeing some slowdown in the implementation of VoIP with the current economic slowdown, there's no doubt that this is a growing market."

A growing market, indeed. IDC expects worldwide retail IP telephony to explode from 20.6 billion minutes in 2001 to almost 60 billion minutes in 2002, and nearly 750 billion minutes by the end of 2007. Contributing to this soaring growth rate is the expectation that value-added applications will make VoIP far more appealing to business users, says Eric Owen, IDC's vice president of Europe, Middle East and Africa telecommunications.

KEYS

Task I

Which denotatation card corresponds to the given text? Give the title to the denotation cards. Speak on the: a) memory types; b) pendulum features.

Text 1–b) Types of Memory.

Text 2–b) Pendulum.

Text 1. Types of Memory

a. Random-Access Memory, where each memory word is accessed for reading or writing via a specific address.

b. Serial Access Memory, where the memory consists of a circular shift register (serial output connected to serial input).

c. Read-Only Memory, in which the binary contents are wired in at the factory as a step in the 1C manufacturing procedure.

d. Programmable Read-Only Memories, which can be written using special equipment.

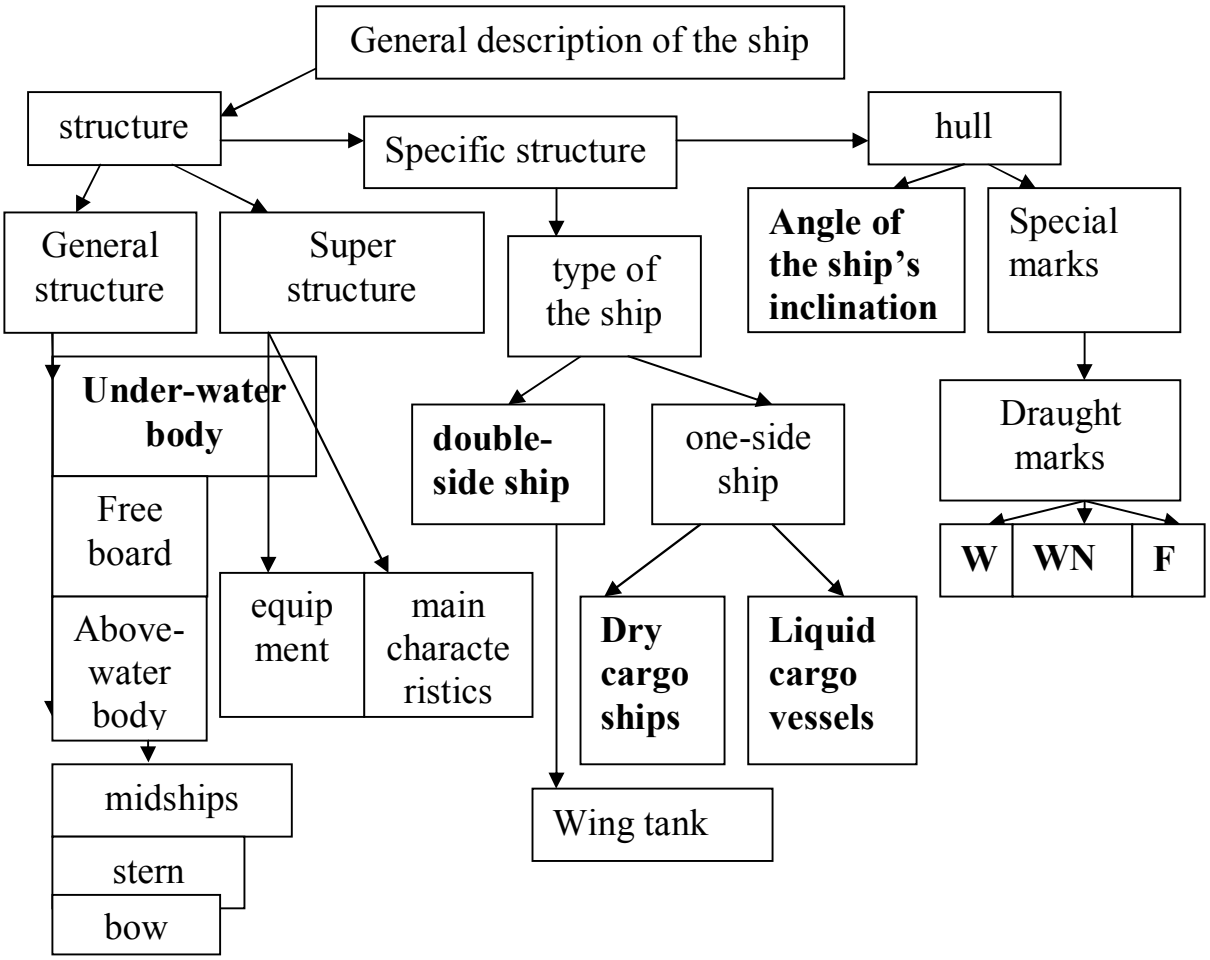
Text 2. Pendulum Features

1. A pendulum is a simple but important notion in dynamics which indicates the point to which the system is attracted in time.
2. It can help to consider the state of the system at any particular time as a point in phase space – the space defined by the dimensions of the system in question.
3. There are typically only four types of pendulum behaviour called sinks, sources, saddles and limit cycles: a) these are steady states, though with different types of stability. b) a limit cycle is a repeating sequence which, once started, goes on forever. Other types of pendulum behaviour exist, but are vanishingly rare.

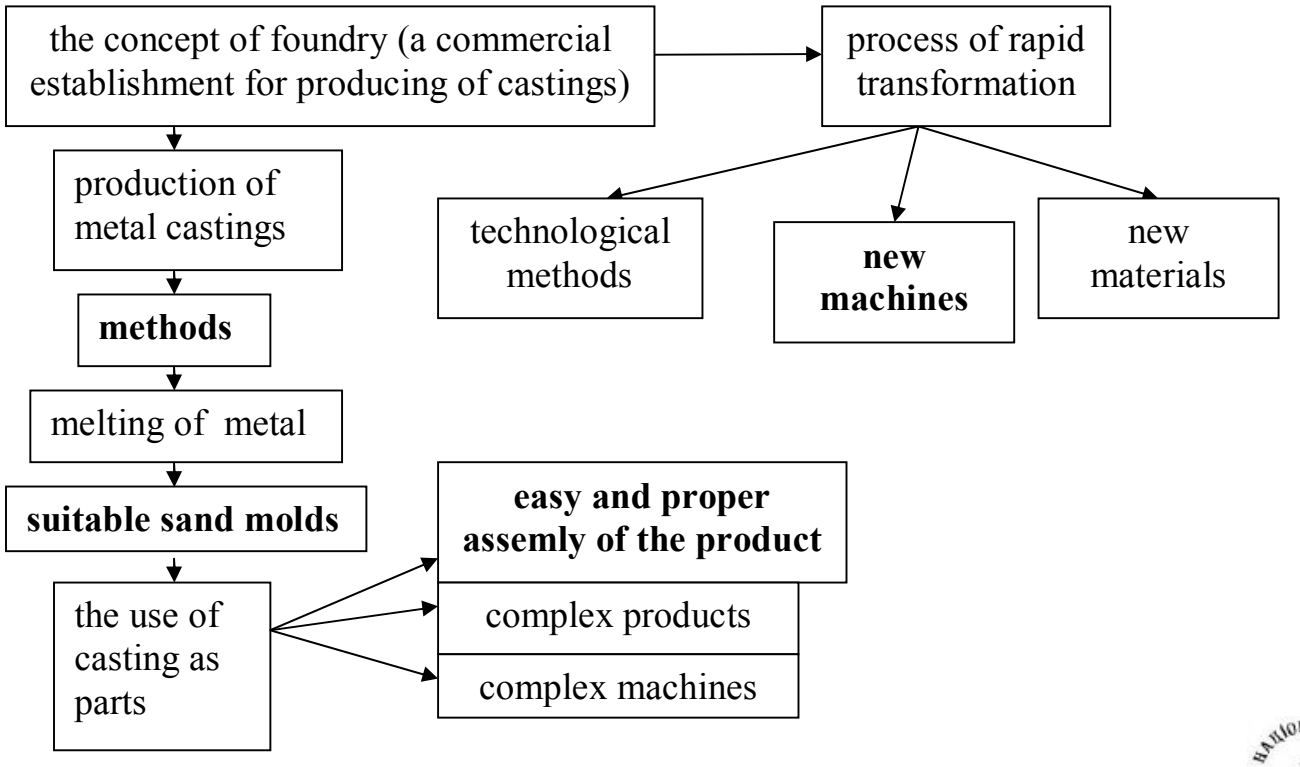
Task II

Read the texts and fill in the gaps in the denotation cards that follow them. Give the summary of each text using the corresponding denotation card.

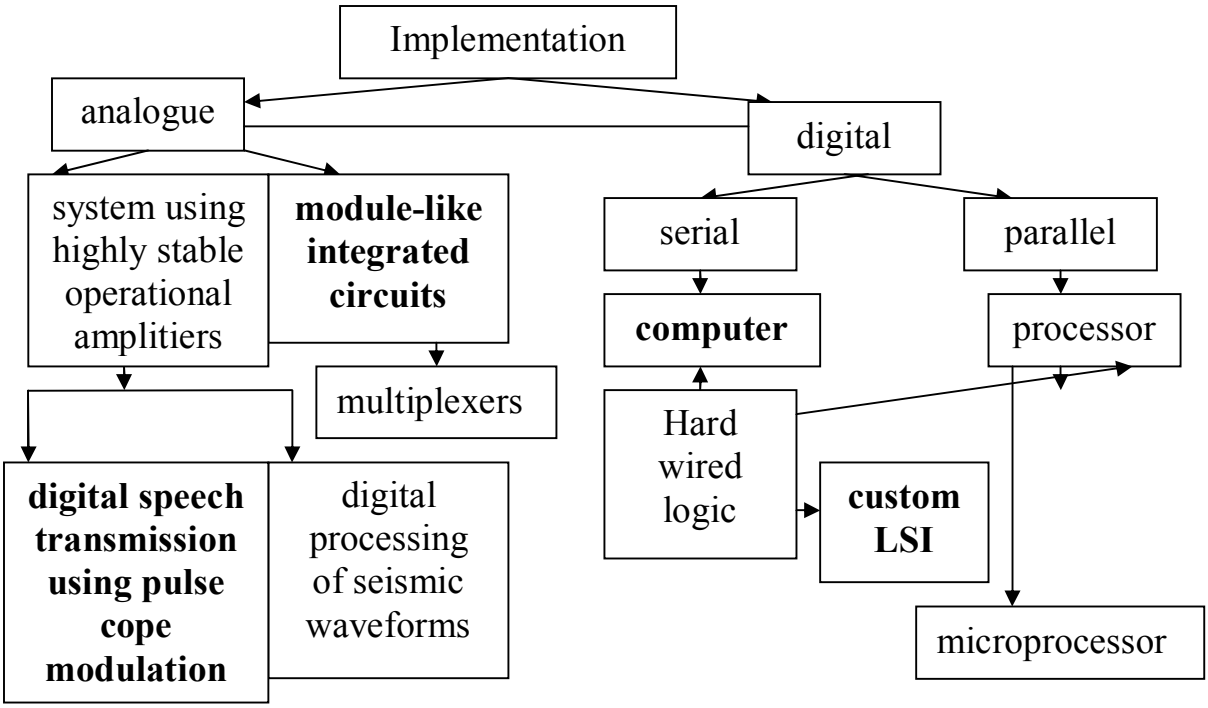
Text 1



Text 2



Text 3



Task III

Which of these texts corresponds to the given denotation card? Find the coinciding points and differences of these texts and speak on:

a) Text 1. loading / unloading;

b) Text 2. microprocessor features.

a) – Text 4

b) – Text 3

Loading/Unloading of the Ship

Coinciding points:

1. Before the commencement of loading the ship all necessary preparations should be made both in the port and on board, ship to be loaded.
2. The crewmen get ready winches and cranes, derricks, shackles, blocks, slings, sling hooks, chain slings, timber dogs, falls of tackle, guys.
3. All these appliances should be preliminary inspected for possible signs of wear.

Differences:

1. Before loading the Chief Stevedore (or Boss.Stevedore as he is called sometimes), who is in charge of loading the ship, secures the necessary number of stevedore gangs, obtains port cargc handling facilities, if necessary, and supplies the tackles which the stevedores need.
2. When the ship is to be unloaded the Second Mate (Cargo Officer) gives a Cargo plan and Bill of Lading to the stevedore.

Text 2. Microprocessors

Differences:

1. Modern jet aircraft depends on a variety of sophisticated microprocessor systems for navigation, communication, passenger comfort and safety, engine control and control of aerodynamic surfaces.
2. A more fruitful introduction to the "micro" marketplace is to classify systems hierarchically according to their capability and function.
3. The cutting edge of the technology works most directly at the chip level, providing, for example, Read-Access Memories of ever higher storage capacity.

Task IV

Match the texts with the corresponding denotation cards. Give the title to the latter. Speak on the features of the ship types presented in these texts.

Text 1–d) General Cargoes.

Text 2–b) Multi-purpose Vessels.

Text 3–c) Barge Carrying Vessels.

Text 4–a) Carry Cargoes.

Differences:

d) **General Cargoes**

1. General cargoes are the most valuable ones.
2. They require the expenditure of much labour while loading and unloading. Storage and transportation of a lot of tare are very expensive too.
3. General cargoes are usually transported differently packed.

b) **Multi-Purpose Vessels**

1. All multi-purpose vessels are adapted to carry standard containers. Some of them are also adapted to carry rolled vehicles or heavy/bulky cargoes.
2. To prevent pollution of the environment an oil-fired incinerator is installed and a sewage-treatment plant is fitted in the engine room.

c) **Barge Carrying Vessels**

1. Barge is much bigger than container and can float.
2. The ship is able to load and unload barges in rivers and estuaries away from docks and quays.
3. The barge carrier can anchor and moor clear of quays and thus avoid port congestion.

a) **Carry Cargoes**

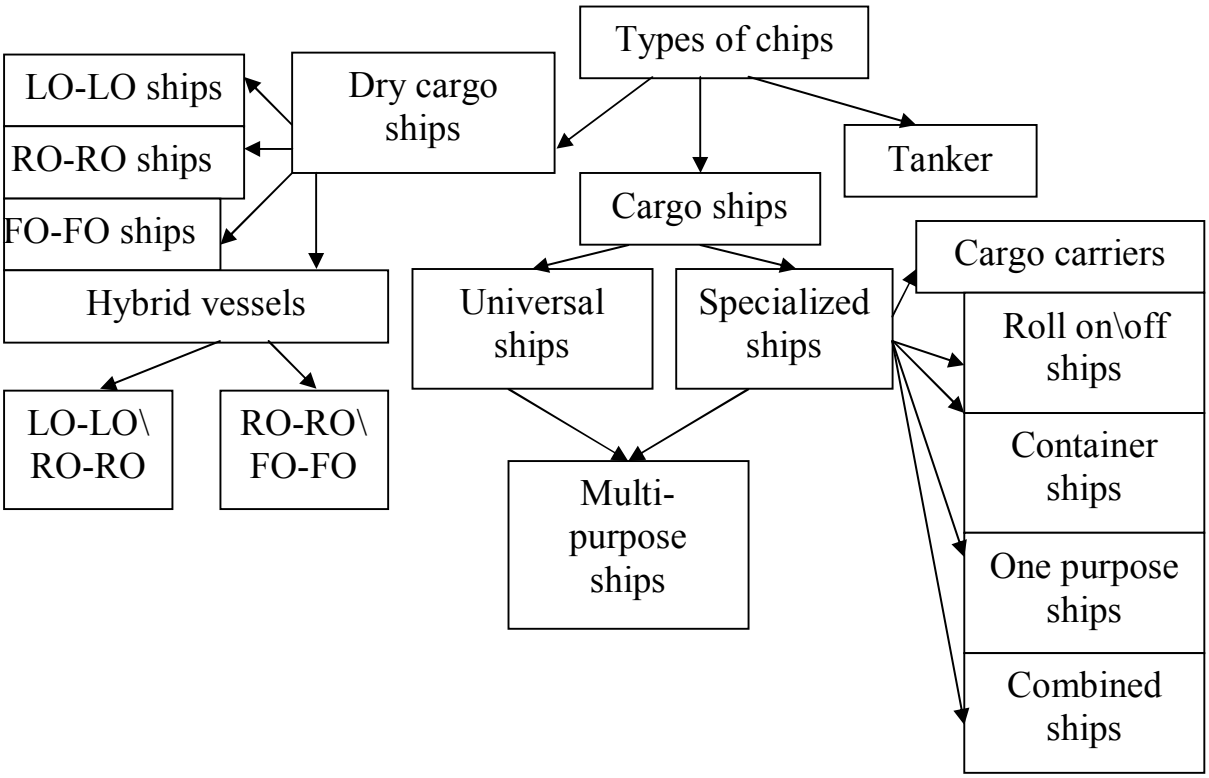
1.The ships normally carry LPG or ammonia in the short sea trade.

2. They have double bottom tanks and some have topside ballast tanks.

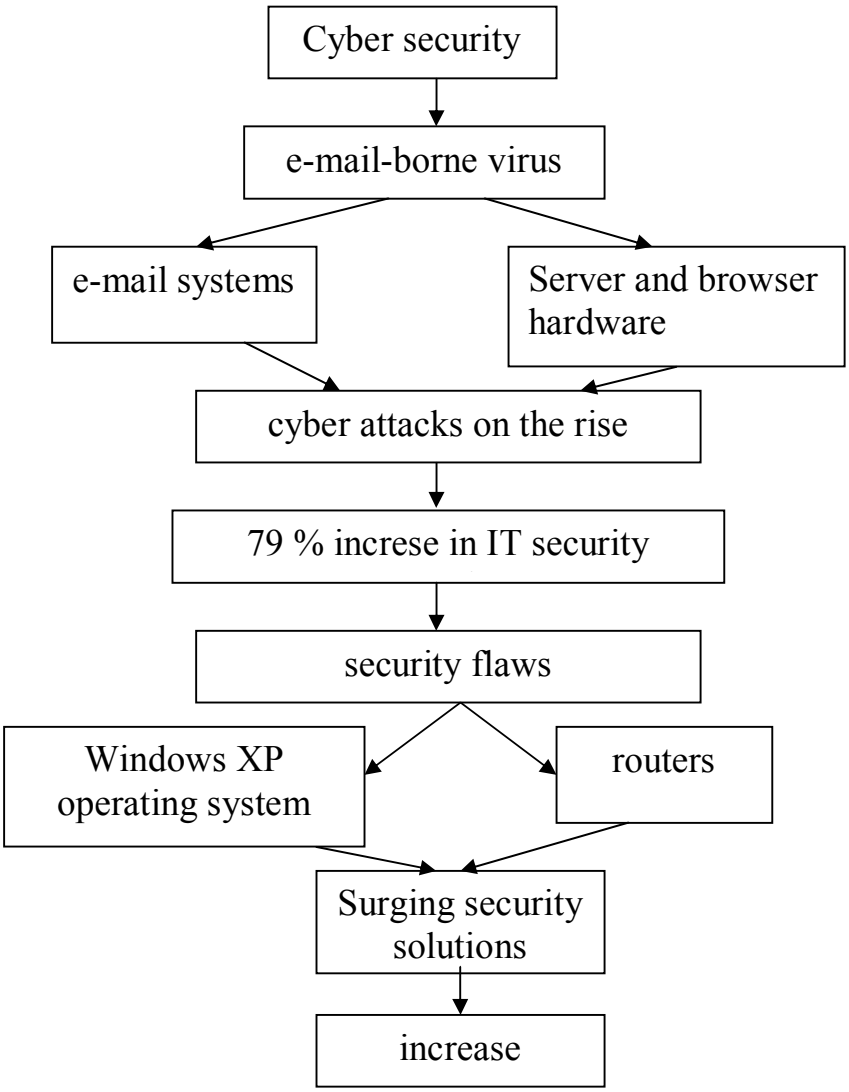
Task V

Compose the denotate card to the given text and reproduce it

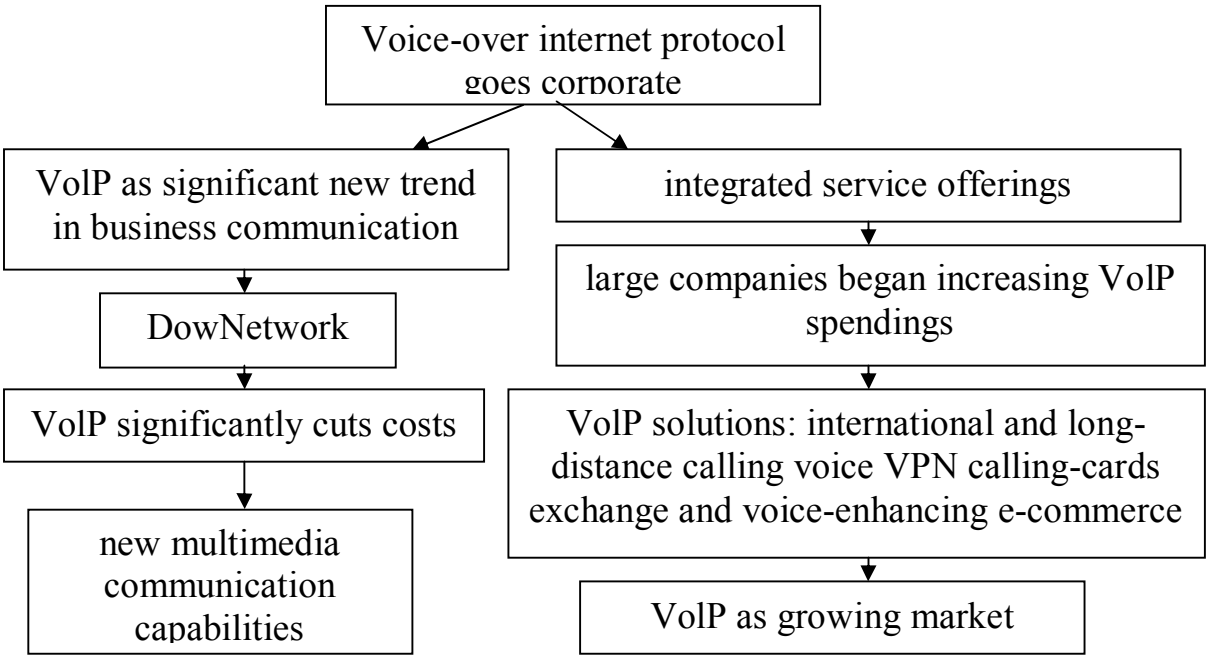
Text 1



Text 2



Text 3



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