Министерство образования Республики Беларусь
Учреждение образования
«Белорусский государственный университет
информатики и радиоэлектроники»

Кафедра иностранных языков №2

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ПРАКТИЧЕСКИЙ КУРС АНГЛИЙСКОГО ЯЗЫКА ПО ОСНОВАМ ЛОГИСТИКИ

ENGLISH PRACTICAL COURSE ON LOGISTICS BASICS

*Рекомендовано УМО по образованию
в области информатики и радиоэлектроники
для направления специальности 1-40 05 01-08
«Информационные системы и технологии (в логистике)»
в качестве пособия*

Минск БГУИР 2015

УДК 811.111(076)
ББК 81.2Англ я7
К78

Р е ц е н з е н т ы:
кафедра профессионально ориентированной английской речи учреждения образования «Белорусский государственный экономический университет» (протокол №9, от 25.04. 2014);

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Кравченко, М. В.

К78 Практический курс английского языка по основам логистики = English practical course on logistics basics : пособие / М. В. Кравченко. – Минск : БГУИР, 2015. – 64 с.

ISBN 978-985-543-065-1.

Пособие содержит пять циклов: Logistics and Logistics Management, Logistics Software Systems, Logistic Networks and Systems, Supply Chain Management и Total Quality Management. Цель пособия – развить умения понимания и аннотирования оригинальных текстов по заявленной специальности. Разработка содержит единый комплекс упражнений и заданий, представленный в трех разделах каждого цикла.

Пособие может быть использовано на занятиях с магистрантами и аспирантами, изучающих инженерно-экономические специальности.

УДК 811.111(076)
ББК 81.2Англ я7

ISBN 978-985-543-065-1

CONTENTS

ПРЕДИСЛОВИЕ

Пособие предназначено для формирования лексических навыков у студентов инженерно-экономических специальностей, а также развития умений понимания и аннотирования текстов, содержащих профессионально-значимую информацию.

Работу по предлагаемому пособию рекомендуется начинать после того, как усвоены основные разделы грамматики, наиболее употребительные модели английского языка, а количество лексических единиц, активно используемых в речи, достигло 1800–2000.

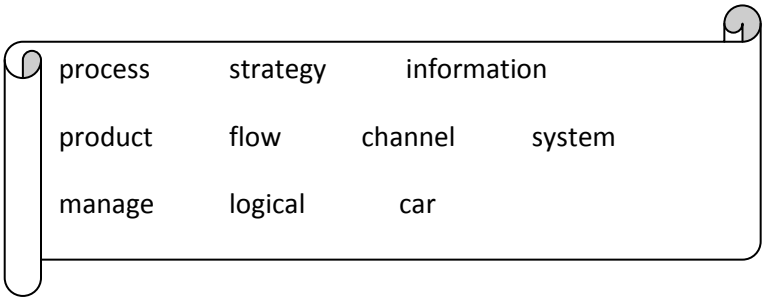
Пособие содержит пять циклов: Logistics and Logistics Management, Logistics Software Systems, Logistic Networks and Systems, Supply Chain Management и Total Quality Management. Каждый цикл пособия представлен системой аутентичных общепрофессиональных и специальных текстов. Последовательная работа над комплексом упражнений и заданий обеспечивает углубленное понимание текстов по специальности, их лексических особенностей и повышает эффективность процесса обучения чтению. В пособии содержится базовый терминологический словарь-минимум, способствующий конкретизации объектов усвоения. Материал максимально приближен к программной тематике курса, что обеспечивает интегративный подход в обучении английскому языку в неязыковом вузе.

Автор выражает признательность кандидату педагогических наук, доценту И. П. Макаренко за предоставленную возможность использовать разработанную ею методику формирования рецептивных лексических навыков у студентов неязыкового вуза.

UNIT I: Logistics and Logistics Management

Part 1

1.1 What of the words from the list given below do you associate with «Logistics»? Can you add any words to the list?



1.2 This text will introduce you to the scientific approaches to Logistics and Logistics Management. Examine the text carefully and try to understand the meaning of the bold-faced words. Use the prompts to the right of the text. You can check yourself with the key given below the text.

The concept of **Logistics** started many years before Christ and was used by Greek generals (Leon the Wise, Alexander the Great) in order to describe all the procedures for the army's **procurement** on food, clothing, ammunition, etc.

Alexander the Great was a big fan of the mobility of his troops and he didn't want his troops to stay in one place waiting for **supplies** from Macedonia. Thus, he tried **to resolve** the issues of supplies by using supplies from the local resources of his defeated enemies. Starting from the early '60s of the XX century, many factors, such as deregulation, competitive pressures, information technology, globalization, **profit leverage**, etc., contributed to the increase of Logistics science in the form we know it today.

1. ***Logistics*** means логистика.

2. ***Procurement*** is the process of obtaining supplies of sth, especially for government or an organization. It means ____.

3. ***Supply*** is снабжение, поставка; снабжать, доставлять.

4.

Adj.	resolved
V	resolve (решать)
N	resolution

5. ***Profit leverage*** means ____.

Logistics is the process of managing the flow and **storage** of materials and information across the entire organization with the aim to provide the best customer service in the shortest time at the lowest cost. Early logistics management research focused on the management of transportation and **warehouses**. Logistics management is sometimes used instead of physical **distribution**. However, these two functions are very different from each other. Logistics management includes many activities from supplying the materials to customer satisfaction. On the other hand, physical distribution is interested in only distributing final products to the **customers.**

The most recent definition of logistics from CLM (now the Council of Supply Chain Management Professionals – CSCMP), in 2003 is: «that part of supply chain management that plans, **implements** and controls the **efficient**, effective forward and reverse flow and storage of **goods**, services, and related information between the point of origin and the point of **consumption** in order to meet customers' requirements».

Today, research in logistics addresses two aspects: 1) supply chain logistics, concerned with the flow of goods; and 2) **service response** logistics, concerned with the coordination of non-material activities necessary for the fulfillment of the service in a cost – and customer service – affective manner.

6.

V	Store (хранить)
N	storage

7. ***Warehouse*** is a building where large quantities of goods are stored. It means ___.

8.

Adj.	Distributive
V	Distribute (распределять)
N	Distribution

9. ***Customer*** is a person or an organization that buys sth from a shop/store or business. It means____.

10.

Adj.	Consumable
V	Implement (осуществлять) Consume (потреблять)
N	Implementation Consumption/Consumer

11. The Russian name for ***goods*** is ____.

12. ***Service response*** means сервисный отзыв.

An informal review of **research** topics appearing in the Journal of Business Logistics (JBL) identifies traffic and transportation, warehousing and storage, **inventory management**, **packaging** and return goods handling, salvage and scrap disposal as key foci of supply chain logistics; and order processing and information systems, customer service and procurement as key foci of service response logistics. Over time, logistics research has evolved from a pure internal focus on cost control, and functional areas of inventory, transportation, warehousing and order processing **integration** regarding supplies and customers.

The current state of logistics research reflects its **evolution** from an emphasis on operational and functional areas to an emphasis on the efficiencies that can be gained through the integration and interface(s) between disparate areas and other functional departments within the organization including manufacturing, human resources, finance/**accounting**, etc. Today, logistics research is responding to recent calls for measuring the performance of the logistics system and subsystems and its implication for overall firm **performance**, especially with an emphasis on the efficiencies that can be gained from extending this functional integration through collaboration across the entire supply chain.

13. The Russian name for ***research*** is a) экспедиция, b) запрос, c) исследование.

14. ***Inventory management*** means управление материально-техническим снабжением, запасами.

15. The Russian name for ***packaging*** is____.

16.

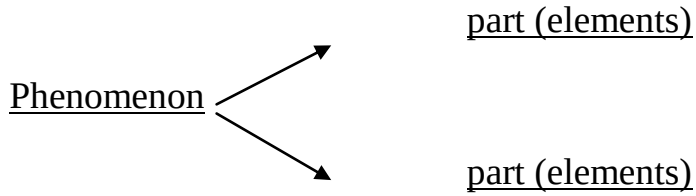
Adj.	Integrated Evolutionary
V	Integrate (объединять, составлять целое) Evolve (эволюционировать, развиваться)
N	Integration Evolution

17. The Russian name for ***accounting*** is **?** a) аккредитование, b) бухгалтерский учет, c) точность.

18. ***Performance*** means производительность, показатель деятельности.

Key: 2) снабжение; 5) средства для достижения прибыли; 7) склад, хранилище; 9) покупатель, заказчик, клиент; 11) товары; 13) с; 15) упаковка, упаковочное дело; 17) в.

1.3 Look through the text given above and quickly write out the words denoting the following:



1.4 <u>Work in pairs.</u> The notion «Logistics» has been redefined several times. Examine the evolution of definitions and point the differences. Which definition provides an alternative view on Logistics?

1) «the process of planning, implementing, and controlling the efficient, cost-effective flow and storage of raw materials, in-process inventory, finished goods, and related information flow from point of origin to point of consumption for purpose of conforming to customer requirements» (1986);

2) «the process of strategically managing the procurement, movement and storage of materials, parts and finished inventory and related information flow through the organization and its marketing channels» (1998);

3) «part of the supply chain process, that plans, implements and controls the efficient, effective flow and storage of goods, services and related information from the point of origin to the point of consumption in order to meet customer requirements» (2001);

4) «part of supply chain management that plans, implements and controls the efficient, effective forward and reverse flow and storage of goods, services, and related information between the point of origin and the point of consumption in order to meet customers' requirements» (2003);

5) «the responsibility to design and administer systems to control movement and geographical positioning of raw materials, work-in process, and finished inventories at the lowest total cost» (2006).

1.5 What have you learned about Logistics and Logistics Management? Replace the words printed *in italics* with expressions of the same meaning from the box. Your time limit is 3 minutes.

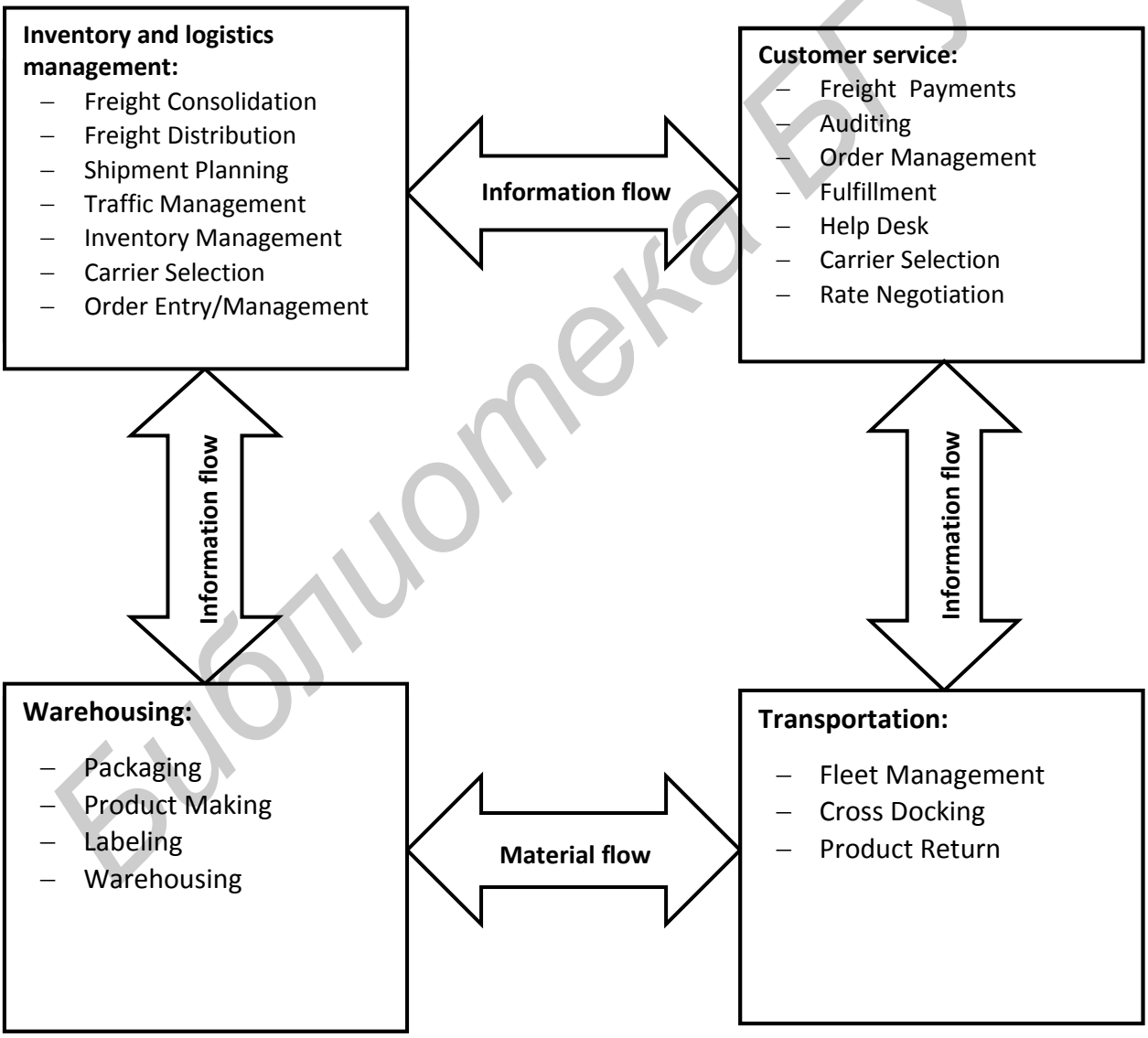
Logistics in a business aims at the following contributions: a) achieve maximum customer service level, b) ensure high product quality, c) achieve *minimum* cost and d) be flexible in the *constant* market changes.

Logistics includes two parts. 1. *Physical distribution networks*: is the term used to describe the method and *products* by which a product or a group of products are physically transferred, or distributed, from their point of production to the point at which they made available to the final customer. 2. *Trading/transactional channels:*

is concerned with the *non-physical* aspects of the product's transfer. These aspects concern the following sequence: negotiation, buying and selling of the product, and ownership of the goods as they are *transferred* through the various distribution systems. Logistics management tries to have the «*right* product», in the «right quantity», at the «right place», at the «right time», with the «right cost». Logistics management must balance two basic targets: Quality of Service and Low Cost.

service response logistics, goods, proper, non-material, the lowest possible, conveyed, supply chain logistics, permanent

1.6 Quickly describe the various features of Logistics with the help of the following chart adapted from Vaidyanthan (2005).



1.7 Find in the text 1 the sentences which can prove the following:

1. Logistics = supply + material management + distribution.

2. The key players in logistics can be presented by manufacturers, suppliers, wholesalers or retailers, and customers.

3. Logistics management is the governance of supply chain functions.

4. The Logistics' approaches were used for armies' needs many centuries ago.

5. Logistics management improves the efficiency of each department within a business by streamlining its operations and costs and therefore increasing its profitability.

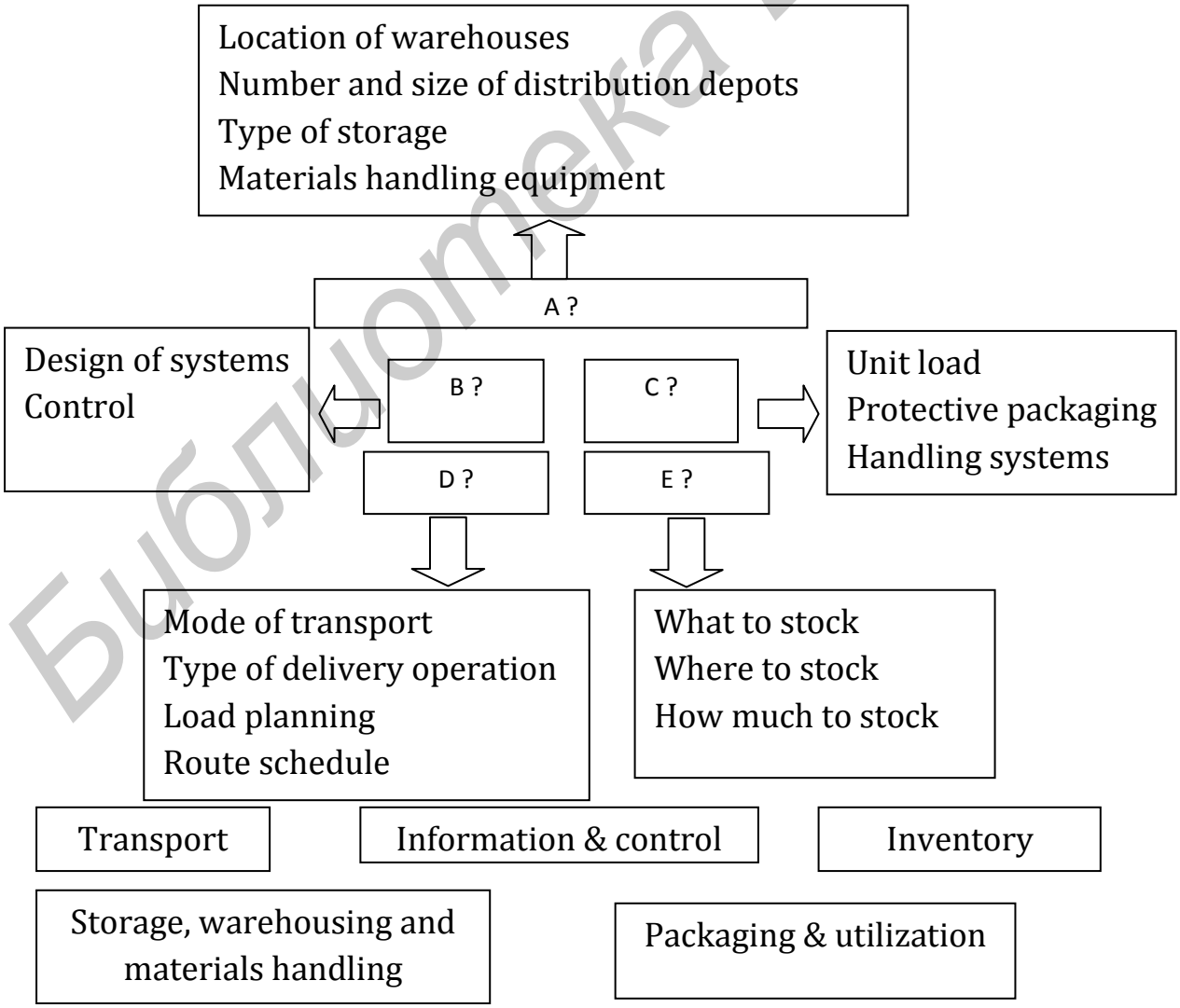
6. To some extent, the logistics function also includes customer service, sourcing and procurement, production planning and scheduling, packaging and assembly.

7. By having an efficient supply chain and proper logistical procedures, a company can cut costs and increase efficiency.

8. A company with a poor logistics will fail to meet customers' expectations and see its business suffer.

1.8 Working with a partner, complete the table given below. On the basis of the table speak about the elements of Logistics.

Key components of Logistics



Part 2

2.1 Look at the title of the text and try to guess what it is about, and then read the first paragraph of the text to see whether your guess is right.

2.2 Examine paragraphs 3 and 4 and answer the questions.

1. What business documents can be exchanged using EDI?
2. What are the benefits of EDI?

2.3 Now read the text carefully to learn different types of technologies used in logistics management.

Information Technologies in Logistics Management

1. The proliferation of information technologies (IT) and the internet technologies have provided impetus and challenges to the logistics. New technologies present new means to manage the flow of information. IT as a productivity tool can be utilized to both increase the capability and decrease the cost at the same time. It has been widely accepted that firms can achieve competitive advantage by cost reduction or differentiation with the proper implementation of IT.

2. Logistics Information Systems (LIS) is the application component of logistics information technology. An effective LIS facilitates the proper information flow between inventory, warehousing and transportation to realize the high level of customer service. The ability to optimize the logistics cost and service levels are affected by the LIS of the firm and its partners. Firms that provide better logistics services at a lower cost can have competitive advantage over its competitors. Two classes of LIS have been recognized in the literature: logistics operating systems and logistics planning systems. Logistics operating systems (LOS) refer to transactional applications such as order entry, order processing, warehousing, and transportation. Logistics planning systems (LPS) refer to coordinating applications such as forecasting, inventory management, and distribution requirements planning.

3. Electronic Data Interchange (EDI) has successfully enhanced the communication between firms which is essential for logistics. This technology requires firms to have common data formatting and transmission standards or protocols. Such technologies have been employed by companies to coordinate their value chain activities including logistics. Early applications of EDI have been on transmitting vehicle location information by railways to their customers. Other types of logistics information carried by EDI are purchase orders/releases and changes, advanced shipping notices, bills of lading, and invoices.

4. Timely and accurate information is crucial in decision making about complex logistics problems. Proven advantages are fewer errors, lower administrative costs, and a faster order to cash cycle. Japan Airlines (JAL) adopted EDI to manage their complex value chain logistics required for their operations, including procurement and just-in-time delivery of aircraft fuel, repair and maintenance aircraft

parts, food catering and other customer requirements. Firms utilizing EDI are better able to fulfill greater number of services to their customers.

5. Bar coding is one of the most IT enablers to date and has made significant impact in the practice. Starting in 1960's some of the earliest implementation of bar codes were in rail road cars. Nowadays it is rampant in anything that needs to be identified and tracked. The different types of bar codes are available, known as symbologies, for different purposes. Originally barcodes systematically represented data by varying the widths and spacings of parallel lines, and may be referred to as linear or one-dimensional. In practice, most firms prefer to use industry standards rather than proprietary standards for most of their bar codes on their products. The most commonly used types of bar codes are the following:

– UPC – the Universal Product Code is a 12 digit number, which is usually made up of a six digit block ID (five digits) that identifies your product, and the final digit is a check digit. The check digit is a calculation based on the previous 11 digits;

– EAN – the European Article Number is the European version of the consumer bar code;

– GTIN – a Global Trade Item Number is a 14-digit number that identifies your merchandise. GTIN is quickly replacing the UPC.

By following industry standards, bar codes reduce the complications inherent in the use of multiple standards and thus provide a strong foundation for integrating the corporate logistics and the supply chain.

6. RFID stands for Radio-Frequency Identification. The acronym refers to small electronic devices that consist of a small chip and an antenna. The chip typically is capable of carrying 2,000 bytes of data or less.

The RFID device serves the same purpose as a bar code or a magnetic strip on the back of a credit card or ATM card; it provides a unique identifier for that object. The biggest effect of the use of RFID-technology is expected in trade. Among the companies that are piloting RFID in their supply chain management prominent ones are Wal-Mart, Procter&Gamble, Coca-cola and Gillette. Although the biggest driver in the popularity of RFID has been supply chain, companies are experimenting in other applications as well. Other applications are theft detection, asset tracking, mobile payments, in-process inventory tracking and luggage tracking. The advantages of RFID over bar coding are as follows: RFID tags can provide longer read distances; store more data; require no direct line of sight between tag and reader; and can collect data from multiple sources simultaneously.

2.4 Spot the key words of each paragraph of the text which can be used for its further retelling.

2.5 Spot the international words and guess the meaning of each.

2.6 Have a look at the following facts. Can any of them be added to the text? Which paragraphs of the text can they supplement?

A. Non-routine business documents, such as contracts or information meant for humans to read, review, and analyze, do not travel via EDI.

B. They can also be used to keep track of objects and people; are used to keep track of rental cars, airline luggage, nuclear waste, registered mail, express mail and parcels.

C. An identifier will find all products in the basket in a few seconds and a purchaser don't need to have to wait a long queue, while the cashier will count the purchases and tell a sum of payment.

D. Barcodes evolved into rectangles, dots, hexagons and other geometric patterns in two dimensions.

2.7 Mark these statements as true (T), false (F) or not mentioned (NM). Compare your marks with those or the other members of your group.

___ 1. The most commonly used tags, as well as their close analogues – bar codes – look like self-adhesive labels.

___ 2. Under the efforts of BSUIR, Minsk will soon have RFID on some of the most problematic parts of roads.

___ 3. Bar code is a standardized way for your trading partner to identify your products.

___ 4. All business documents can be exchanged using EDI.

___ 5. Nowadays, more and more retail companies, and manufacturers are beginning to show a strong interest in RFID-technologies.

___ 6. IBM was a pioneer in EDI technology and has been at the forefront of its evolution ever since.

___ 7. A LIS is unlikely to facilitate the proper information flow between inventory, warehousing and transportation.

___ 8. Barcodes originally were scanned by special optical scanners called barcode readers.

___ 9. Business entities which conduct business electronically are called trading partners.

___ 10. RFID is gradually changing the retail industry, providing sales information on the status and movement of goods in real time, improving the performance of the warehouse and preventing losses.

___ 11. EDI software creates an electronic version of the purchase order and transmits it automatically to the supplier.

2.8 Summarize the information given in the text and fill in the table.

Technology	**Functions**	**Problems**
1.		

Part 3

3.1 Look at the title of the text and try to guess what it is about.

3.2 Look through paragraphs 1, 2 and 4. What words denote the following?

1. A set of rules that must be followed when solving a particular problem.
2. Planning a list of all the work that you have to do and when you must do each thing.
3. The effect that has on the way a person thinks or behaves or on the way that something works or develops.
4. A situation, number or quantity that can vary or be varied.

3.3 Logistics management has to provide solutions for resource planning and transport, manufacturing, retailing and other sectors. Read the article to learn what problems logistics has to deal with to find optimal solutions.

Logistics Problems to Be Solved

_____ 1. Examples of logistic problems include fleet management, order management, route planning, scheduling, cargo management, and others. Most of these problems have in common that they are very difficult to solve and therefore no fast algorithms exist, which can deliver optimal solutions in complex real-world situations.

_____ 2. Logistics problems often consist of numerous components, which exhibit complex behavior and are interconnected in various ways. Solving logistic problems requires understanding these dynamics and providing means for managing the complexity. Typically, the solution strategies for solving logistics problems can have a multitude of options at their disposal and many different decision variables need to be taken into account. Furthermore, these options are often difficult to evaluate and prioritize.

_____ 3. Today's logistic departments are confronted with a fast changing world, in which many unanticipated situations can arise. In order to stay competitive data has to be collected and processed in real-time.

_____ 4. It is an inherent property of many business environments that only partial or incomplete knowledge is available and decisions have to be made on basis of this imperfect knowledge. In addition, unexpected events might occur (e.g., emergencies, machine breakdowns) that could have severe influence on going activities and have to be handled.

_____ 5. Logic processes often involve multiple decision makers, who are involved in processes with different responsibilities. In this respect it can be distinguished between the different departments a decision maker is responsible for, e.g. marketing, managerial or operational.

_____ 6. There are a lot of constraints that need to be fulfilled in order to plan and carry out logistics activities. These constraints include physical constraints such as available storage and machine capacities as well as business objectives such as production efficiency or customer satisfaction.

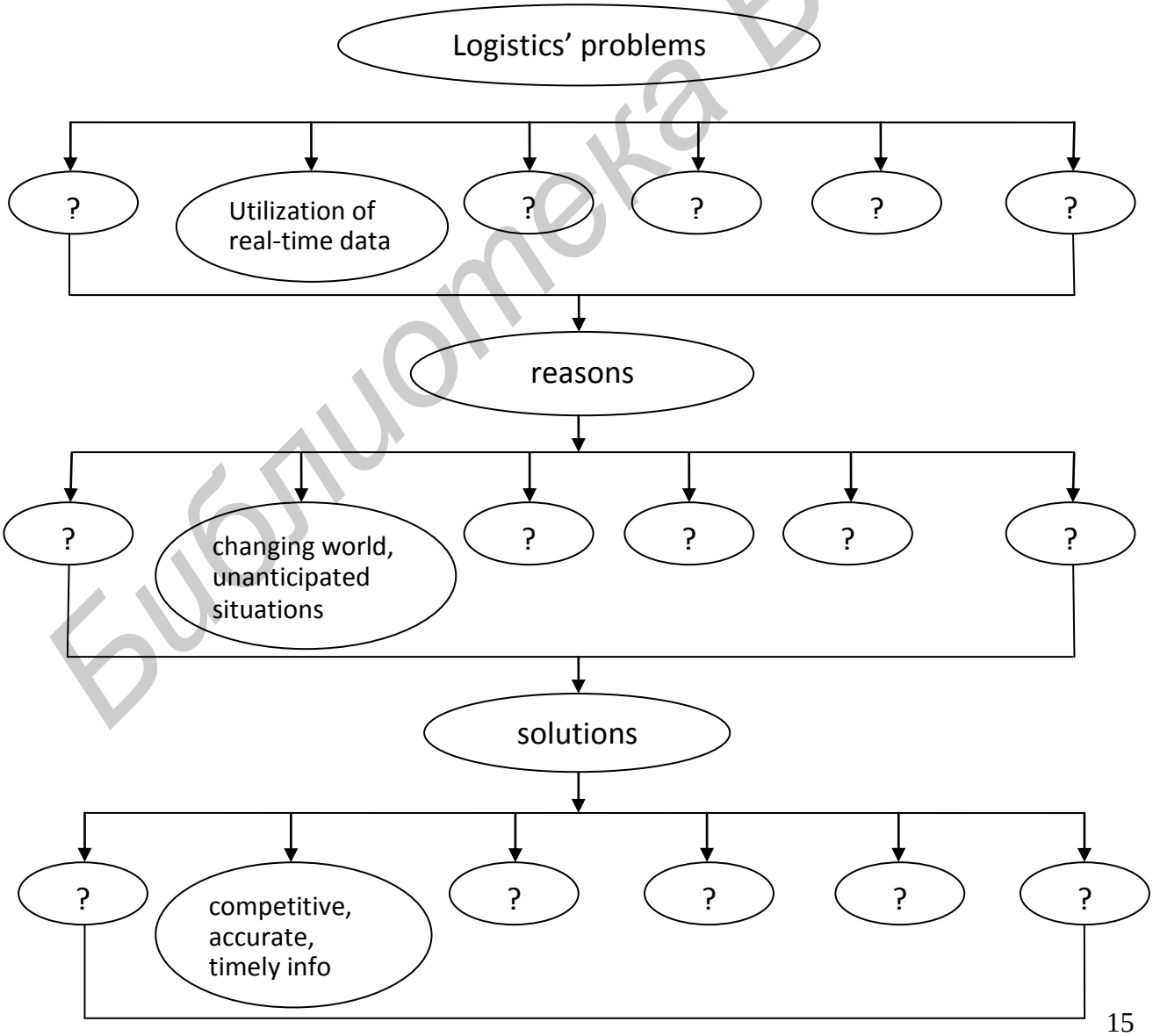
_____ 7. Typically, logistics needs to solve problems that involve complex settings consisting of physically dispersed entities and/or data. Furthermore, involved actors

often have individual objectives such as keeping their rest times, which have to be coordinated with business objectives such as achieving on time delivery of goods. Even though logistic settings might not expose all the mentioned properties at once, logistics solutions and software have to embrace the existing characteristics and handle them in an intelligent way. Considering the difficulty of logistics problems the proposed software solutions should also fulfill some general requirements.

3.4 Read the text once again and put the introductory points into the order while going through the text.

A. Utilization of real-time data.
B. Numerous decision makers.
C. High complexity and large decision space.
D. Distributed domains.
E. Highly constrained.
F. Uncertainty.

3.5 Why are different logistics problems difficult to solve? How do specialists deal with them? Fill in the chart.



3.6 On the basis of the chart write an annotation of the article. Use the following prompts:

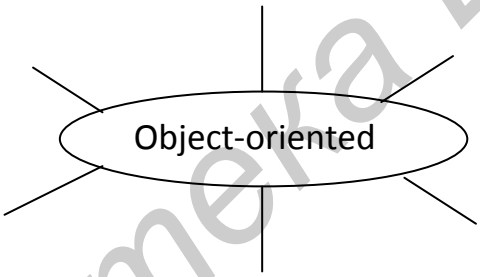
1. As you can see from the title the article is devoted to …;
2. The paper begins with a review of …;
3. Then/ after that the author gives a detailed analysis of …;
4. Much attention is given to…;
5. It is pointed out that …;
6. At the end of the article the author sums it all up (by saying…);
7. I think that… .

3.7 What new facts have you learned from the text? Do you think this information can be useful for you in your future profession?

UNIT II: Logistics Software Systems

Part 1

1.1 What associations do you have with the word «object-oriented». Let's complete the word web together.



1.2 This text will introduce you to the notion and the principles of Object-Oriented Programming. Read the text carefully and try to understand the meaning of the bold-faced words. Use the prompts to the right of the text. You can check yourself with the key given below the text.

As the number of companies participating in the manufacturing of product increases, the challenges on managing product **related** information over its life cycle also increase. A major issue is how to manage product-related information when it is created and stored on computer systems of multiple companies. **Object-oriented programming** (OOP) is a well-tested framework for managing information in computer programming.	1. Adj. – related V – Relate (связывать) N – relation 2. ***Object-oriented programming*** is объектно-ориентированное программирование.

The object-oriented paradigm is based on the idea that the solution for a problem can be visualized in terms of objects that **interact** with each other. In the context of this paradigm, an object is a unit of **data** that represents an abstract or a real-world entity, such a person, a place, or any other thing.

The objects can be defined in a general way by using classes. Whereas an object is a single instance of an **entity**, a class is a **template** for a group of objects with similar characteristics. A class can produce any number of unique objects.

When taking the object-oriented approach to a problem, one of the first steps is **to identify** the objects that pertain to a solution. The solution to, for example, the cellular phone problem requires some cellular phone's objects. Certain characteristics of **cellular** phones provide information necessary to solve the problem. This information – the price, size, and shape of a mobile phone – provides the structure for the mobile phone class. A class is defined by **attributes** and methods. A class attribute defines the characteristics of a set of objects.

Each class attribute typically has a name, scope and data type. One class attribute of the cellular phone class might be named «cellphonePrice». Its scope can be defined as «public» or «private». A public attribute is available for use by any routine in the program. A private attribute can be accessed only from the **routine** in which it is defined. The cellphonePrice attributes

3.

Adj.	Interactive
V	Interact (взаимодействовать)
N	Interaction

4. ***Data*** (pl.) от ***datum*** means данные, информация.

5. ***Entity*** means **?** a) вступление, в) сущность, единство, c) развлечение.

6. ***Template is*** a thing that is used as a model for producing other similar examples. It means ____.

7.

Adj.	Identifiable
V	Identify (идентифицировать)
N	Identification

8. ***Cellular*** is **?** a) целлофан, в) клетчетка, c) клеточный, сотовый.

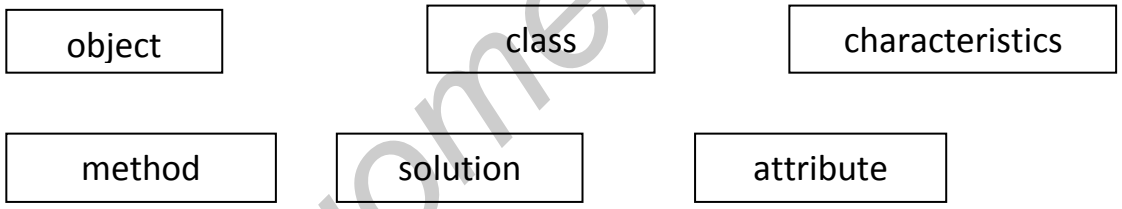
9. ***Attribute*** is a quality or feature of sb/sth. It means ___.

10. ***Routine*** is a) работа по графику, в) рутинная операция, c) стандартная программа.

data type can be defined as «double», which means that it can be any **decimal** number. Object-oriented programmers often use UML (Unified Modeling Language) diagrams to plan the classes for a program. Although a programmer completes the overall program plan before coding, jump ahead to take a quick look at the Java code for the attributes in the Cellular phone class. The first line of code defines the name of the class. Each **subsequent** line defines the scope, data type, and name of an attribute. The curly brackets simply define the start and the end of the class.	11. ***Decimal*** means **?** a) десятичный, в) дециметр, с) дециграмм. 12. ***Subsequent*** is a) последующий, в) являющийся, с) результатом.

Key: 5) b; 6) шаблон; 8) c; 9) свойство, признак; 11) a.

1.3 Using the blocks given below, build a flowchart reflecting the hierarchy of object-oriented paradigm. Add some extra blocks if you need.



1.4 Point out the distinctive features of OOP with the help of the following table. Review the usage of the passive voice.

1. Data and information	are	concentrated	a) around the object-concept to manage them.
2. The needed information about the object	is	stored	b) by graphical user interfaces and simulation systems to deal with product information.

3. Managing great amounts of structured data	are	run on	c) in objects both directly through basic data types, e.g. text and numbers, and through references to other objects.
4. In software engineering, OOP	is	accessed	d) by the program.
5. In OOP paradigm data and functionality of a program	can be	developed	e) by anyone (usually another object) that has a reference to the object.
6. In OOP, objects live and evolve inside the working memory of the computer that	was	required	f) as a solution to similar problems that initially occurred mainly in simulation systems and in graphical user interfaces.

1.5 What have you learned about OOP? Replace the words printed /*in italics*/ with the expressions from the box, which have the same meaning. Your time limit is 3 minutes.

In software engineering, object-oriented programming was developed as a solution to similar problems that initially occurred mainly in simulation systems and in graphical user interfaces. Both these tasks require managing great amounts of structured data, which is now the challenge also with managing product information.

Now that Internet is becoming universally accessible, product information can be made available anywhere without *copying (a)* it through a *supplier network (b)*. Many companies already have exiting web services, where product information is accessible. *The challenge (c)* is how to easily know where that data is, how to access it, how *to distribute (d)* the data to all parties needing it, and how *to update (e)* the data in all places of storage. A simple solution is that the manufactured of a product attaches product – or item-specific *identities (f)* on all products manufactured. If the identities are globally unique, they can be used as references to where the product (or product item) information is accessible. Such an identity *corresponds (g) to* an object reference in *object-oriented (h)* programming, while message passing between agents corresponds to method calls in OOP. With these basic elements, it is possible to use standard OOP data structures and practices for *managing (i)* product information in a tested way that is already tested.

1) similar characteristics, 2) object-centric, 3) to spread, 4) matches to, 5) coping, 6) the task, 7) doubling, 8) a supplier chain, 9) to renew

1.6 Say what role OOP plays in managing product information.

Part 2

2.1 Look at the title of the text and try to guess what it is about.

2.2 Look through the text and find the paragraphs which mention the following:

1) self-sufficient (самостоятельный, самодостаточный);
2) multiple inheritances (множественные наследования);
3) multi-purpose (многоцелевой);
4) top-down design (конструирование сверху вниз);
5) to share attributes (делить свойства);
6) logical sequence (логическая последовательность).

2.3 Read the text to learn about the principles and features of Object-Oriented Programming and be ready to name the major ones.

1. Traditionally, programming languages have been procedural in nature. If you wanted a computer to accomplish a task, you figured out the logical sequence of the steps required to accomplish that task, and then programmed them into the computer. Major tasks are subdivided into smaller tasks and defined in modules. This approach is commonly referred to as a top-down design.

2. In software engineering, OOP has become the dominant paradigm. OOP combines top-down design with a bottom-up design. A general, but at least universally acceptable, definition of an object is that "an object is a collection of structured information". Object stores information both directly through basic data types, e.g. text and numbers, and through references to other objects.

3. Contents of objects can only be accessed through their public *interface*, which in OOP is generally called *encapsulation.* Encapsulation means that a high degree of functionality is integrated into each object. Encapsulation makes an object reusable because it is totally self-sufficient. Thus, when creating new programs or modifying old ones, it is much easier to link different objects together.

4. *Inheritance* is another key feature of OOP. Inheritance means that object within a specific class have the capability to share attributes with each other. Because the important traits have already been built in using encapsulation, it is much easier for the programmer to create a new program that is similar to an existing one. Inheritance signifies the ability to derive new classes that inherit much of their code and functionality from the classes on which they are based. Inheritance can be extended to the concept of implementing one or more interfaces. Implementing

interfaces is the way that multiple inheritances is done in the Java programming language, for instance. Inheritance also allow for polymorphism.

5. *Polymorphism* lets the programmer describe a set of actions, or routines that will perform exactly as they are described regardless of the class of objects they are applied to.

6. Some very high-level languages have metamorphosed into object-oriented languages, such as Quick Basic into Visual Basic. Others, such as Smalltalk, were conceived and implemented exclusively for OOP. Newer OOP languages, such as Borland's Delphi, have been designed as a complete, multi-purpose development environment.

7. Templates are an advanced concept of OOP languages for reuse of code. When the same methods are available for multiple objects, the method is a candidate for a template. Templates are also called type parameterization. The most well-known application of templates is the C++ standard library, formally called standard template library (STL).

2.4 Spot the key words of each paragraph which can be used for its further retelling.

2.5 Spot the international words and guess the meaning of each.

2.6 Match the term with its definition.

1) Encapsulation 2) Object 3) Menu 4) Polymorphism 5) Library	a) a property that allows data and program instructions to be bundled into an object; b) a list of choices; c) a property that enables different objects to deal with the same instruction in different ways; d) a reusable collection of objects; e) a module containing data and program instructions

2.7 Check yourself what have you learned about the principles of OOP. Mark the statements given below as (T), False (F) or not mentioned (NM).

___ 1. A «reusable code» means that new programs can easily be copied and pasted together from old programs.

___ 2. This feature allows OOP developers to define one class of objects and a specific instance of this class.

___ 3. The multi-agent systems can make complex systems and introduce the possibility of agents having common or conflicting goals.

___ 4. Bundling data and program instructions into modules called «object» is the key feature of OOP.
___ 5. The OOP concept of design patterns is applicable to managing product information in supplier networks.
___ 6. Design patterns are elements of reusable object-oriented software.
___ 7. Objects keep information directly through basic data types.

Part 3

3.1 Read the title of the text and say what the text is about from your point of view.

3.2 Look through paragraphs 1 and 2. What words denote the following?

1) the system of transporting and delivering goods;
2) the act or process of combining two or more things so that they work together;
3) a statement about what will happen in the future based on information that is available now.

3.3 Scan the first paragraph of the text and answer the questions.

1. Why does supply chain management need sophisticated software systems?
2. What kind of software stores the information for SCM applications?

3.4 Now read the text carefully to learn what software will help to reach the logistics and supply chain management goals.

Logistics and Supply Chain Management Software

Logistics and supply chain management software are possibly the most fractured groups of software applications on the planet. Each element of the major supply chain is comprised of dozens of specific tasks, many of which have their own specific software. Some vendors have assembled many of these different chunks of software together under a single roof, but no one has a complete package that is right for every company. For example, most companies need to track demand, supply, manufacturing status, logistics (i. e. where things are in the supply chain), and distribution. They also need to share data with supply chain partners at an ever increasing rate. While products from large ERP vendors like SAP's Advanced Planner and Optimizer (APO) can perform many or all of these tasks, because each industry's supply chain has a unique set of challenges, many companies decide to go with targeted best of breed products instead, even if some integration is an inevitable consequence.

It's worth mentioning that the old adage about systems only being as good as the information that they contain applies doubly to SCM. If the information entered into a demand forecasting application is not accurate, then you will get an inaccurate forecast. Similarly, if employees bypass the supply chain systems and try to manage things manually (using the fax machine or spreadsheets), then even the most expensive systems will provide an incomplete picture of what is happening in a company's supply chain.

Many SCM applications are reliant upon the kind of information that is stored inside enterprise resource planning (ERP) software and, in some cases, to some customer relationship management (CRM) packages. Theoretically a company could assemble the information it needs to feed the SCM applications from legacy systems (for most companies this means Excel spreadsheets spread out all over the place), but it can be nightmarish to try to get that information flowing on a fast, reliable basis from all the areas of the company. ERP is the battering ram that integrates all that information in a single application, and SCM applications benefit from having a single major source to go to for up-to-date information. Most CIOs who have tried to install SCM applications say they are glad they did ERP first. They call the ERP projects ‹‹putting your information house in order››. Of course, ERP is expensive and difficult, so you may want to explore ways to feed your SCM applications the information they need without doing ERP first. These days, most ERP vendors have SCM modules, so doing an ERP project may be a way to kill two birds with one stone. In addition, the rise and importance of CRM systems inside companies today puts even more pressure on a company to integrate all of its enterprise wide software packages. Companies will need to decide if these products meet their needs or if they need a more specialized system.

Applications that simply automate the logistics aspects of SCM are less dependent upon gathering information from around the company, so they tend to be independent of the ERP decision. But chances are, companies will need to have these applications communicate with ERP in some fashion. It's important to pay attention to the software's ability to integrate with the Internet and with ERP applications because the Internet will drive demand for integrated information. For example, if a company wants to build a private website for communicating with their customers and suppliers, the company will want to pull information from ERP and supply chain applications together to present updated information about orders, payments, manufacturing status and delivery.

3.5 What have you learned about the logistics and supply chain management software? Mark these statements as true (T), false (F) or not mentioned (NM). Compare your marks with those or the other members of your group.

___ 1. The logistics and supply chain management domains offer challenging problems, which are often characterized by specific properties that render them hard to solve.

___ 2. As a solution for successful supply chain management, sophisticated software systems with Web-interfaces are competing with Web-based application service

providers (ASP) who promise to provide part or all of the SCM service for companies who rent their service.

___ 3. Some SCM applications are based on open data models that support the sharing of data both inside and outside the enterprise (this is called the extended enterprise, and includes key suppliers, manufacturers, and end customers of a specific company).

___ 4. Increasing numbers of companies are turning to Web-sites and Web-based applications as part of the SCM solution.

___ 5. A number of major Web sites offer e-procurement marketplaces where manufacturers can trade and even make auction bids with suppliers.

___ 6. By sharing this data ‹‹upstream›› (with a company's suppliers) and ‹‹downstream›› (with a company's clients), SCM applications have the potential to improve the time-to-market of products, reduce costs, and allow all parties in the supply chain to better manage current resources and plan for future needs.

___ 7. This shared data may reside in diverse database systems, or data warehouses, at several different sites and companies.

___ 8. There are two main types of SCM software: planning applications and execution applications.

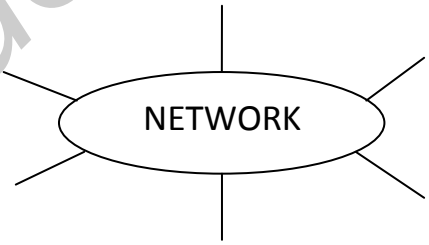
___ 9. Planning applications use advanced algorithms to determine the best way to fill an order.

___ 10. The most critical property of logistics systems is the quality of the proposed solutions, commonly measured as cost or cost reduction.

UNIT III: Logistic Networks and Systems

Part 1

1.1 What associations do you have with the word «Network»? Let's complete the word web together.



1.2 Scan the following table of *Network's* definitions and broaden the web. What key features unite all these definitions?

1. A system of lines or channels that cross or interconnect: a network of railroads.

2. A complex, interconnected group or system: an espionage network.

3. An extended group of people with similar interests or concerns who interact and remain in informal contact for mutual assistance or support.

4. A system of interrelated buildings, offices, stations, etc., especially over a large area or throughout a country, territory, region, etc.: a network of supply depots.

5. A chain of radio or television broadcasting stations linked by wire or microwave relay.

6. A group or system of electric components and connecting circuitry designed to function in a specific manner.

7. (Computer Science) A system of computers interconnected by telephone wires or other means in order to share information. Also called «net».

1.3 This text will explain the notion and the structure of Logistic Networks and Systems. Read the text carefully and try to understand the meaning of the bold-faced words. Use the prompts to the right of the text. You can check yourself with the key given below the text.

The **logistic network** of a company is part of the global logistic network that is made up of the networks of **forwarders**, railways, airlines and shipping companies and of industrial enterprises, **trading companies** and services providers. The global logistic network has many owners and users. It serves different purposes and several interests. Central tasks of network management are to **delimit** the logistic network of the company and to organize its connections to the networks of suppliers, customers and service providers. For this purpose, management has to decide, which logistic tasks can be left to **suppliers** and customers, which should be performed by the company itself and which are better **outsourced** to logistic service providers. The boundaries of the company logistic network depend on the core competencies and on the importance of logistic for the business. The tasks of logistic network management, called supply chain management, are:	1. ***Logistic network*** is логистическая сеть. 2. ***Forwarder*** is экспедитор, экспедиционное (транспортное) агенств. 3. ***Trading company*** means ___. 4. ***Delimit*** is to decide what the limits of sth are. It means ___. 5. ***Supplier*** is **?** a) дополнение, b) поставщик. 6. V — Outsource (привлекать извне) N — outsourcing

1) Strategic Logistic Management – in order to cope with future demand, systems are planned, organized, set up and linked to an optimal logistic network;

2) Operative Logistic Management – in order **to execute** current orders at lowest costs, the available supply chains and resources are scheduled and operated efficiently.

Logistic technology comprises design, dimensioning and optimization of storage, commissioning and transport systems, **layout** principles for logistic sites and strategies for production logistics. Network management is concerned with the design of dynamic networks and the selection of optimal supply chains.

The logistic systems hierarchy is similar to the packaging hierarchy of logistic units. It reflects the **self-similarity**, which is typical for complex systems. To the hierarchy of the operative logistic systems corresponds the hierarchy of the control systems. By the control system the different functions of the subsystems and elements are released, coordinated and controlled in order to execute the current orders and requirements efficiently, correctly and **reliable**.

The analysis and design of the system hierarchy and its structures, of the subsystems and elements, and of the corresponding control systems are key activities of strategic network management. It has to differ between the horizontal integration of systems of the

7.

Adj.	Executive
V	Execute (исполнять)
N	Execution

8. ***Layout*** is компоновка, размещение, макет; программа.

9. ***Self-similarity*** means____.

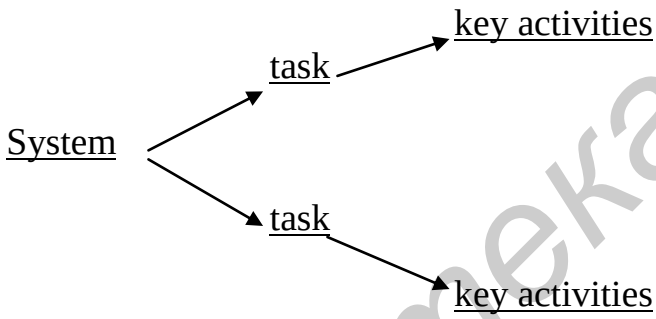
10.

Adj.	Reliable
V	Rely (on) (полагаться на, надеяться на)
N	Reliability

same hierarchy level and the vertical integration of systems of different hierarchical levels. The orders come from vertically integrated systems of higher levels or from horizontally integrated systems of the same level. The vertically integrated systems of lower levels determine the limit performances and buffer **capacities** of a logistic system. They also receive their orders from systems of a higher or the same level.	11. ***Capacity*** is: 1) the number of things or people that a container or space can hold, 2) the ability to understand or to do sth. It means ___.

Key: 3) торговая компания; 4) определять границы, размежевывать; 5) в; 9) сходство, себе подобие; 11) вместимость, мощность, компетенция.

1.4 Look through the text given above and quickly write out the words denoting the following:



1.5 What are objectives of developing a logistic network? Read the sentences and write the right word into the blank. Your time limit is 3 minutes.

The competition between companies has become increasingly more intense, requiring organizations to review their 1) _____ (**corporate structures/cost structures**). In this highly competitive environment, the function of logistics gains special importance and is viewed not only within the _____ (**operational/informational**) sphere, but also within the tactical and strategic ones.

Within this strategic vision, companies define the guidelines on how their goods or services will arrive to 3) _____ (**clients/intermediaries**). This is the time for defining the distribution methods, location of the distribution centers, and other methods and related guidelines.

The 4) _____ (**distribution centers/logistics networks**) are considered crucially important when it comes to the organizations' decisions (where, when and how the product/service should arrive to its final destination), with the network modeling viewed as a competitive differential though a review of its cost structure. Given its strategic characteristic, the projects to define logistics networks are

developed when an organization wants 5) _____ (**to start/to interrupt**) a new operation, or when it wants to review its current operating method.

The logistics networks may be understood as the 6) _____ (**data flows/ material flows**) between specific points (DCs, ADCs, etc.), ranging from the supply of the raw material to the delivery of the final 7)_____ (**products/devices**) to consumers in an optimized fashion.

1.6 Quickly add some more details to the passage given below using the words in brackets and making the necessary changes.

A logistic network called also a production network or supply chain is a system that moves products from suppliers to customers. Modern logistic networks vary in their structural (*hierarchy*) and dynamical properties. They may consist of locations geographically distributed all over the world as well of machines arranged inside one production facility (*network management*). The main performance indicators of such networks are stability, minimization of costs and ability to satisfy customer orders. Feature characteristics and dynamics of a logistics network can be modeled by different ways (*macro-stages*).

Part 2

2.1 Look at the title of the text and try to guess what it is about, and then read the first paragraph of the text to see whether your guess is right.

2.2 Look through the text and find the paragraphs which mention the following things. Write down the numbers of the paragraphs.

1) household (индивидуальный клиент, домашнее хозяйство);
2) supply networks (сети поставок);
3) intermediate stations (промежуточные станции);
4) data flow (поток данных);
5) recycling networks (сети переработки).

2.3 Look through paragraphs 1, 4 and 5. What word combinations have the same meaning as:

material object,	extralogistics,	general logistics,	information flow ?
материальный объект	внешняя логистика	общая логистика	информационный поток

2.4 Look through paragraphs 1 and 4. What word combinations have the opposite meaning as:

semi-finished product,	combined network,	terminus ?
полуфабрикат	комбинированная сеть	пункт назначения

2.5 Logistic Systems are sophisticated and multi-functional. Read the text to learn the structural peculiarities of logistic networks.

Hierarchy of Logistic Systems

1. A logistic network is a number of sources, sinks and intermediate stations which are linked by transport connections and passed by physical objects. The material flows in the logistic network are initiated and controlled by data flows. Some data run together with the material flows, others are conveyed by separate data networks.

2. Analogously to Internet, Extranet and Intranet the logistic networks can be differentiated into Intralog, Extralog and Interlog:

- Intralog is the internal logistic network of a production site or logistic station;
- Extralog is the external logistic network spanned between the production sites and logistic stations of the company, its suppliers and its customers;
- Interlog is the connection of the logistic networks of all households, companies, service providers and other actors of an economy.

3. Generally, a logistic network is multi-functional and composed of sub- and part-systems with different and special functions. Part-systems of the Intralog are machines, robots, stores, commissioning systems and handing stations, which are connected by cranes, conveyors and vehicles. Planning, building, connecting and operating these part-systems are tasks of internal logistics or Intralogistics.

4. Subsystems of the Extralog are the supply networks for material and parts, the distribution networks for finished products, the recycling networks and the Intralogs, which are connected by external transport systems. These subsystems and their relations are subjects of external logistics, extralogistics or micrologistics.

5. The Extralogs of all households, companies and logistic service providers of the world are subsystems of the global Interlog. The analysis and optimization of the Interlog are subjects of general logistics or macrologistics.

2.6 Spot the international words and guess the meaning of each.

2.7 Find in the text sentences which can prove the following statements.

1. Logistic networks development refers to the application of knowledge, skills, tools and techniques to logistics networks in order to achieve the goal of improvement and to provide the feasible optimization solutions.

2. The Intralogistics embraces the logistical flow of materials within an entire supply chain.

3. The logistics networks can be divided into two different aspects: Micro Logistics and Macro Logistics.

4. The planning of the supply chain (the extra logistics) is to be complemented by a module for planning the internal logistics, i. e., the planning of the internal supply processes from warehouse to the production facility.

5. The micrologistics mainly focuses on the design, operation and management optimization of the actual supply chain and logistics workflow of an enterprise.

2.8 What have you learned about a logistic system hierarchy? Restore the logic chain using the words from the boxes. Your time limit is 2 minutes.

1) _____ , i. e. the global logistic network, consists of national and regional logistic networks composed of the 2) _____ of households, companies and service providers connecting the 3) _____ of consumption, production and logistic sites consisting of handling, storing, commissioning, conveyor and vehicle systems made up by machines and robots which consist of parts, components or modules.

a) extralogs	b) The interlog	c) intralogs

2.9 Have a look at the following facts. Can any of them be added to the text? Which paragraphs of the text can they supplement?

A. Solutions including enhancement of internal management, re-engineering of the overall supply chain, procurement workflow design, production logistics optimization, logistics center planning, re-organization of distribution network fall into the scope of micrologistics.

B. Development planning for future logistics strategy of an entire region falls into the scope of macrologistics.

C. The analysis and design of the system hierarchy and its structures, of the subsystems and elements, and of the corresponding control systems are key activities of strategic network management.

2.10 Write an annotation on the Hierarchy of Logistic Systems. Use the following formulas.

1. The subject of the article (text) is…
2. The article begins with the description of…
3. The article begins with the analysis of…
4. The author examines…
5. It is specially noted…
6. Details are given of…
7. To finish with, the author describes…
8. I've learnt that…

Part 3

3.1 Read the title of the text and say what the text is about from your point of view.

3.2 Scan the first paragraph of the text and answer the questions.

1. What is the purpose of system planning?
2. What factors must be known to upgrade an existing system?

3.3 Now read the text carefully to learn what will help to design the optimal logistic system.

Design of System Planning

The central task of system planning is to develop a system that is capable to fulfill the performance demand at minimal costs and keeps the given constrains. All internal and external influence factors must be known in order to optimize an existing system or to plan and realize a new system.

The following system planning principles help to reach with adequate effort in a quite short time the optimal solution:

- structure follows processes. Before the structure of the network is planned the performance processes and logistic chains have to be designed;
- data flow follows material flow and performance processes. The necessary material flows through the network and the required performance processes determine the design of the order processes and information flows;
- informatics follows logistics. The logistic chains through the network and systems and the necessary operating and scheduling strategies determine the IT-systems, such as APS, ERP, PPS and MIS, and not vice versa.

The logistic functionalities of standard software are generally limited. In order to exhaust the potentials of logistics, the operation and scheduling strategies and other logistical IT-requirements must be specified in a manual before the architecture of the IT-system is designed and the software is selected or programmed.

Complex system with many closely connected subsystems and elements are difficult to control and trouble prone. Even the most accurate calculation and highly sophisticated simulations cannot significantly improve a complex system. A reduction of the complexity of large networks and systems is achievable by the basic principles of system design:

- simplicity principle: in many cases, the simplest solution with the shortest supply, delivery and performance chains, the smallest number of parallel elements and subsystems, and the lowest automation is the best solution. In any case it is benchmark for higher sophisticated solutions;
- decoupling principle: if the total system is outlined and dimensioned in a way, that under normal conditions backlogs and feedbacks of the subsystems are improbable, the decoupled subsystems can be designed, optimized and scheduled separately;
- approximation principle: the formulas and calculations for dimensioning, optimization and scheduling must not be more accurate than the planning data, input values and demand figures.

Two further design principles for logistic networks and systems result from the fact that transport, storing and handling of physical goods are far more expensive than transfer, storing and processing of data and information. These are:

- dominance of material flow: in Intralogistics, the flows of physical goods and material, not the data flows, determine the optimal logistic system.
- dominance of logistic chains: in Extralogistics, the operative supply, performance and delivery chains, not the order flows and administrative processes, determine the optimal logistic network of a company.

3.4 What have you learned about the logistic system design? Mark these statements as true (T), false (F) or not mentioned (NM). Compare your marks with those of the other members of your group.

___ 1. The separated subsystems are likely to be optimized more successfully than complex systems.

___ 2. Mathematical methods as well as the required software know-how can improve a logistic network.

___ 3. The best logistical IT solutions can be found automatically.

___ 4. The basic principles of system design are simplicity, decoupling and approximation ones.

___ 5. The unlimited standard software is the source of optimal solutions.

___ 6. The planning data, input values and demand figures can be almost correct but not exact.

___ 7. The most accurate calculations significantly improve a complex system.

___ 8. The static demand and the dynamic demand determine what should be achieved by a system.

___ 9. A successful system planning is based at least on eight principles.

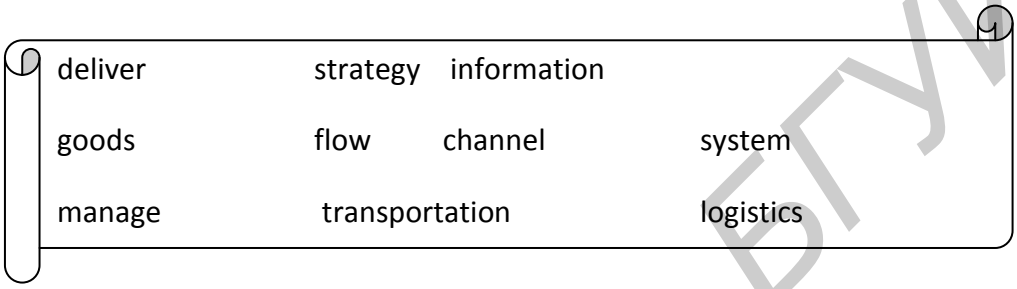
3.5 Say why the basic principles of system design are so important. Try to give as many reasons as you can.

3.6 Try to find some information about the state of art in the field of logistic networks and systems in Belarus. Make a short talk about it in class.

UNIT IV: Supply Chain Management

Part 1

1.1 What of the words from the list given below do you associate with «Supply Chain»? Can you add any words to the list?



1.2 This text will introduce you to the scientific approaches to «Supply Chain management». Examine the text carefully and try to understand the meaning of the bold-faced words. Use the prompts to the right of the text. You can check yourself with the key given below the text.

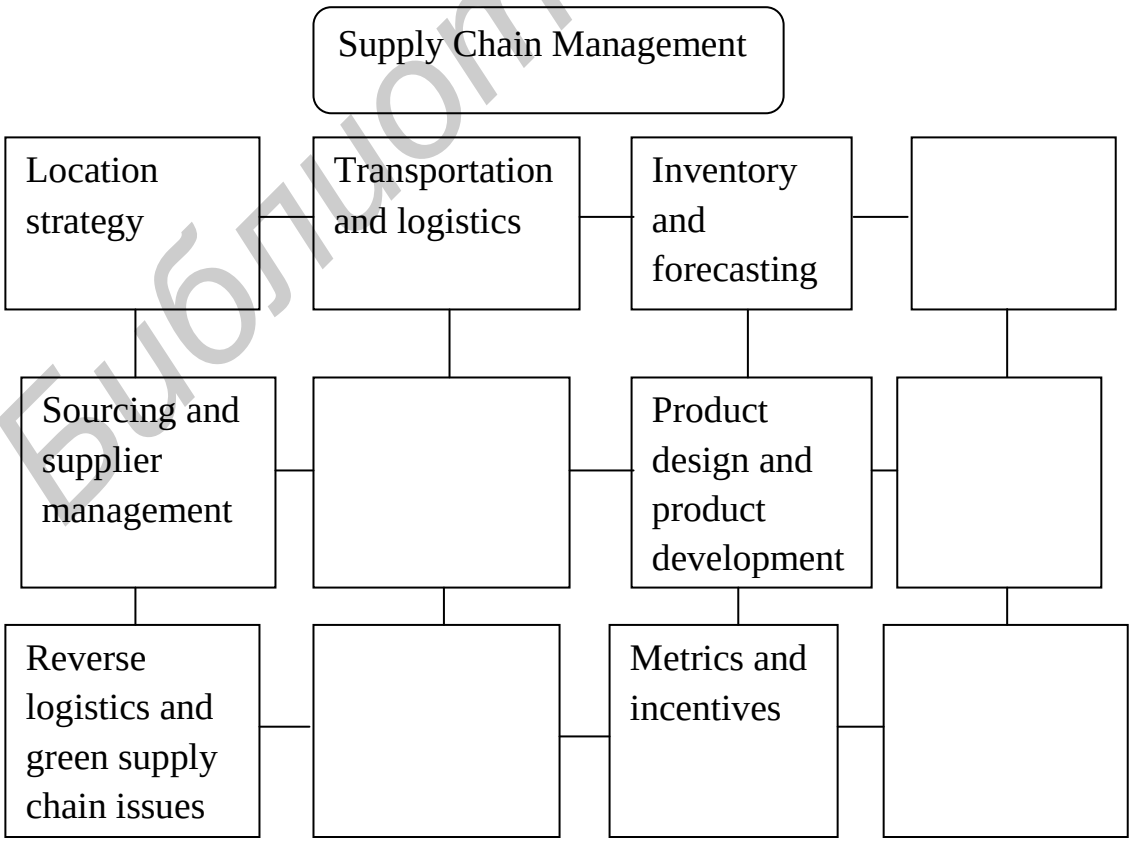
Supply Chain management (SCM) is a concept that is gaining in popularity and importance. One reason for the increased interest in SCM is that organizations progressively find themselves reliant upon having effective supply chains, or networks, to successfully **compete** in the global market **economy**. According to APICS Dictionary, *Supply Chain* is «the global network used to deliver products and services from raw materials to end customers through an engineered flow of information, physical distribution, and cash». And SCM covers lots of activities to plan, implement and control products from **point of origin** to **point of consumption**.	1. ***Supply Chain management*** is управление цепями поставок. 2. Adj. — Competitive V — Compete (конкурировать) N — Competition 3. ***Economy*** is the relationship between production, trade, and the supply of money in a particular country or region. It means ____. 4. ***Point of origin*** is место происхождения; отправления.

Each researcher defines SCM differently. Johnson and Pyke compiled the contents taught in many management and engineering schools and developed in 2000 a framework for Supply Chain Education that consists of 12 components of SCM Concept. 1. *Location strategy* considers how to choose **facility location** quantitatively and qualitatively. 2. *Transportation and logistics* includes all aspects of material flows through the supply chain including issues in transportation and warehousing such as vehicle routing, **fleet** management and material handling. 3. ***Inventory*** *and forecasting* includes various techniques used to develop good forecasting models for both existing and new product forecasting. 4. *Marketing and channel restructuring* explores fundamental structure and the use of relationship management to enhance the coordination among each members. 5. *Sourcing and supplier management* pays much attention to determine source of products, whether they should be produced internally or bought from **vendors**. 6. *Information and electronic mediated environments* addresses application of information technology in many aspects such as to reduce inventory, to better communication between trading partners, integrated software system (ERP, MRP, WMS) and electronic commerce. 7. *Product design and product development* **handles** the method used to design new product and how to introduce new products to customers successfully. 8. *Service and after sales support* deals with problem providing support,	5. ***Point of consumption*** means ____. 6. ***Facility location*** is размещение производственных мощностей. 7. The Russian names for ***fleet*** are 1) флот; 2) парк транспортных средств. 8. ***Inventory is*** оборотные фонды, инвентаризация, запас. 9. ***Vendor is*** a person or a company that sells a particular product. It means ____. 10. ***Handle (v)*** is **?** а) управлять, регулировать, иметь дело с, в) готовить, с) создавать помехи.

spare parts and repair service after the purchase of customers. 9. *Reverse logistics and green supply chain issues* examine the best way to return products back to manufacturers to repair, reuse, recondition and disposal. 10. *Outsourcing and strategic alliances* consider what kind of activities we should ask specialists to handle and how to create firmed relationship with service providers. 11. *Metrics and* ***incentives*** control the business performance between trading partners to ensure that every members do their best to provide products and services to customers. 12. *Global issues and global logistics* examine how well each company operates in multiple countries.	11. ***Spare*** is запасной, резервный, дополнительный. 12. ***Incentive is*** something that encourages you to do sth. It means ____.

Key: 3) экономика, народное хозяйство; 5) пункт (место) потребления; 9) продавец, торговец; 10) а; 12) побуждение, мотивация.

1.3 Look through the table and fill in the missing elements of the SCM concept. Your time limit is 3 minutes.



1.4 Scan the following distinctive features of several components of SCM and decide which point to the right each feature matches.

Functions and distinctive features	*Components of SCM*
1. Reducing inventory cost by providing right amount of stock level is the basic concept that can lead to more understanding about other issues	A. Location strategy B. Transportation and logistics C. Inventory and forecasting D. Marketing and channel restructing E. Sourcing and supplier management F. Information and electronic mediated environments G. Product design and product development H. Service and after sales support I. Outsourcing and strategic alliances J. Metrics and incentives K. Global issues and global logistics L. Reverse logistics and green supply chain issues
2. This area helps to retain customers	
3. This practice is the great way to reduce capital investment because important assets will be shared	
4. This area encompasses mainly the activities from manufacturers to end customers	
5. Information obtained from returned products will help makers diagnose production problem to avoid possible defects	
6. Decision at this point has the impact on the structure of Supply Chain which includes transportation cost at particular location, government incentives or promotion of foreign investment, taxes & duties and country differences. Then strategy will be more tactical	
7. Economic incentives from performance compliance are explored as well. Scor Model is one of the most popular metrics	
8. Managing supplier networks can prevent raw material shortage, material quality problem and delivery reliability	

1.5 Choose the right word to render some ideas of SCM.

In the competitive global environment, 1.____ (**exhibition/performance**) can no longer solely be determined by the decisions and actions that occur within a firm as the 2. ____ (**execution/workforce**) of all members involved contributes to the overall results of the supply chain. Similarly, today's competition has changed from being between individual 3.____ (**enterprises/persons**) to increasingly being between supply chains.

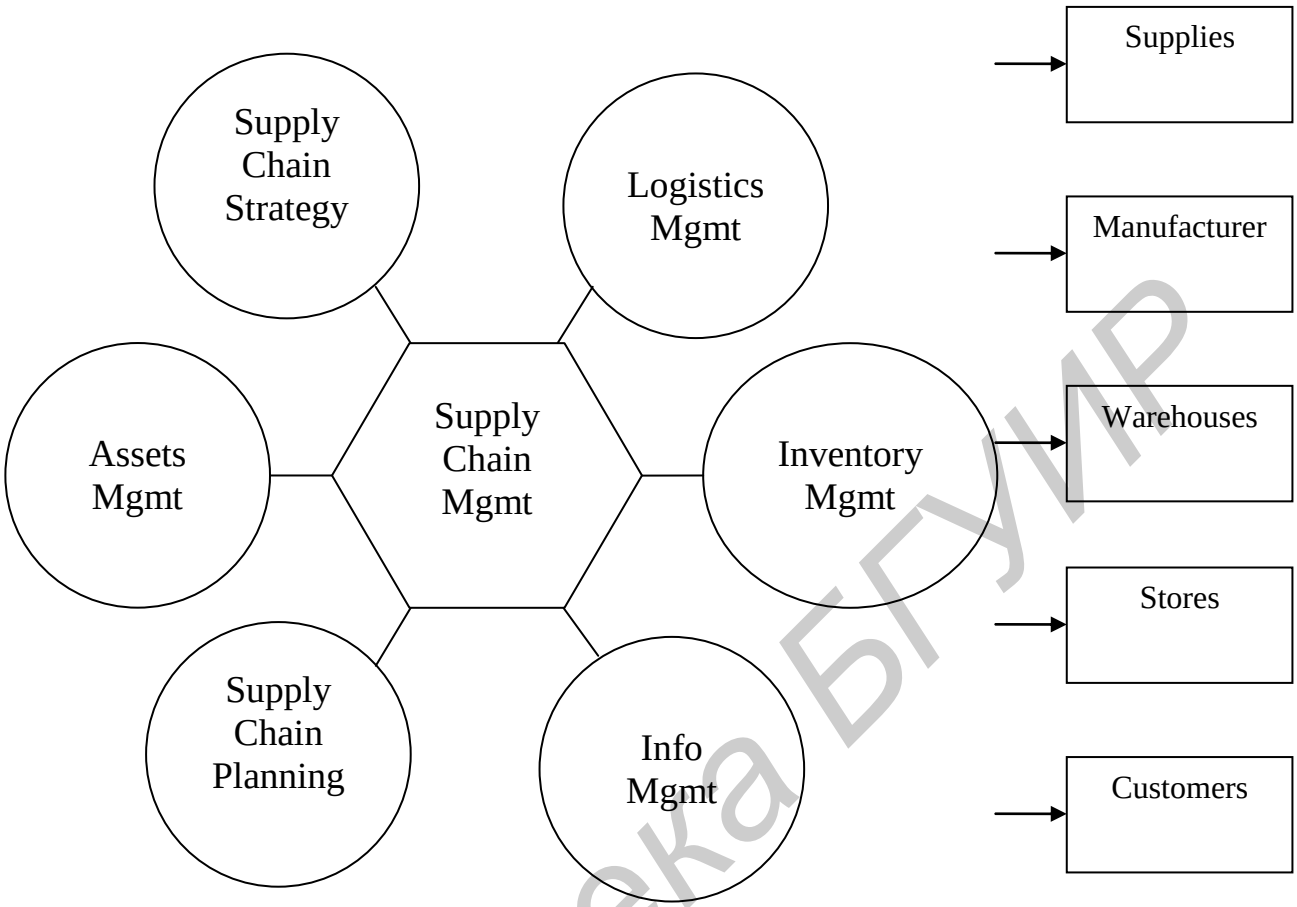
As organizations form global 4. ____ (**alliances/disintegration**), it is imperative that they understand how SCM can be successfully applied, especially as organizations face challenges including mitigating risks and disruptions in the supply chain. For these reasons, there is a need for companies to manage not only their own organizations but also their 5. ____ (**relationships/friendship**) with other companies in the same supply chain. Naturally, another reason for the increased interest is the potential 6. ____ (**income/benefits**) of SCM. Benefits include improvement in returns on investments and returns on 7. ____ (**equipment/assets)**. «Ultimately, the goal of SCM is to achieve greater profitability by adding 8. ____(**profits/value**) and creating efficiencies, thereby increasing 9. ____ (**stockholder/customer**) satisfaction» (Stock and Boyer 2009).

1.6 How well do you understand the structure of supply chain? Quickly translate the following selection into Russian.

Supply chain management is the oversight of materials, information, and finances as they move in a process from a supplier to/from a manufacturer to/from a wholesaler to/from a retailer to a consumer. Supply chain management involves coordinating and integrating these flows both within and among companies. It is said that the ultimate goal of any effective supply chain management system is to reduce inventory (with the assumption that products are available when needed).

Supply chain management flows can be divided into three main flows: the product flow, the information flow and the finances flow. The product flow includes the movement of goods from a supplier to a customer, as well as any customer returns or service needs. The information flow involves transmitting orders and updating the status of delivery. The financial flow consists of credit terms, payment schedules, and consignment and title ownership arrangements.

1.7 Study the following scheme and prepare a report on SCM.



Part 2

2.1 Look at the title of the text and try to guess what it is about, and then read the first paragraph of the text to see whether your guess is right.

2.2 Look through the text and find the paragraphs which mention the following things:

1) production line (производственная линия);
2) to discontinue the sales (приостанавливать продажи);
3) value creation (создание стоимости);
4) profit maximization (максимизация прибыли);
5) cost cutting (снижение затрат, экономия средств);
6) reduction of inventory (сокращение товарно-материальных запасов).

Write down the numbers of the paragraphs.

2.3 Look through paragraphs 1 and 4. What words denote the following:

1) the activity of giving a particular name and image to goods and services so that people will be attracted to them and want to buy them;

2) the state or position of being a leader ;

3) recognition that the thing are not the same;

4) the act or process of combining two or more things so that they work together.

2.4 The principles of Supply Chain Management have impacts on every aspect of any business organization. Read the article to learn what lessons from Steve Jobs still influencing on the principal activities of Apple Inc. This article will explain to you what we can learn from the co-founder of the company.

Seven Supply Chain Lessons from Steve Jobs

1. Apple Inc is regarded as the best company in the world for its cutting-edge supply chain management practices. What's the secret behind its success? It goes without saying that Apple Inc is famous for its strengths in product design, product development, branding and marketing strategy. When it comes to supply chain management practices, many people believe that its supply chain model and sophisticated software systems are the secret weapons that help them maintain market leadership.

2. In April 2012 (six months after Jobs's death), Harvard Business Review published the article called ‹‹The Real Leadership Lessons of Steve Jobs››. The author of this article is Walter Isaacson who helped Steve Jobs completed his best-selling biography. Isaacson identifies practices that he believes people should learn. Even though it's about business management in general, the article contains some interesting aspects about supply chain management as below.

3. Seven Supply Chain Lessons

1) *Customer comes first, cost cutting comes second*: the philosophy of product development at Apple is to build ‹‹insanely great›› products that customer wants to buy. Simply put, Jobs pursued differentiation or value creation strategy. And when the whole supply chain takes actions in sync with this strategy, the success is phenomenal! During 1983 to 1993 when Jobs didn't take the helm of the company, cost reduction/profit maximization was the primary strategy which resulted in the spiral down of the company. 2) *Set impossible targets*: when Jobs decided that he wanted the face of iphone to be scratchproof glass, he turned to Corning who developed the technology called ‹‹Gorilla Glass›› but it was just prototype in R&D lab. Jobs indicated clearly that he wanted a major shipment of Gorilla Glass within 6 six weeks that was beyond the capability of Corning. However, Job insisted on this request and later Corning converted one of its LCD production line to produce a new kind of glass. 3) *Prioritize actions*: after Jobs returned to Apple in 1997, there was a wide array of unrelated product lines. Then, he announced that he needed only 4 product categories, namely, ‹‹Consumer››, ‹‹Pro››, ‹‹Desktop›› and ‹‹Portable››. By segmenting products properly, Jobs reduced the complexity of supply chain and his team could prioritize actions required to support the strategy. 4) *Adopt process view*:

Jobs ensured that the performance of microprocessors down to the experience of buying products at its stores were linked together. To do this, Apple increased internal integration by establishing common goals across business units. 5) *Simplify product/process*: it is said on Apple's first marketing brochure that ‹‹Simplicity is the Ultimate Sophistication››. In literal meaning, Jobs eliminated unnecessary components which led to the reduction of inventory and a smoother production process. 6) *Make radical changes when necessary*: the integration of Ipod, Itunes and Itunes Store revolutionized the music industry. However Jobs was afraid that someone would add music players in phone's handset, then, he decided to discontinue the sales of Ipod and created the Iphone. Radical changes or ‹‹Reengineering›› may be necessary if external forces are strong. 7) *Enhance relationship via face-to-face meeting*: Jobs believed great ideas couldn't be developed solely via e-mail. From his experience, he created ideas from long meetings or even when you ran into someone. This lesson works well for both internal and external relationships.

4. Supply chain management is everywhere, from strategy formulation, product segmentation, product/process design down to customer satisfaction. Supply chain professionals adopt whatever concepts that help to create value. Even though Apple Supply Chain has some ‹‹hiccups›› such as various problems of suppliers in Asia, they are definitely one of the role model in supply chain management.

2.5 Look through paragraphs 1and 3. What words and word combinations have the same meaning as:

cost reduction,	complicated,	downturn (in the business cycle)?
снижение себестоимости	сложный	спад (деловой активности, доходов)

2.6 Look through paragraph 3. What words and word combinations have the opposite meaning as:

face-to-face meeting,	complexity,	segmentation?
очное общение (собрание, встреча)	сложность	деление на сегменты части

2.7 According to the information given in the text, find the right version of each sentence.

1. The primary strategy proclaimed by Steve Jobs was *a) profit maximization, b) customer domination, c) responsible administration*.

2. Steve Jobs pursued *a) strict cost control strategy, b) value creation strategy, c) strategic environmental assessment*.

3. Apple Inc is famous for its strengths in *a) advertising and marketing strategy, b) branding and marketing strategy, c) management and marketing strategy*.

4. Jobs provided that the performance of *a) monitors, b) storage devices, c) microprocessors* with the experience of buying products at its stores were linked together.

5. Steve Jobs thought that brilliant ideas couldn't be developed via *a) face-to-face meeting, b) videoconferencing, c) e-mail*.

2.8 What problem does the article deal with? Try to identify and solve it using this chart.

I Index the facts given in the article	
D Define the problems presented in the article	
E Explain its causes	
A Adduce opinions, points of view	
S Select or indicate the best solutions presented in the article	

Part 3

3.1 You will read a piece of interview with Terry Tysseland – a logistics executive with forty years in the field, is senior vice president of North American Operations for computer wholesales Ingram Micro Inc. ($28 billion sales last year). As such, he is responsible for Ingram Micro's operations centers, returns functionality and integration services, as well as operations logistics, transportation, systems and engineering.

First, look through the interviewer's questions and say what problems are mentioned in them.

3.2 Read the first part of the interview and answer the questions.

1. What is the key foci of Tysseland company's supply chain?
2. What are the ways of distribution optimization?

3.3 Examine the second part of the interview and say what words denote the following?

1. The process of sending goods from one place to another, a load of goods that are sent from one place to another.
2. The act or process of carrying out a task, an action, etc.
3. The relationship between two things or groups of people that is presented by two numbers showing how much larger one group is than the other.

3.4 Read the interview carefully to learn what helps Tysseland and his company design the optimal supply chain.

I. *Interviewer: What's your focus with your company's supply chain?*

Tysseland: The big thing that keeps me awake at night is fuel costs. I think if anything, fuel is going to continue to go up. I don't see any reason for it to come down due to world conditions.

Interviewer: How are fuel costs going to affect your supply chain?

Tysseland: We will need to learn to live in a model that is much more efficient than the model we have lived with in the past. Fuel costs may tell you that you need to have distribution centers in places different from where you have them today.

Interviewer: How do you optimize distribution in this high fuel context?

Tysseland: Technology allows you to route orders better. When a customer places an order into our system, it goes through a series of optimizing iterations based on whatever criteria the customer has set. If the customer says «lowest cost two-day delivery» – the system looks through a series of iterations. If it's a large order, it will look to ship it as a truckload; if it's a bit smaller, it will look to ship it as an LTL; if it's smaller than that, it will say, small parcel. And then it will go through the iterations of small parcel, which might be either FedEx or UPS. And if the customer allows us to optimize all the way down to USPS, then it will do that. Within all those different areas, the system will allow it to go to a lower cost solution.

Interviewer: Does your system yield a different answer if, say, the cost of gasoline rises from $3 to $4 a gallon?

Tysseland: No, that takes you back to your network design. We do a lot of work with network design each year to determine where our distribution centers should be as opposed to where they are located. And then we start asking ourselves questions: should we move a distribution center? It's not a short-term answer, usually, but if you keep on top of the network optimization program, then over time the proxies-fuel costs, labor, taxes, and other things-tell you that maybe instead of three main stocking branches in the United States that carry all your SKUs, maybe you need more. Maybe you need to get the product closer to the customer because the highest dollar transportation costs are the small orders getting to the end-user.

II. *Interviewer: But doubling the number of your distribution centers-that's neither immediate, nor free.*

Tysseland: I agree. We use a modeling program and we keep playing «what-if?» games. But if the outcome was: «I've got five distribution centers; I need to go up to ten» – that's not something you would be able to do this year. But you may be able to move over time-depending on things like when leases are up – and so you keep gravitating toward what a newer model is. If you don't keep working on it year after year, then you find yourself in a position where you have to make a big change.

Interviewer: Along with fuels costs, what are other trends you need to accommodate?

Tysseland: The form of the product we ship continues to get smaller and lighter. When we built distribution centers five or eight years old, we built them with a conveyer system. Those systems was automated and mechanized to handle products that would average over a pound. But now, we're finding lots and lots of orders-

maybe 15 percent of the total-that are way under a pound. And every year, that share increases. So, we've had to move from the larger conveyor system to moving a lot of product into a small item sorter.

Interviewer: What metrics do you use?

Tysseland: We measure virtually everything you can imagine on virtually everything that moves. We look at on-time performance. We define that as an order we receive by 5 o'clock today, ships today. We measure order accuracy, fill rates, loss and damage ratios, short shipments, back orders, lost product – just about everything you can imagine that has to do with the movement of product through a distribution center and to an end-user.

Interviewer: Any new metrics?

Tysseland: There are some. For example, we have some customers now not only want the product that's ordered by five o'clock today to be shipped today, but they want those orders loaded on trucks and confirmed back to them by midnight.

III. *Interviewer: What volumes are involved?*

Tysseland: We handle about 65,000 orders a day in North America during the off-peak season-Q1, Q2, Q3. And then in Q4, I guess our record is 202,000 orders in a day. The sophistication of the system just continues to move. Three to five years ago, we had the rule: any order received by 5 o'clock gets shipped today. But now it not only has to ship today, it has to get on the appropriate mode of transportation. In our distribution centers, we probably have thirty different carrier cutoffs in the course of the day. You have to get it on the right level of service carrier. So, UPS or FedEx doesn't pick up in one truck, but they pick up in five or ten different trucks depending on the level of service and where that product is going. Everything is about reducing the number of touches.

Interviewer: What are the most important things you've learned about logistics?

Tysseland: That's a very interesting question. Supply chain is much more appreciated now than in the past. In the past, we didn't even call it supply chain-it was just a public warehouse and a trucker. And now when you look at supply chain, you're looking at a partnership with your manufacturing partners and with your customers to ensure that they get a very high level of service at a good cost. Previously, as a partner with manufacturing and as a partner with our customers, I would say we were viewed as a necessary evil. Now, we're looked at for the answer to questions: How can we take days out? How can we take costs out? How can we eliminate touches? What is the best way to package product so it can go to an end-user without getting damaged? All those questions simply weren't asked of us in the past; now, they're part of our everyday life.

Interviewer: Have there been particular areas of savings?

Tysseland: Over the past ten years, as we continue to take costs out of the business and try to improve the level of service, you keep raising the bar. Each year, you keep tightening down on what your performance metrics are. Opportunities change. Twenty years ago, most transportation was regulated, so you really couldn't take costs out there. Then, deregulation opened up a whole new avenue for you to be able to negotiate better freight rates. It's a whole system of things, not just one or two. For

example, it's working with vendor management to make sure their turns are improving. Our industry, five years ago, used to average six; maybe less. Now, we're not satisfied unless it's over 14.

Interviewer: Doesn't cost cutting get harder with time?

Tysseland: There used to be low hanging fruit that we attacked and now the low-hanging fruit is gone. Now, we continue to look to new technology, which keeps developing and makes you better at what you do. One of the things we worked really hard on in the past five years is developing a warehouse management system that allows us to do within the four walls things we could never have imagined doing in the past.

3.5 Now read the article written by Martin Christopher (*Emeritus Professor of Marketing and Logistics, Cranfield University, School of Management*) **«Key Challenges of Supply Chain Management: an Urgent Message for Business» and answer the questions.**

1. Why has the supply chain become so critical?
2. What will the future of supply chain look like?
3. What is Martin Christopher's key message to his colleagues?

In the boardrooms of many businesses around the world, there is a growing realisation that the supply chain has become critical to business success. Right now there are significant challenges facing supply chain management which will have a substantial impact on strategic decisions in many businesses.

In many cases supply chains have become extended, significantly more so than was ever the case in days gone by. Traditional supply chains of the past were vertical supply chains, with a company owning its supply base. Henry Ford I, for instance, owned everything: the steel mills, the mahogany forest, the rubber plantation and he controlled the entire supply chain. Today's supply chains look totally different: we have outsourced, we focus on our core competencies, we are now very reliant upon suppliers who could be on the other side of the globe. For that reason alone, comes the realisation that management of the supply chain is critical and we have to be able to control matters – we may not want to own it, but we need still need to retain a high degree of control of it.

Also, consider what is happening with energy costs, particularly in terms of oil and transportation costs, the long term trend is emphatically upwards. This is serious given that, for the foreseeable future, most of our transportation requires petroleum based products to allow it to operate. This means the cost of moving things greater distances, is going to become a limitation on our supply arrangements and on our manufacturing locations. The conclusion must be that there will be a significant reshaping of the supply chain architecture, because the centre of gravity of supply chains in some cases is moving dramatically and the forces shaping it are powerful.

Future supply chains will be shaped by this era of turbulence that clearly we have entered into. The current conditions that we see in the world economy, are in the view of many likely to continue for quite a while yet.

This must mean that our supply chains will have to become more flexible, much more capable of changing rapidly as conditions change – not just on the demand side, but also on the supply side. Many resources now are getting scarcer; the costs of commodities has increased dramatically. As the dynamics of world supply and demand changes, supply chains need to be much better able to change in response to those conditions.

Now is the time for managers to stand back and take a long, hard look at existing supply chain arrangements. We need to face up to what many consider to be almost unthinkable: our current business assumptions may no longer be valid. The conditions we are now facing are significantly different from those when many supply chains were first put together. For many businesses this dawning may well be a painful reality. As of today, we must recognise that many supply chains may no longer be fit for purpose. No business can afford to ignore this challenging message.

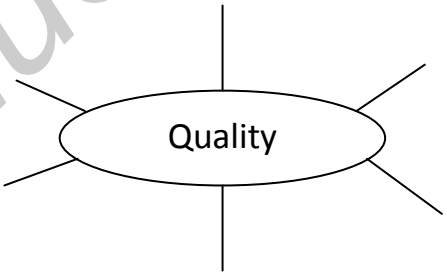
3.6 Look back to the text of the interview and point out what common ideas and approaches to supply chain management are declared by Terry Tysseland and Professor Martin Christopher.

3.7 What new facts have you learned from the text? Do you think this information can be useful for you in your future profession?

UNIT V: Total Quality Management

Part 1

1.1 What associations do you have with the term «quality». Let's complete the word web together.



1.2 Scan the following quotations and broaden the word web.

Quality Definition
Customer-based Definitions: 1. Quality consists of the capacity to satisfy wants (Edwards). 2. Quality is the degree to which a specific product satisfies the wants of a specific consumer (Gilmore). 3. In the final analysis of the marketplace, the quality of a product depends on how well it fits patterns of consumer preferences (Kuehn & Day). 4. Quality is fitness for use (Juran). 5. The core of a total quality approach is to identify and meet the requirements of both internal and external customers (Oakland).
Value-based definitions: 1. Quality is the degree of excellence at an acceptable price and the control of variability at an acceptable cost (Broh). 2. Quality is the degree to which a specific product conforms to a design or specification (Feigenbaum). 3. Quality must be achieved in five basic areas: people, equipment, methods, materials and the environment to ensure customer's need are met (Newell & Dale). 4. Quality is to satisfy customers' requirement continually; TQM is to achieve quality at low cost by involving everyone's daily commitment (Kanji).

1.3 This text will explain the notion and the principles of total quality management. Read the text carefully and try to understand the meaning of the bold-faced words. Use the prompts to the right of the text. You can check yourself with the key given below the text.

I. Total quality management is a cyclical process that involves quality improvement of products and all associated sectors so as to increase the overall satisfaction of customers, in turn increasing or **boosting** sales. The process is closely associated with the logistics and supply chain components of a business, but will affect almost every other **facet** of a company. TQM is not a single idea of concept rather the culmination of multiple ideas and facts that drive businesses to improve their quality of production and overall customer satisfaction.	1. ***Total quality management*** is всеобщий менеджмент качества. 2. ***Boost*** is to make sth increase, or become better or more successful. It means ____. 3. Facet is **?** a) лицо, b) аспект, грань, c) покрывало.

Started many years back in Japan, TQM has today become the standard for a successful business enterprise. There are eight principles of quality management:

1) «customer-focused organization» – organisations depend on their customers and therefore should understand current and future customer needs, meet customer requirements and strive to exceed customer **expectations**;

2) «leadership» – leaders establish **unity** of purposes, direction and the internal environment of the organisation. They create the environment in which people can become fully involved in achieving the organisation's **objectives**;

3) «involvement of people» – **employees** at all levels are the essence of an organisation and their full involvement enables their abilities to be used for the organisation's benefit;

4) «process approach» – a desired result is **achieved** more efficiently when related resources and activities are managed as a process;

5) «system approach to management» – identifying, understanding and managing a system of interrelated processes for a given objective contributes to the effectiveness and efficiency of the organization;

6) «continual improvement» – continual improvement is a **permanent** objective of an organization;

7) «factual approach to decision making» – effective decisions are based on the logical and intuitive analysis of data and information;

4.

Adj.	Expected, expectant
V	Expect (ожидать)
N	Expectation

5. ***Unity*** is the state of being joined together to form one unit. It means ____.

6. ***Objective*** is цель, задача; действительный, объективный.

7.

Adj.	Employable
V	Employ (принимать на работу)
N	Employee, employer, employment

8.

V	Achieve (достигать)
N	Achievement

9. ***Permanent*** is existing all the time. It means ? a) временный, в) вчерашний, c) постоянный.

8)«**mutually** beneficial supplier relationships» – mutually beneficial relationships between the organisation and its suppliers enhance the ability of both organisations **to create value**.	10. ***Mutual is*** взаимный.
II. TQM offers both short term benefits and long term benefits. The long term pros of TQM, however, outweigh the near-sighted advantages. Because this process can take years to perfect and implement, most organizations are concerned with the long term gains.	11. ***Create value*** is создавать стоимость.
Some of the pros of TQM in the long run include higher moral, decreased costs, increased customer **loyalty** and trust, better market penetration and increased productivity. Practicing TQM decreases the chance of committing mistakes and producing inferior products that can damage the name and fame of a company. It also increases the popularity and status of an organization in society while saving it money and time in the long run. Resources are saved that can be utilized for better projects.	12. ***Loyalty*** is верность, преданность.
Overall, TQM enhances employee satisfaction and creates an air of enthusiasm and welcomes professional attitude to jobs. Probably the most beneficial of all short term gains is its potential to increase team work and spread camaraderie in a production unit.	
Total Quality Management does suffer from some **drawbacks**. First of all, its complexity exposes the organization to potential decision bottlenecks and overall bureaucracy. Ideas that are worthy may get dumped in favour of greater incentives and better market	13. ***Drawback*** is disadvantage that makes sth a less attractive idea. It means ____.

penetration. Improvement in a company's TQM can be at the cost of jobs and employment as technology plays an important role. The fact TQM has the capacity to replace jobs with technology is both an exciting and scary possibility, and the **ramifications** of it must be considered. Focusing too much on the end result and customer satisfaction may sometimes cause a project to run into excess costs without any possible sign of returns. Moreover, it can result in the lack of confidence of the management in the floor workers and think tank.	14. ***Ramification*** is разветвление, ответвление.

Key: 2) запускать, стимулировать; 3) в; 5) единство; 9) с; 13) недостаток, препятствие.

1.4 Look through the second part of the text and quickly write out the words denoting the following.

Advantages of TQM	short term
Disadvantages of TQM	long term

1.5 Examine the various principles of TQM with the help of the following table. Look back to the text and match the number of each sentence with the proper principle.

Essentially,	1) the customer		arise	the empowerment into the workforce.
In fact,	2) the communication between the supplier and the client	should	inject	more efficiently when related resources and activities are managed as a process.
Obviously,	3) management	must	drives	as a means to foster tighter standards.
	4) a sense of self-reliance		create	the key factor to effective customer focused quality.

It's clear that	5) the desired result	can	becomes	the quality and any improvements that need to be made.
	6) the control of business performance of interconnected processes and microprocesses		be achieved	a balance between high performance work systems and improvement efforts within the normal day-to-day operations.

1.6 What have you learned about TQM? Replace the words printed /*in italics*/ with expressions from the box, which have the same meaning. Your time limit is 3 minutes.

1) A *management approach centered on quality* is a cyclical process that involves quality improvement of products and all 2) *associated sectors* so as to increase the overall satisfaction of customers and to reach the perfect quality by reducing all types of losses and improving company's 3) *output*. The major 4) *facets* of TQM have been elaborated by several researchers from different countries.

TQM is *a* 5) *system of beliefs and facts* for managing an organization in a way which enables it to meet stakeholders' and customers' needs and expectations, and organizational 6) *objectives*. Using specific data, 7) *plans to achieve purposes*, and clear communications skills, higher standards of goods and services can be effectively achieved.

a) philosophy, b) principles, c) TQM, d) integrated systems, e) yield, f) strategies, g) goals

1.7 Work with a partner. Read the following sentences and identify the nouns that can be created from underlined words by adding the suffixes *-ment, -tion, -ion, -ation, -ure.* Then paraphrase the sentences using the nouns and making other necessary changes. Which pair of students will be the first to do the task?

1. TQM improves the processes and practices, and establishes changes that help the organization to win.

2. The total in TQM applies to the whole organization and enables it to take competitive advantages.

3. Good way to accomplish the goals is to take top management off site for a day or two for a brainstorming session.

4. Business excellence is the result of adopting a TQM philosophy.

5. All the members of a business participate in a total quality management campaign in order to ensure its success.

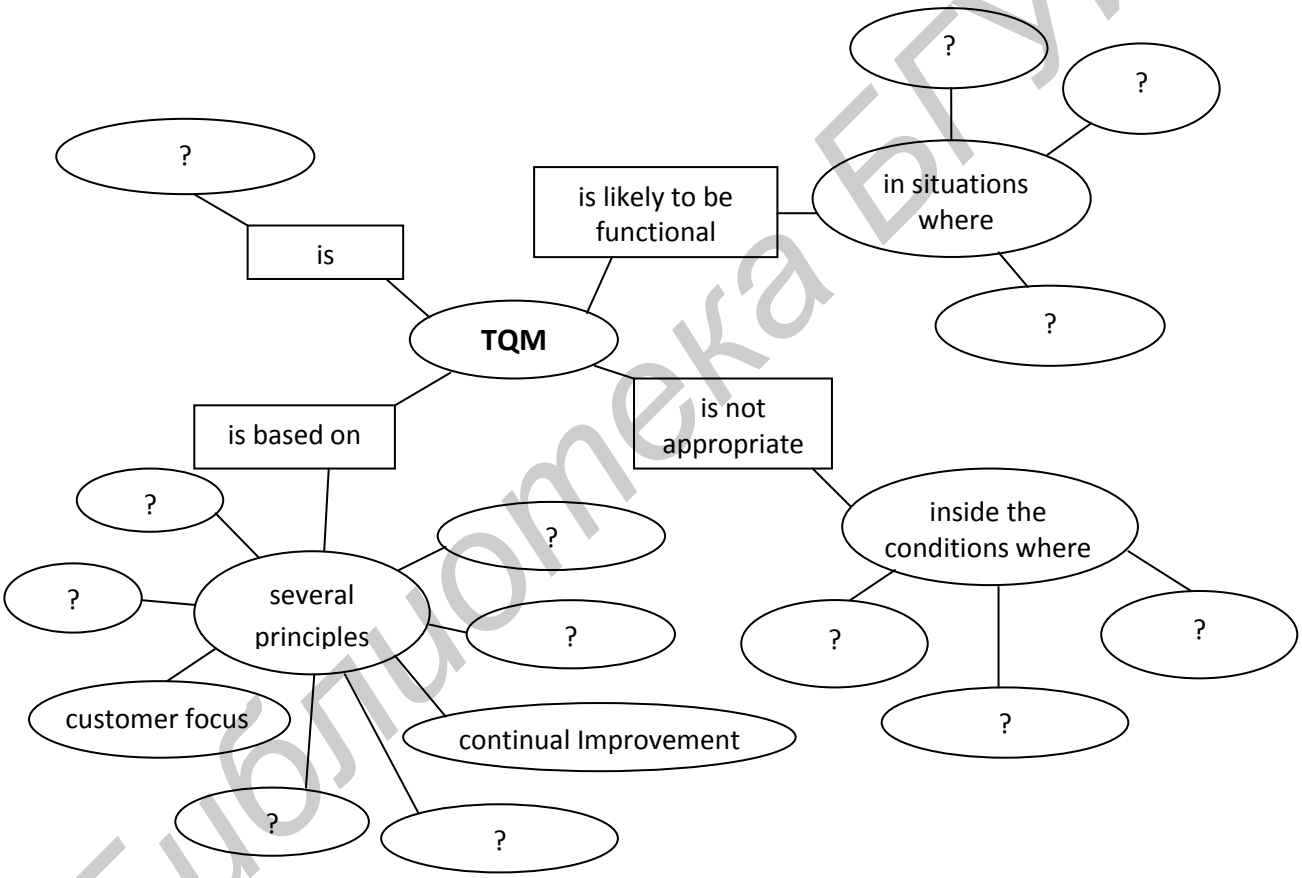
6. To identify target markets and potential consumers is intended for is critical to marketing.

7. Systems, tools and processes are employed to achieve the various principles of TQM.

8. The fact TQM has the capacity to replace jobs with technology is both an exciting and scary possibility.

9. Mutually beneficial relationships between the organisation and its suppliers enhance the ability of both organisations to create value.

1.8 Summarize the ideas presented in the first part of the unit and working in small groups, complete the scheme.



1.9 Tick the key explicit assumptions that reveal the ideas of TQM. Say what role TQM plays in the modern industrial society.

1. Everyone has responsibility for a continuous improvement.
2. Everything is subject to change in the pursuit of excellence.
3. There is no compromise in the search for total quality.
4. Quality is defined by the customer.
5. Excess costs are caused by poor quality.
6. Top management must drive the change process.

7. Managing the «flow» of materials and information among the respective stakeholders is critical to an employment.

8. Employees must be trained in the process and participate fully with commensurate levels of responsibility and accountability.

Part 2

2.1 Look at the title of the text and try to guess what it is about, and then read the first paragraph of the text to see whether your guess is right.

2.2 Look through the text and find the paragraphs in which the following things are mentioned:

1) summary statistics (статистический бюллетень (сводка));
2) preventive costs (профилактические расходы);
3) quality function deployment (развертывание функции качества);
4) sources of supply (источники снабжения, поставок);
5) target market (целевой рынок);
6) failure cost (издержки из-за отказа в работе оборудования);
7) frequency of updating (частота обновления данных);
8) rewards and incentives (вознаграждения и поощрения).

Write down the numbers of the paragraphs.

2.3 Look through paragraphs 1, 2 and 3. What words denote the following:

1) the activity of presenting, advertising and selling a company's products in the best possible way;
2) money used to run a business, an activity or a project;
3) the process of keeping financial account.

2.4 Total quality management has impacts on every aspect of business organizations. Read the text to learn how TQM influences on the principal activities of any organization.

The Involvement of Different Functions in TQM

1. _____. The goal of TQM is to satisfy customer needs by producing the exact product that customers want. The role of these functions is to understand the changing needs and wants of customers by working closely with them. This requires a solid identification of target markets and an understanding of whom the product is intended for. Sometimes apparently small difference in product features can result in large difference in customer appeal. Marketing needs to accurately pass customer information along to operations, and operations needs to include marketing in any planned product changes.

2. _____. General definitions of quality need to be translated into specific terms of money. This serves as a baseline for monitoring the financial impact of quality efforts and can be a great motivator. The first two costs of quality, prevention and appraisal, are preventive costs; they are intended to prevent internal and external failure costs. Not investing enough in preventive costs can result in failure costs, which can hurt the company. On the other hand, investing too much in preventive costs may not yield added benefits. Financial analysis of these costs is critical. You can see that finance plays a large role in evaluating and monitoring the financial impact of managing the quality process. This includes costs related to preventing and eliminating defects, training employees, reviewing new products, and all other quality efforts.

3. _____. This activity is important in the TQM process because of the need for exact costing. TQM efforts cannot be accurately monitored and their financial contribution assessed if the company does not have accurate costing method.

4. _____. These efforts are critical in TQM because of the need to properly translate customer requirements into specific engineering terms. Recall the process we followed in developing quality function deployment (QFD). It was not easy to translate a customer requirement such as ‹‹a good looking backpack›› into specific term such as material, weight, color grade, size, and number of zippers. We depend on engineering to use general customer requirements in developing technical specification, identifying specific part and materials needed, and identifying equipment that should be used.

5. _____. This activity must locate sources of supply, ensure that the parts and materials needed are of sufficiently high quality, and negotiate a purchase price that meets the company's budget as identified by finance. Whereas marketing is busy identifying what the customers want and engineering is busy translating that information into technical specifications, purchasing is responsible for acquiring the materials needed to make the product.

6. _____. This sector is critical to the effort to hire employees with the skills necessary to work in a TQM environment. That environment includes a high degree of teamwork, cooperating, dedication, and customer commitment. Labour resources are also faced with challenges relating to reward and incentive systems. Rewards and incentives are different in TQM from those found in traditional environments that focus on rewarding individuals rather than teams.

7. _____. These media are highly important in TQM because of the increased need for information accessible to teams throughout the organization. It should work closely with a company's TQM development program in order to understand exactly the type of information system best suited for the firm, including the form of the data, the summary statistics available, and the frequency of updating.

2.5 Read the text once again and put the following points into the order while going through the text.

A. Engineering.
B. Human resources.
C. Marketing.
D. Accounting.

E. Information systems.
F. Purchasing.
G. Finance.

2.6 Spot the key words of each paragraph of the text which can be used for its further retelling.

2.7 Spot the international words and guess the meaning of each.

2.8 Summarize the information given in the text and fill in the table.

Category	Potential involvements	Problems
Function		

2.9 Write an annotation of the text.

Part 3

3.1 Read the title of the text and say what the text is about from your point of view.

3.2 Brainstorm the text «ISO 9000/9001 Standards» and, with a partner, fill in the chart dealing with the objectives and functions of ISO 9000/9001.

ISO 9000/9001 Standards

Increases in the international trade created a need for the development of universal standards of quality. Universal standards were seen as necessary in order for companies to be able to objectively document their quality practices around the world. Then in 1987 the International Organization for Standardization (ISO) published its first set of standards for quality management called ISO 9000. The International Organization for Standardization (ISO) is an international organization whose purpose is to establish agreement on international quality standards. It currently has members from 91 countries. The standards are applicable to all types of companies and have gained global acceptance. In many industrial spheres ISO certification has become a requirement for doing business. Also, ISO 9000 standards have been adopted by the European Community as a standard for companies doing business in Europe.

In December 2000 the first major changes to ISO 9000 were made, introducing the following three new standards:

1) ISO 9000:2000 – Quality Management Systems-Fundamentals and Standards. Provides the terminology and definitions used in the standards. It is the starting point for understanding the system of standards;

2) ISO 9001:2000 – Quality Management Systems-Requirements. This is the standard used for the certification of a firm's quality management system. It is used to demonstrate the conformity of quality management systems to meet customer requirement;

3) ISO 9004:2000 – Quality Management Systems-Guidelines for Performance. Provides guidelines for establishing a quality management system. It focuses not only on meeting customer requirements but also on improving performance.

These three standards are the most widely used and applied to the majority of companies.

To receive ISO certification, a company must provide extensive documentation of its quality processes. This includes methods used to monitor quality, methods and frequency of worker training, job descriptions, inspection programs, and statistical process-control tools used. High-quality documentation of all processes is critical. The company is then audited by an ISO 9000 registrar who visits the facility to make sure the company has a well-documented quality management system and that the process meets the standards. If the registrar finds that all is in order, certification is received. Once a company is certified, it is registered in an ISO directory that lists certified companies. The entire process can take 18 to 24 months and cost anywhere from $10,000 to $30,000. Companies have to be recertified by ISO every three years. One of the shortcomings of ISO certification is that it focuses only on the process used and conformance to specifications. In contrast to the Baldrige criteria, ISO certification does not address questions about the product itself and whether it meets customer and market requirements.

3.3 What problem does the text deal with? Try to identify and solve it using this chart.

I Index the facts (Перечислите факты)	
D Define the problem (Определите проблему)	
E Explain its causes (Объясните ее причины)	
A Adduce opinions (Представьте мнения)	
S Select the best solution (Выберите лучшее решение)	

3.4 What have you learned about ISO 9000/9001 standards? Mark these statements as true (T), false (F) or not mentioned (NM).

_____ 1. To develop and promote international quality standards, ISO 9000 has been created.

_____ 2. ISO 9000 consists of a set of standards and a certification process for companies.

_____ 3. By receiving ISO 9000 certification, companies demonstrate that they have met the standards specified by the ISO.

_____ 4. In fact, certification has become a requirement for conducting business in many industries.

_____ 5. ISO 9001 standards do not apply only to the production process; they apply equally to all departments of the company.

_____ 6. When a company hires a registrar, it will usually include the registration audit and surveillance audits.

_____ 7. In order for a company to become ISO certified there are a number of activities that must be performed regardless of the size or type of a company.

_____ 8. The first and most important activity is to have senior management commitment.

_____ 9. Once there are no more corrective actions, the registration audit can be performed.

_____10. After a company has its registration, the registrar will come back approximately every six months to see if the firm is maintaining its system and continuing to meet the requirements of the standard.

3.5 Say why sets of mentioned standards are so important nowadays. Try to give as many reasons as you can.

SUPPLEMENTARY MATERIAL

TEXT 1 Cloud computing

The term ‹‹cloud computing›› refers to the shared software and information that users access via the web. Rather than storing information on their own physical servers or computer hard drives, users rely on servers that are maintained by the cloud computing software provider (like Apple’s iCloud offering). From the user perspective, all information is stored and readily accessible inline in a 24/7 format, and from various types of devices – desktops, laptops, tablets and smartphones.

There’s little question that companies like the idea of having their software served up via the web. There are no servers to maintain, no IT infrastructures to set up, no upfront licensing fees, and no software programs to install and maintain on premise. And while you’ll read about the cloud’s drawbacks later in this article, for the most part this deployment method has garnered positive reviews among companies looking for alternatives to on-premise software models.

Cloud computing is an umbrella that covers both the applications that are delivered as services in a ‹‹Software as a Service›› (SaaS) model via the web and the hardware and systems software (together known as the actual ‹‹cloud››) used to run those applications that companies access and use online. Sometimes used interchangeable with the term ‹‹cloud››, SaaS is actually the engine that provides users with remote access to web-based solutions.

In fact, according to a recent CDW Cloud Computing Tracking poll, 84 percent of organizations are currently using at least one cloud application during the course of the business day. Many of those applications are accessed via the ‹‹public cloud››, where the software is offered up on a subscription basis to a wide swath of users. Private clouds, on the other hand, comprise internal datacenters for specific organizations and are not available to the general public.

Making cloud computing especially attractive is the fact that the applications are sold on a ‹‹pay as you go›› model, with shippers paying only for the services that they use instead of investing in a fixed-capacity IT infrastructure that can either fall short or exceed actual needs. And because they are paid for on an ongoing basis, over time, the cloud-bases solutions can be budgeted as operating expenditures rather than capital investments.

TEXT 2 Logistics breakthrough

Logistics problems often consist of numerous components, which exhibit complex behavior and are interconnected in various ways. Solving logistic problems requires understanding these dynamics and providing means for managing the complexity. Typically, the solution strategies for solving logistics problems can have a multitude of options at their disposal and many different decision variables need to be taken into account. Furthermore, these options are often difficult to evaluate and prioritize.

Today's logistic departments are confronted with a fast changing world, in which many unanticipated situations can arise. In order to stay competitive data has to be collected and processed in realtime.

It is an inherent property of many business environments that only partial or incomplete knowledge is available and decisions have to be made on basis of this imperfect knowledge. In addition, unexpected events might occur (e. g., emergencies, machine breakdowns) that could have severe influence on going activities and have to be handled.

Logic processes often involve multiple decision makers, who are involved in processes with different responsibilities. In this respect it can be distinguished between the different departments a decision maker is responsible for, e. g. marketing, managerial or operational.

There are a lot of constraints that need to be fulfilled in order to plan and carry out logistics activities. These constraints include physical constraints such as available storage and machine capacities as well as business objectives such as production efficiency or customer satisfaction.

Typically, logistics needs to solve problems that involve complex settings consisting of physically dispersed entities and/or data. Furthermore, involved actors often have individual objectives such as keeping their rest times, which have to be coordinated with business objectives such as achieving on time delivery of goods. Even though logistic settings might not expose all the mentioned properties at once, logistics solutions and software have to embrace the existing characteristics and handle them in an intelligent way. Considering the difficulty of logistics problems the proposed software solutions should also fulfill some general requirements.

TEXT 3 Just In Time-Logistics

As the standard of living improved, more and more people demand various goods depending upon their preferences. Technological innovations also made it possible to produce and supply a greater variety of goods and commodities. Hence, most companies would choose suppliers who can deliver high quality goods in smaller lots and with more frequent delivery services, and provide services flexible enough to meet demand fluctuation. The life cycle of goods and commodities are shorter; lot sizes are smaller; and the number of items higher. Thus, the functions of assembling, processing, and packaging has become more important than ever before.

Companies which have to operate in a continuously changing and increasing competitive environment, have started to pay special attention to their supply chain management in order to have a sustainable competitiveness. Just In Time management which was first applied by Toyota Corporation, involves delivery of necessary goods to the production line just in time without any raw materials storage. As a current concept, Just In Time Logistics can be also defined as the application of Just In Time management philosophy to four main components of the logistics including a) customer services, b) order processing, c) inventory management and d) transportation management.

Application of Just In Time philosophy to the logistics area results in several benefits such as determination of waste sources, increasing delivery speed of goods to customers, improvement of processes by organizing business requirements and man power plans for logistics and increasing harmony among suppliers and customers. Creating, developing and maintaining customer loyalty and satisfaction can be carried by application of Just In Time Logistics.

БАЗОВЫЙ СЛОВАРЬ-МИНИМУМ

Accessible доступный
Accomplish выполнять, доводить до конца
Accounting бухгалтерский учет
Accurate правильный, точный, тщательный
Activity деятельность (хозяйственная), активность (экономическая)
Application применение, использование
Appraisal оценка, экспертиза
Approach подход
Assembly сборка, монтаж
Attribute свойство
Available доступный
Backlog запасы (материальных средств), резервы (материалов), задолженность (по выпуску продукции)
Bar code штриховой код
Benchmark база (в статистике), лимитная цена, (справочная) цена
Benchmarking статистический анализ
Bill of lading транспортная накладная; мор. коносамент
Boost стимул, поддержка, стимулирование
Bottleneck препятствие
Capability способность, максимальная производительность
Challenge сложная задача, вызов, проблема, претензия
Collaboration сотрудничество
Commitment затраты, вложение (капитала), вклад
Composite комбинированный, сложный, составной
Conformance соответствие
Conformity соответствие, сходство, аналогичность, единообразие (поведения потребителей)
Consumer потребитель, покупатель, клиент, заказчик
Correspond переписываться, состоять в переписке
Cost control контроль за уровнем издержек
Counterpart копия, дубликат, аналог, противоположная сторона
Create value создавать стоимость
Criterium (pl. criteria) критерий, показатель, условие
Customer заказчик, покупатель, клиент
Customer loyalty верность клиента
Customer service обслуживание покупателя, предоставление услуг покупателю
Datum (pl. data) данные, информация
Decimal десятичный
Decrease уменьшение, сокращение
Dedication надпись в книге, посвящение
Demand planning планирование спроса
Deployment применение, использование

Derive получать, извлекать (информацию, доход)
Dimension измерение, размер, величина, габариты
Disparate несоизмеримый, несравнимый, в корне отличный
Distribute распределять, распространять, классифицировать
Distribution распределение, сбыт, торговля, классификация, движение товаров от производства к потреблению
Drawback недостаток, препятствие
Effective эффективный, полезный, действительный
Efficient эффективный, рациональный, целесообразный
Eliminate устранять, исключать, ликвидировать
Encapsulation герметизация, пакетирование, инкапсуляция
Entity экономическая единица (организация, предприятие, фирма)
Evaluate оценивать, давать оценку
Expectation ожидание, вероятность
Extensive большой, обширный, экстенсивный
Facet аспект, грань
Failure недостаток, неудача, авария, выход из строя, отказ (в работе)
Failure cost(s) издержки вследствие отказа (оборудования)
Fall short не доставать, делаться дефицитным, не достигать цели
Feedback обратная связь, связь с потребителями, информация от потребителей
Finance финансы, финансовое дело
Flow поток (финансовый)
Focus (on) сосредотачивать (внимание на), помещать в фокусе
Focus (pl. foci) центр, фокус
Forecasting прогнозирование
Framework основа, структура, рамки
Fulfillment исполнение, выполнение, завершение, осуществление
Functionality функциональность, функция
Guideline ориентир, директива, руководящая линия
Hard drive жесткий диск
Hardware техническое (аппаратное) обеспечение
Human resources людские (трудовые) ресурсы
Identity идентичность, тождественность
Impact влияние, воздействие, импульс
Implement инструмент, прибор
Implementation time время выполнения, время реализации
Incentive стимул, побуждение
Increase увеличение, возрастание, рост
Inherit наследовать
Inheritance наследование
Interact взаимодействовать
Inventory оборотные фонды, запас, инвентаризация
Inventory management управление материально-техническим снабжением (производства), управление запасами

Key foci ключевой момент
Layout компоновка, размещение, макет, программа
Leadership руководство, управление
Link связь, соединение, канал передачи данных
Maintenance материально-техническое обеспечение, техподдержка
Manage управлять, руководить
Management управление, руководство, менеджмент
Market penetration проникновение на рынок
Marketing реализация, сбыт, торговля, маркетинг (организация сбыта)
Measure мера, единица измерения, показатель, критерий
Middleware промежуточное программное обеспечение, подпрограммное ПО
Mutual взаимный, совместный
Negotiate вести переговоры, совершать сделку
Object reference ссылка на объект
Obvious очевидный, понятный
Operative supply оперативное снабжение
Order processing обработка заказа
Outweigh перевешивать, превосходить в весе
Package пакет, упаковка, ящик
Pattern образец, шаблон
Performance производительность, показатель деятельности, эффективность функционирования
Performance Chain эффективность цепочки
Persistent постоянный, настойчивый, устойчивый
Point of consumption пункт назначения (потребления)
Point of origin пункт (место) происхождения, отправления
Preventive превентивный, предупредительный, профилактический
Procurement приобретение, закупки, материально-техническое снабжение, поставка (оборудования)
Production unit производственная единица, предприятие, единица продукции
Productivity производительность, продуктивность, выработка
Purchasing покупка, приобретение, материально-техническое снабжение
Purpose цель, замысел
Ramification разветвление, рамификация
Rate размер, степень, цена, тариф, показатель
Readily accessible легко доступный
Refer ссылаться, указывать, упоминать, обращаться
Reference ссылка, сноска, указание, упоминание, справка
Re-furbishing обновляющий
Remote access удаленный доступ
Requirement требование
Research исследование, изучение, исследовательская работа
Reverse обратный, оборотный
Routine заведенный порядок, работа по графику, рутинная операция

Salvage нереализованная продукция, годная для переработки; отходы производства, годные для переработки; расходы по спасению имущества; компенсация за спасение имущества
Satisfaction удовлетворение, исполнение обязательства
Scary скудный, истощенный
Scope пределы, рамки, границы, поле деятельности
Scrap disposal утилизация металлоотходов
Self-sufficient самообеспеченный, экономически самостоятельный
Service response сервисный отзыв
Set комплект, набор, ассортимент
Share доля, часть
Shortcoming недостаток, дефицит
Signify обозначать, выражать
Similar подобный, похожий
Simplicity упрощение, простота
Single-instance единичный случай, единичный пример
Software программное обеспечение, документация
Storage хранение, складирование
Store запас; хранить, накапливать, запасать
Structure структура, устройство
Subdivide подразделять
Subsequent последующий, являющийся результатом
Supply снабжение, поставка, предложение (товара)
Supply Chain цепь поставок
Target market целевой рынок
Template матрица, трафарет, шаблон
Term срок, период
Time of delivery срок поставки, срок сдачи, срок доставки
Tool инструмент, механизм (например спроса и предложения)
Total quality management всеобщий менеджмент качества
Trait черта, особенность
Transportation перевозка, транспорт
Trouble prone предрасположенность к нарушению, склонность к нарушению
Uniformly единообразный, однородный
Updating модернизация, усовершенствование, обновление
Upfront предоплата
Utility эффективность, полезность; утилита
Value Chain цепь издержек (затрат) на пути продукции от производства до конечного потребителя
Visualize визуализировать, делать видимым, обнаруживать, проявлять
Wane убывание, уменьшение, снижение; убывать
Warehouse склад (товарный), хранилище
Wrap обертка, упаковка; завертывать, обертывать
Yield размер выработки, выход (продукции)

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Св. план 2014, поз. 74

Учебное издание

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ПРАКТИЧЕСКИЙ КУРС АНГЛИЙСКОГО ЯЗЫКА ПО ОСНОВАМ ЛОГИСТИКИ

ENGLISH PRACTICAL COURSE ON LOGISTICS BASICS

ПОСОБИЕ

Редактор *Е. С. Чайковская*
Компьютерная правка, оригинал-макет *Е. Г. Бабичева*

Подписано в печать 03.12.2014. Формат 60х84 1/16. Бумага офсетная. Гарнитура «Таймс».
Отпечатано на ризографе. Усл. печ. л. 3,84. Уч.-изд. л. 4,0. Тираж 300 экз. Заказ 216.

Издатель и полиграфическое исполнение: учреждение образования
«Белорусский государственный университет информатики и радиоэлектроники».
Свидетельство о государственной регистрации издателя, изготовителя,
распространителя печатных изданий №1/238 от 24.03.2014,
№2/113 от 07.04.2014, №3/615 от 07.04.2014.
ЛП №02330/264 от 14.04.2014.
220013, Минск, П. Бровки, 6