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OVERVIEW OF INFORMATION SOURCES

5.1 INTRODUCTION

We use and share information when speaking, listening, watching, writing or by other methods. We require information in our day-to-day activities — such as, for study, research, problem solving or even entertainment. Have you ever wondered how information is generated, accumulated and made available to us? Well, people acquire knowledge through study and experience and make their views, observations, experimental research results, etc. known to other human beings by writing or other means of communication.

Information is generated from all kinds of human activities. Individuals and organizations, both generate information for some purpose or the other. For example, R &D organizations carry out research and generate new information. Government organizations, through their various activities, such as governance, administration, census and surveys, generate information. This way information is being generated and recorded in variety of sources and is made available for public use.

In this lesson, you will study the concept of information, its characteristics and use in different contexts along with various types of information sources, their development and importance in study, research, recreation and personal development.



5.2 OBJECTIVES

After studying this lesson, you will be able to:-

- define Information and Information Sources;
- state the characteristics of Information Sources;



- distinguish between Primary, Secondary and Tertiary Sources of Information;
- identify documentary and non-documentary sources; and
- trace the history of development of information sources.

5.3 DEFINITION OF INFORMATION

Collins English Dictionary defines information as ‘i) knowledge acquired through experience or study, ii) Knowledge of specific timely events or situations- such as news, iii) The act of informing or condition of being informed – by an office, an agency, etc. iv) A collection of facts or data- such as statistical information, and v) processed, stored and transmitted data- such as in computer science, etc.’

The above definitions show that information is a term with many meanings depending upon the context and is closely related to concepts such as knowledge, instruction, data and communication. In terms of communication, information is a message received and understood. In terms of data, it can be defined as a collection of facts from which conclusions can be drawn. In terms of knowledge, it is something, which we acquire individually through experience and education. However, knowledge is personal, individual and involves practical use of information. It can be shared but might be perceived differently.

By going through the above definitions, we may define that facts, conclusions, ideas, and creative works of human intellect and imagination that have been communicated formally or informally in any form, is ‘information.’ Information can be transported, stored or shared without any difficulty. Today, we can access and find information on almost everything.

5.4 INFORMATION SOURCES

The sources from where we get information are called information sources and these comprise documents, humans, institutions as well as mass media like radio and television.

The most important informal form of sharing information is by personal communication, where people make their thoughts and wishes known to each other. People communicate in many ways, for example by talking, writing letters, making telephone calls and also through Internet. People all over the world share views, ideas, observations, experimental research results, etc. with fellow human beings.

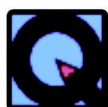
Apart from personal communication, we all depend on other sources of information for news, study, research and entertainment or even for solving our



day-to-day problems. Some of these sources are newspapers, books, magazines, CDs, DVDs, radio, television, Internet, etc. At present, a wide range of these sources are available and all of us depend on these recorded information sources as well as on mass media like television and radio for getting information.

We can get information from various institutions. For instance, before taking admission we consult educational institutions like schools, colleges and universities. Apart from academic institutions, several government organizations, health institutions, R&D organizations, S&T Institutions, Industries, etc. serve as useful source of information in their respective areas of activities.

All of us have seen and used many of these sources. In this lesson, you will study these information sources; categorize them based on their type, information contents and physical form. You will also study the historical development of these sources.



INTEXT QUESTIONS 5.1

1. What is Information?
2. What are Information Sources?

5.5 TYPES OF INFORMATION SOURCES

Information sources are organized according to their information contents, type, media or form to cater to the different needs of the users.

We can group information sources into two broad categories as follows:-

- Documentary Sources
- Non-Documentary Sources

5.5.1 Documentary Sources

All recorded sources of information, irrespective of their content and form, come under documentary sources. These may be published or unpublished, in print or in electronic form. These may be books, periodicals, magazines, or reference books and others.

Documentary Sources can be further categorized based on their information contents and physical form as follows:-

- Documentary Sources (By Content)
- Documentary Sources (By Form)



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**INTEXT QUESTIONS 5.2**

1. What are documentary sources?
2. How documentary sources are further categorized?

(a) Documentary Sources of Information (By Content)

All recorded sources of information such as books, periodicals, articles, dictionaries, newspapers, dissertations, guidebooks, directories, etc. are organized into quite basic and fundamental categories based on their information content and organizational level. These are:—

- Primary
- Secondary, and
- Tertiary sources of information.

(i) Primary Sources

Primary sources are those sources which contain original information that has been published, reported or recorded for the first time. Primary sources include raw data, new interpretation of previously known facts or idea, any new observation or experiment, etc. Information tends to be latest and comes out in the form of an article in a periodical, monograph, research report, patent, dissertation, reprint of an article or some other work. By its very nature, the primary sources of information are widely scattered and it is difficult to locate the information contained in them. Following is the selected list of primary sources of information:-

- Periodicals
- Newspapers
- Technical Reports
- Dissertations
- Conference papers
- Patents
- Standards

Problems of Primary Sources

Primary sources are widely scattered and are available in such a large number

**Notes**

that it is extremely difficult to keep track of all that is published even in a single discipline. To solve this problem, this widely scattered information in primary sources is constantly being compressed, organized and rearranged according to some definite plan and communicated through another set of publications called secondary sources of information.

(ii) Secondary Sources

Secondary sources of information are mostly dependent upon primary sources of information for their existence. They usually present the contents of primary documents in condensed form or list them in a helpful way so that existence of primary documents are known and access to them is made easy. Based on the reorganization of information in these sources, the secondary sources can be grouped under four broad types:-

- Index/Abstract Type
- Survey Type
- Reference Books
- Technical Translations

Index/Abstract Type

The word 'index' is derived from the Latin word 'indicare', which means to 'point out' or 'to show'. Index types of secondary sources scan the primary sources, select the relevant items and arrange them in helpful sequence for easy and quick retrieval. Under this category, indexes, bibliographies, indexing and abstracting periodicals, and current awareness services are covered. These are secondary publications which list and arrange the relevant items from the primary documents for easy and quick access. For instance, indexing and abstracting periodicals systematically scan the current primary sources of information (like periodicals, research reports, conference proceedings, etc.) on a particular subject field, select the relevant items, index (or provide brief summary of) each item, and arrange it in a helpful sequence so that each item can be easily located and identified. Indexing and abstracting periodicals are brought out at regular intervals and keep users abreast of the current literature on a subject and serve as important guides to the primary literature. Without these secondary sources, a large part of primary literature may remain unknown and unused.

Survey Type

These publications survey the selected portion of primary literature and provide



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- An overview of the subject
- Highlight significant literature on the subject (Treatises)
- Depict the progress of a particular field of study (Annual Reviews, advances, etc.) or
- Present the contents of primary literature on a subject in easy and understandable form keeping in view the particular group of users. (Textbooks)

Reference Books

Reference books/sources provide answers to factual queries, statistical information, and background information on a special or general subject. Sources like dictionaries, encyclopaedias, directories, yearbooks, almanacs, maps and atlases etc. come under reference sources. These sources are used for finding out facts on a topic. These sources often have the subject headings in alphabetical order for finding the information quickly. These sources are used for consultation and not for continuous reading. These are not available for a loan from the library.

Translations

Whenever a primary source is translated into another language for the benefit of the users who are not familiar with the language of the original source, the translation becomes a secondary source. Some primary research periodicals in Russian, Chinese, and Japanese languages are translated cover-to-cover in English for English speaking users.

(iii) Tertiary Sources

Tertiary sources are based on primary and secondary sources of information and serve as key to the primary and secondary sources. Tertiary sources are usually compilation from primary or secondary sources and help the searcher to select required primary or secondary source which will be most relevant for his purpose. These publications do not carry subject information but guide the users to the source where information on that subject will be available. Under tertiary sources of information come publications like 'guide to the literature', 'guides to the reference sources', bibliography of bibliographies, etc.

In the order of appearance, first primary sources are published, then based on primary sources, secondary sources are compiled. Tertiary sources are third in the order of appearance and these sources are based on primary as well secondary sources and serve as guide to primary as well secondary sources.



INTEXT QUESTIONS 5.3

1. How do you categorize documentary sources by content?
2. What are primary sources? Discuss with examples.
3. What are secondary and tertiary sources? What purpose do they serve?

(b) Documentary Sources of Information (By Form)

Based on their physical form, recorded sources can be broadly grouped into:-

- Paper Based Documentary Sources; and
- Documentary Sources on Other Media

Paper Based Documentary Sources

Paper based documentary sources include published as well as unpublished sources. Published sources are those sources which are printed in large number of copies by publishers. These sources are usually priced and meant for public use.

Unpublished sources are not printed. Only a few copies are produced which are meant for restricted circulation. Examples of unpublished sources of information include thesis and dissertations, technical reports, manuscripts, etc. These are further described in Lesson 6 of this module.

Documentary Sources on Other Media

As we are aware, recorded sources are available in a wide range of formats, which may be audio, audio-visual, electronic media, optical media or microforms. We can categorize these into the following:-

- a) Sound or Audio recording: Audio cassettes, Audio tapes, etc.
- b) Visual images Still: Slides; Filmstrips; Transparencies; Photographs.
- c) Visual Images- Moving: Films; Videotapes; Video disks, etc.
- d) Artifacts and Realia: Globes; Relief models, etc.
- e) Electronic Media: Magnetic tapes, Discs, Drum, etc.
- f) Optical Media: CD-ROM, DVD, Blu-ray Disc, etc.
- g) Microforms: Microfilms, microfiche, etc.



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Information sources in different formats serve different purposes. Some of them are used as supporting tools for teaching and learning, some for archival purposes and some of them are used as storage devices.

Different audio-visual aids, which one can hear as well as see, enhance learning process. It has been observed that on an average you can retain 10 % of what you read, 30 % of what hear and 50% of what you hear as well as see and 90% of what you do.

Visual aids such as slides, transparencies, photographs, etc. are very effective in conveying information and message particularly to people who cannot read. Moving visual images like films, video tapes, video discs, etc. are more effective in information transfer than the still images like photographs, transparencies, slides, etc. CD-ROM (Compact Disc Read Only Memory) and DVD (Digital Versatile Disc) are good storage as well as learning devices. One CD-ROM (12 cm in diameter) can store as many as 325,000 pages of information. You will learn more about these sources in subsequent sections.

Microforms contain reduced images of books, maps, charts or photographs. Microforms presently are used for preservation of information contained in old and rare documents. For reading what is stored in microforms, you need a microfilm reader printer, which enlarges the image so that it can be read by naked eye and printed if desired.

Sound or Audio Recording: All of us are familiar with audio cassettes and audio tapes we use at home for listening to music. Now to enhance learning many publishers are offering their books in print as well as in other media such as on audio cassettes, CD, MP3-CD, and cassettes. Some websites offer free audio books, which one can download on iPod, MP3 player, and smart phone. (<http://www.booksshouldbefree.com/>)

Artifacts and Realia

Artifacts are hand crafted objects made by human skill or works that are historically and archaeologically interesting, for example a tool, cave painting, etc. 'Realia' is a term used in library science and education to refer to certain real life objects. For example, different types of woods or fabrics or coins or any other object that help in understanding things better are termed 'realia'.

Electronic Media

Electronic media are media that require electronics or electromechanical energy to access the content by the end-user. The primary electronic media sources

**Notes**

cover video-recordings, audio recordings, multimedia presentations, CD-ROM, and on-line presentations. Although the term is usually associated with content recorded on storage medium, recordings are not required for some electronic media like live broadcasting and online networking. Any equipment used in electronic communication process (such as television, radio, telephone, desktop computer, video games, console, and handheld devices) also comes under electronic media.

Magnetic Storage Media

Magnetic storage devices store data on surface coated with a magnetic substance. This covers analog as well as digital magnetic storage media. Magnetic media include audio and video recordings which contain reel-to-reel tapes, audiocassette tapes and video tapes which magnetically store sound and pictures. Three common types of magnetic storage devices are tapes, discs and hard drives. Tapes were the first type of magnetic storage media. It is either reel-to-reel or in cartridge form. Tapes are inexpensive type of magnetic storage but they are slow. You must either rewind or advance the tape to access the required data. Tapes now have limited role because magnetic disc has proved to be a superior storage device. Further in discs, data can be accessed directly as opposed to data on tape, which can be accessed only sequentially. Discs like floppy discs transfer small amount of data either between computers or to backup discs. Nearly all computers used to have floppy drive, but they have since been replaced by CDs or DVDs or Blu-ray Disc. Hard drives can store vast amount of data and are called random access device, which means you don't have to search through hard drive to find data before retrieving it.

Optical Storage Media

Optical media are storage media that hold the content in digital form and the content are written and read by LASER. These media include CD-ROM, DVD Blu-ray Disc and all variations of the first two formats, such as CD-R (Read only), CD-RW (Re-writable), DVD-R, DVD-RW, etc. A DVD has more data storage capacity than a CD and has better sound and picture quality. A CD has storage capacity of about 700 MB where as a DVD can store about 4.5 GB of data. CD-R and DVD-R record data only once and the data become permanent on the disc. Some discs, such as CD-RW and DVD-RW are re-recordable. The data on these discs can be erased and re-recorded a number of times without damaging the disc. Blu-ray Disc is a high density optical storage device and can store 25 GB (single layer) to 50 GB (double layer) data on a single disc. Blu-ray Disc is used as a recording medium for video material, such as feature films.



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Microforms

Microforms contain reduced images of books, newspapers, maps, photographs, etc. for storage and preservation purposes. In microforms, the text or images of the documents are photographically reduced. When it is in the form of roll film (similar to the film in ordinary camera) it is called microfilm(fig.5.1) When it is in the form of a flat card size sheet (4x6 inches) it is called microfiche (fig. 5.2) Because these images are reduced in size microform can store large amount of information in a small place. The material recorded on the microfilm can be read by using a *microfilm reader*. This machine enlarges the image on the film and projects them onto a built-in screen. In libraries, very old, valuable and fragile documents are often microfilmed to provide public access to these documents without risk to the originals.

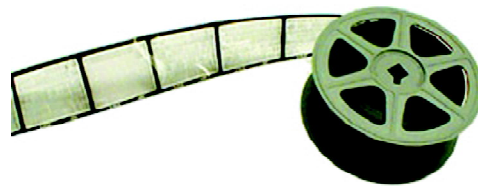


Fig. 5.1 A roll of microfilm

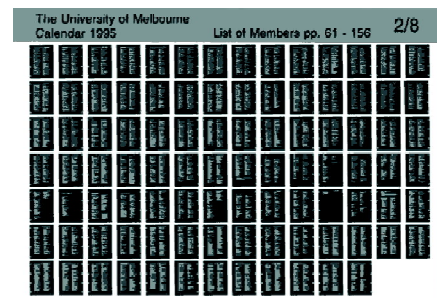


Fig. 5.2 A Microfiche



INTEXT QUESTION 5.4

1. How do you categorize documentary sources by physical form? List the categories with examples.

5.5.2 Non-Documentary Sources

Non-documentary sources of information are those sources which are not recorded in any form. Under this category come:-

- i) Humans
- ii) Organisations
- iii) Mass Media other than print media, and
- iv) Internet

Humans

Humans serve as useful sources of information for latest information which has

**Notes**

not been recorded in any form. Humans, ranging from experts to common man act as important sources of information depending upon the nature of information required. For instance, in case of an accident, the people who are present at the accident site can serve as useful witnesses. Similarly, an expert's opinion is very valuable, when a researcher encounters some problem while carrying out research and a solution is immediately required.

Organisations

Organizations are important sources of information. Organizations like academic institutions, R&D institutions, museums, archives, publishing houses, government establishments, etc. provide authentic, reliable and timely information in their specific area of activity. Such information at times is not available elsewhere.

Mass Media

The medium by which news and information, etc. is communicated to general masses, i.e., the public, is called mass media. Mass media includes press (newspapers, magazines, etc.), radio and television. Of these, radio and television have been found most effective. The main advantage of television is that it brings sight, sound and action directly to users in their homes. Radio stations located at various regions in the country broadcast news (local, regional, national and international), entertainment, musical, sports and educational programmes of various kinds. Radio stations broadcast suitable programmes for all groups of people including men, women, children, farmers, professionals and others. Similarly, television is the most popular mass media offering range of programmes through hundreds of channels. You must have noticed that there are special television channels devoted exclusively to telecast news, movies, music, sports and games, religious discourses, tourism and travel, fashions and styles, wildlife, history, science and technology.

Internet

Internet is another very important source of information. Internet is interactive digital media and is different from the traditional media such as print and television. World Wide Web (WWW), also called Web, is collection of websites on the Internet. WWW offers information on any topic you want. Whatever the topic may be, Web always has some website on that topic. The Web gives you latest news of any event in any part of the world. Often, news is available before it is broadcast by other media. The Web is a source of information for companies, business houses, educational institutes, government departments and individuals. Many educational institutes in India and abroad put useful information on the Web, such as about their activities, courses offered, fee and



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other details. On this media individuals can interact, exchange ideas, share information, provide social support, and conduct business. Using Web you can shop, operate bank accounts and transact business, purchase airline, rail tickets, and even cinema tickets, play games, watch movies, listen to music and much more.

Type of Information Sources

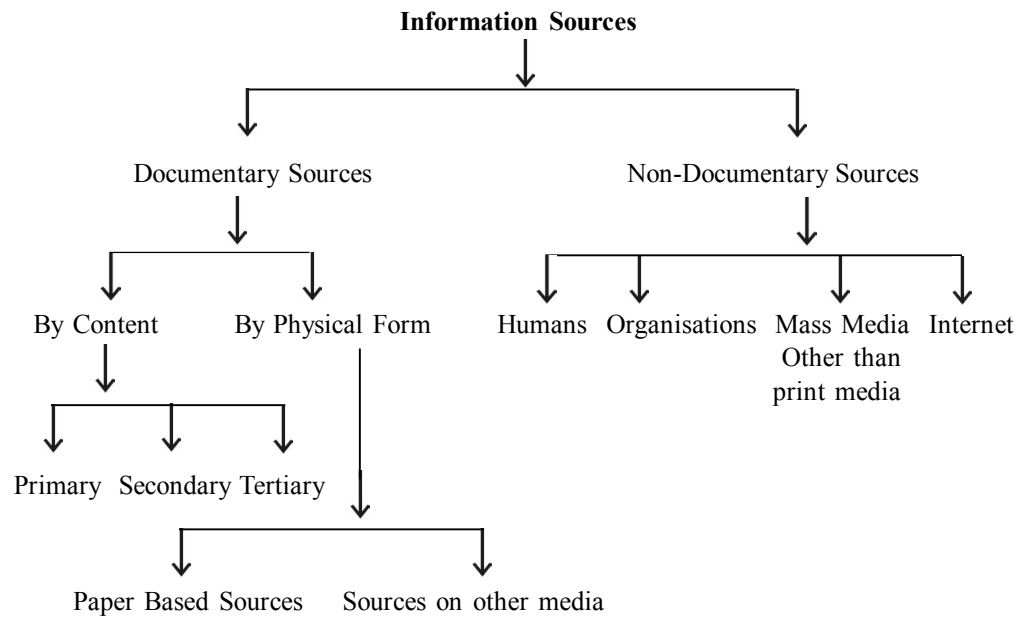


Fig. 5.3 Types of Information Sources



INTEXT QUESTIONS 5.5

1. What do you understand by non-documentary sources?
2. List the categories of documentary sources.

5.6 DEVELOPMENT OF INFORMATION SOURCES- HISTORICAL OVERVIEW

You have learnt in the previous sections about different sources of information and how we categorize them. The description of information sources is not complete until we study how these sources have developed over a period of time. In this section you will study in brief, the historical development of these sources.



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5.6.1 Early Books

Before the invention of paper in 105 A.D. by the Chinese, the media and methods of recording information were different. People used cave walls or stones, clay tablets, metals (lead, copper, brass and bronze), linen, wooden boards, wax coated wooden tablets, papyrus, parchment and vellum till the invention of paper. People in India used palm leaves. The ancient Hindu religious writings called the 'Vedas' were originally written on palm leaves.

Invention of paper in 105 A.D. by Chinese is landmark in the history of writing media. The Chinese art of papermaking spread to other parts of the world. People started using paper for writing. Earlier books were written by hand by professional writers called scribes. Most books written during that period (400 A.D. – 1400 A.D.) were decorated with beautiful, colourful designs and pictures drawn on each paper. Because of the high cost and time involved in making these books, the books were not available for public use. Only a few privileged people like religious leaders or rulers belonging to royal families had access to these books.

5.6.2 Development of Printed Books & Other Sources

The Chinese made the first known printed book called *Diamond Sutra* in 868 A.D. using **block printing** method. The book as we know today resulted from the invention of printing with *movable type printing press*, developed by **Johannes Gutenberg and his associates**, in 1450 A.D. in Europe. With the invention of printing press, it became possible to print books quickly and in large numbers. The books became available to masses. Printing quickly became the most important means of mass communication. Printed books also brought many changes in libraries. Books gradually replaced handwritten manuscripts. The books were put on open shelves, not in chest, as the manuscripts had been kept in the past. By 1600, libraries had started to look like present day libraries. In 1600 A.D., the art of printing was also used in business. Printed news sheets appeared in the Netherlands and other trading nations, which reported mostly business news like 'which ships had landed' and 'what goods they carried'. The news sheets also included advertisements. These news sheets soon added non-business news and became the first true newspapers.

5.6.3 Emergence of Periodicals

During early 17th Century the scholars and scientists who carried out research, published their findings in the form of books. They found that this medium was unable to disseminate research results quickly. Each scientist had to work for years to collect enough findings, so that these could be published in the form of book. The only other way they communicated with their fellow scientists



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about their research was, by writing letters to them or by meeting them in conferences. This was informal communication. They needed a formal and quicker medium to disseminate their research results to avoid duplication of research effort and establish priority in announcing their invention. This led to the publication of periodicals. The first periodical was '*Le Journal des savans*' (Journal of Learned Men), which was published in January, 1665. It was in French language. In the same year, The Royal Society of London published a monthly scientific periodical '*Philosophical Transactions*'. The first issue was published in March, 1665. These two journals served as models for subsequent scientific periodicals founded by learned societies and academic institutions.

5.6.4 Emergence of Electronic Sources

In late 1800's, a number of inventions, like typewriter, telegraph, and telephone helped quicker dissemination of information. By using the telephones and telegraphs, one could send long distance messages instantaneously through electric wires. In 1895, inventors used a branch of science and engineering called electronics to send signals through space. In electronics, electromagnetic waves are used to carry signals, which travel through space at the speed of light.

Practical applications of electronics led to the invention of radio (in 1906), television (in 1936), computers (in 1950s) and other wonders of modern communication.

5.6.5 Emergence of Mass Media

Mass medium (plural mass media) is any form of communication such as the press, television, radio, and motion pictures, which reaches a large number of people. An important advancement in printing came in 1811, when a German printer named Freidrich Koenig used steam engine to power the printing press. This invention allowed newspapers to print large number of copies at low cost, thereby making mass circulation of newspapers possible. '*The Times*' newspaper of London was the first to use Koenig's press in 1814. At present, radio, television and films are the most powerful mass media in India.

5.6.6 Emergence of Internet and World Wide Web

Advances in computers and telecommunication technologies in the 20th Century led to the emergence of electronic sources of information, digital or electronic libraries, Internet and the World Wide Web. Internet is a global system of interconnected computer networks that serves billions of users worldwide. The origin of Internet dates back to 1960, when the United States Department of Defence initiated a project to build a computer network, ARPANET (Advanced Research Project Agency Network) that could maintain itself in adverse



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conditions. By early 1970s, computer power, speed and memory increased and so did the ability to communicate with remote computers over the existing telephone lines on the Internet. At that time dial-up online searches on the Internet were very expensive. Usage of Internet was limited till the advent of World Wide Web or Web in 1990s. The emergence of World Wide Web coupled with the coming up of a large number of Internet Service Providers, offering Internet services to masses, resulted in phenomenal increase in Internet usage in the world. The Internet allows millions of people, all over the world, to communicate and share information.

**INTEXT QUESTION 5.6**

1. Fill in the blanks with appropriate words:-
 - a) The first printed book published by the Chinese was _____.
 - b) Johannes Gutenberg invented _____.
 - c) Advances in computers and communication technology led to the emergence of _____ sources of information.
 - d) Paper was invented in _____ by _____.
 - e) In _____ the text and images of documents are photographically reduced.

**WHAT YOU HAVE LEARNT**

- Sources from where we get information are called information sources. Information sources are of two types, i) Documentary Sources and ii) Non-Documentary Sources.
- All recorded sources are documentary sources. All non-recorded sources are non-documentary sources.
- Based on the Information content and organizational level, a documentary source may be primary, secondary or tertiary source.
- Based on physical format, a documentary source may be either on paper based media or on other media.
- Primary sources contain original information and are in large number and widely scattered. Periodicals, technical reports, dissertations and theses, patents and standards are primary sources of information.

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- Secondary sources of information are based on primary sources and present the contents of primary sources in condensed form and list them in helpful way, so that the existence of primary documents is known and access to them is made easy.
- Secondary sources can be grouped under four broad types viz. i) Index/ Abstract type, ii) Survey type, iii) Reference books, and iv) Translations.
- Tertiary sources of information are based on primary and secondary sources of information and act as key to the primary and secondary sources.
- Based on their physical form, documentary sources are either on paper based media or other media. Paper based documentary sources include published as well as unpublished sources.
- Documentary sources on other media include photographic, electronic, magnetic and optical media.
- Non-documentary sources of information are those sources which are not recorded in any form. These sources comprise Humans, Organizations, Mass Media (Like television and Radio); and Internet.

**TERMINAL QUESTIONS**

1. Describe primary, secondary and tertiary sources of information giving example of each type.
2. What are non-documentary sources of information? Discuss their importance in our day-to-day life.
3. Briefly describe the history of development of information sources.

**ANSWERS TO INTEXT QUESTIONS****5.1**

1. The facts, data, ideas, and creative works of human intellect and imagination communicated formally or informally in any form, are called information. Information can be transported, stored or shared without any difficulty.
2. The sources from where we get information are called information sources and these comprise documents, humans, institutions as well as mass media like radio and television.



Notes

5.2

1. All recorded sources of information irrespective of their content and form are documentary sources. These may be published or unpublished, in print or in electronic form. These may be books, periodicals, magazines, or reference books and others.
2. Documentary Sources can be categorized based on their information content and physical form (or media).

5.3

1. Based on the information content and organizational level documentary sources can be categorized as i) Primary, ii) Secondary, and iii) Tertiary sources of information.
2. Primary sources are those sources which contain original information that has been published, reported or recorded for the first time and has not been interpreted, commented upon, summarized, translated or evaluated by a secondary party. Primary sources include new raw data, new interpretation of previously known facts or idea, any new observation or experiment etc. Primary periodicals, newspapers, technical reports, dissertations, conference papers, patents, standards, trade and product bulletins are primary sources of information.
3. Secondary sources of information are based on primary sources and present the contents of primary sources in condensed form and list them in helpful way, so that the existence of primary documents is known and access to them is made easy. Tertiary sources of information are based on primary and secondary sources of information and act as key to the primary and secondary sources.

5.4

1. Based on their physical form recorded sources can be broadly grouped into i) Paper Based Documentary Sources and ii) Documentary Sources on Other Media. Paper based documentary sources include published as well as unpublished sources. Examples of unpublished sources of information are thesis and dissertations, technical reports, manuscripts, etc.

Documentary Sources on Other Media can be categorized as follows:-

- a) Sound or Audio recording: Audio cassettes, audio tapes, etc.
- b) Visual images –Still: Slides; Filmstrips; Transparencies; Photographs.



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- c) Visual Images- Moving: Films; Videotapes; Video disks, etc.
- d) Artifacts and Realia: Globes; Relief models, etc.
- e) Electronic Media: Magnetic tapes, Discs, Drums, etc.
- f) Optical Media: CD-ROM, DVD, etc.
- g) Microforms: Microfilms, Microfiche, etc.

5.5

1. Non-documentary sources of information are those sources which are not recorded in any form. Examples of non-documentary sources of information are humans, organizations, mass media other than print media, and Internet.
2. On the basis of contents, there are three categories of documentary sources: (a) Primary (b) Secondary (c) Tertiary and two on the basis of physical forms: (a) Paper based sources (b) Sources on other media.

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1. a) Diamond Sutra; b) Movable type printing press; c) Electronic; d) 105 A.D. by the Chinese; e) Microforms.

GLOSSARY

- Access:** To retrieve data from computer.
- Blu-ray Disc:** Blu-ray refers to the blue LASER used to read the disc, which allows information to be stored at a greater density than is possible with the longer wavelength red LASER used in DVDs.
- CD-R:** Compact disc recordable- data can be recorded once and can be read multiple times.
- CD-RW:** Compact disc rewritable- data can be recorded and erased multiple times.
- DVD-R:** Digital versatile disc recordable- data can be recorded once only and can be read multiple times.
- DVD-WR:** Digital versatile disc rewritable- data can be recorded and erased multiple times.
- Index:** List of names, subjects, topics etc. arranged alphabetically with an indication to exact location.
- LASER:** Light Amplification by Stimulated Emission of Radiation.

SUGGESTED ACTIVITIES

1. Go to a public library. Search for one each, a primary, secondary and tertiary source of information. Write down the title of each source.
2. Ask the librarian how they arrange their CDs, DVDs, audiotape and videotape collection. Write down details of the same.



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