UGC NET - LIBRARY SCIENCE

SAMPLE THEORY

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Library and Information Science

Library and Information Science: Library and Information Science is concerned with the body of knowledge relating to the origin, storage, retrieval, transmission and utilization of information. The term "library science" first appeared in the early 1930's, in the title of Dr. S. R. Ranganathan's "The Five Laws of Library Science" and in the title of Lee Pierce Butler's 1933 book "An Introduction to Library Science". In 1959, Information Science began to be used in USA as a general brand for documentation which is summarized as a discipline that investigates properties as well as behavior of information, forces governing the flow of information and the means for processing information for optimal accessibility and usability. In recent years, the trend is to term the subject as "Library and Information Science (LIS)" by merging both the concepts, and it is the study of issues related to libraries and the information science. This includes academic studies regarding how library resources are used and how people interact with library systems. These studies also tend to be specific to certain libraries at certain times. The organization of knowledge for efficient retrieval of relevant information is also a major research goal of LIS.

According to Borko, Information Science is an interdisciplinary science that investigates the properties and behavior of information, the forces that govern the flow and use of information and the technique, both manual and mechanical, of processing information for optimal storage, retrieval and dissemination. He further stated that information science has both pure science components which enquire into the subject without regard to its application and applied science components which develop services and products. Librarianship and documentation are also the applied aspect of information science.

According to J. H. Shera, Librarianship is the generic term and information science is an area of research which draws its substance, method and techniques from a variety of disciplines to achieve and understand the properties, behaviour and flow of information. Information science contributes to the theoretical and intellectual base for the librarians operation.

According to C. G. Viswanathan, Information science is concerned with the principles and techniques governing the transfer and communication of organized thought (knowledge) from one human to another and ultimately to society.

According to P. B. Mangla, Information science is a discipline which is concerned with the study of the properties and behaviour of information as well as the forces influencing the flow of information.

According to P. H. William both library science and information science are swiftly developing subjects and so the relation between them is in a constant stage of change.

However, there are many thinkers who see the library science and information science as overlapping discipline.

The Library and Information Science is at the cross road of science seeking a basic principle which would bring together the knowledge in a general framework in which each discipline would have its own place and in which its relationship with other discipline would be clearly perceived. The activities and programmes in LIS often overlap with the activities of computer science, various social sciences, statistics, and system analysis.

Many practicing librarians do not contribute to LIS scholarship but focus on daily operations of their own library systems. Other practicing librarians, particularly in academic libraries, do perform original scholarly LIS research and contribute to the academic end of the field. On this basis, it has sometimes been proposed that LIS is distinct from librarianship, in a way analogous to the difference between medicine and doctoring. In this view, librarianship, the application of library science, would comprise the practical services rendered by librarians in their day-to-day attempts to meet the needs of library patrons. Some other scholars are of the view that the two terms do not make any distinction and can be treated as synonyms.

Information Society

Information Society:

The society has created various institutions. These social institutions make a person part of the society. Each institution serves one or few needs of the society. A library is a social institution and it has been created to fulfill all the needs of the society. In the library, the

people are exposed to books or a variety of documents that give knowledge, bring to surface one's latent aesthetic talents, stimulate one's intellect, inculcate values and learning skills, provide one with recreation and so on. Therefore, of all the institutions formed by society it is the library and its modern cognates that are the most potent in meeting the multifarious needs of different users of modern society. A public library provides free service irrespective of status, age, religion, colour or creed, and sex. It may extend service to the neo literates and even to the physically handicapped people.

A society is composed of people working together to achieve common ends and to satisfy common needs. It is a body of individuals that is outlined by the bounds of functional interdependence, consisting of different characteristics or conditions such as national or cultural identity, social solidarity, etc. It is characterized by patterns of relationships between individuals that share a distinctive culture and institutions.

A society is an economic, social or industrial infrastructure, made up of a varied multitude of individuals who may or may not be from different ethnic groups. Modern society is heading towards an information society in which the central instrument of change, the force and direction of change are knowledge and information.

All information societies, ancient, medieval or modern, have functioned and prospered on the basis of proper utilization of information and knowledge in their various stages of development. The term information society is said to have been coined in Japan for the first time. The two Japanese cognates "Joho Shakai" when normally translated into English means "Information Society". The American Society for Information Science (ASIS) in 1970 organized its annual meeting around the theme "The information conscious society", where the concept of information society was explicitly used.

1. **Definition:** William J. Martin defined information society as "a society in which the quality of life as well as prospects for social change and economic development depends increasingly on information and its exploitation". In such a society, living standards, patterns of work and leisure, the education system and the market place are all influenced markedly by advances in information and knowledge. This is evidenced by an increasing array of information

intensive products and services that communicate through a wide range of media, many of them being electronic in nature.

According to Blaise Cronin, "an information society is one in which labour has been intellectualized, one in which the expression to earn one's daily bread by the sweat of one's brow sounds decidedly anachronistic". Employment in the information sector of the economy is growing fast. Soon, terms such as information worker, knowledge engineer, ideas processor will be as common as weaver, miller, electrician, carpenter, etc.

G. P. Sweeney defined information society as one "in which the creation of economic wealth is based on information and in which key economic activities are enquiring, communicating and deciding" for good or ill. Martin is of the view that "the concept of an information society has now gained a fair degree of acceptance". As a concept it is certainly viable.

2. Criteria of an Information Society: William J. Martin has noted the following criteria for the development of information society.

a) Technological Criteria: Today's age is the computer age in which computers and telecommunication are behind every other change in the society. Communication technologies such as tele-education, teleconferencing, teleshopping, telecommuting, e-government, e-commerce have converted the world into a global village and its impact can be felt at every level of our society.

b) Economic Criteria: This is the age of knowledge in which knowledge capital would predominate over material capital. The Internet is fundamentally changing the way the companies operate. The Internet is turning the business upside down and inside out. The e-commerce goes far beyond the buying and selling over the Internet. The information workers are replacing productive worker as the biggest sector in the economy. Information is turning out as the key economic factor as resource, service, commodity, a source of added value and employment. In the information society most of the information will be cheaper, would occupy less space and can be communicated with greater speed.

c) Social Criteria: In information society, information is the enhancer of the quality of life. The information society will be conscious towards the value of information and its use and will become increasingly centered on information handling, processing, storage and

dissemination using micro electronic based technologies. Globally the society has got divided into two parts, i.e information rich society and information poor society.

d) **Political Criteria:** In information society there would be more interaction between the government and the governed through citizens' participation by way of electronic polling, their access to public information under the concept of freedom and equality of access to information. There will be better interaction with fellow citizens through wired networks, telephone, teleconferencing, etc. The information superhighway will change the whole world.

e) **Cultural Criteria:** The information society recognizes the cultural value of information through the promotion of information values in the interest of national or individual development.

In an information society, it is said, a majority of the people will spend their time doing tasks which relate to information, expressing, gathering, storing, retrieving and disseminating it. People in an information society will manipulate information for the purposes of travel, entertainment, instruction, control and so on.

Information as a Resource / Commodity

Information as a Resource / Commodity: The concept of information as commodity is wider than that of information as resource, as it incorporates the exchanges of information among the people and related activities as well as its use. The notion of information as a commodity is tied closely to the concept of value chains. With commoditized information gaining in value as it progresses through the various steps of creating, processing, storage, distribution, and use.

a) **Information is a Resource / Commodity:** Information possesses many characteristics that are the same as those of some other commodities. When we consider such characteristics, information can be termed as a resource and a commodity in a broad sense and people at large have accepted this view.

i) **Information is a Natural Resource:** Many resources were earlier taken for granted as common for all. For example, clean air and water. Information has also been similarly

understood. Whoever is interested can get enough information for his daily needs through institutions established for that purpose. But specialized information is made accessible to those who have special needs and can legitimize its claim by status or by money. Just like the maintenance of clean air and water, the proper information demands some cost.

ii) **Information is a Vital Resource:** Information is looked upon as a resource like manpower, material and money. Information is a resource created by ingenuity of man to be used by man for the benefit of man; it can be used for the opposite also. According to K. J. McGarry, information becomes a resource by analogy with the classic resources of labour, capital and material. Management of these classic resources (man, material and money) now mutates to the "management of information". It is easy to see how information can be depicted as a resource as essential to productive success as are raw materials and skilled staff. But information needs to be controlled, manipulated and managed.

According to W. L. Saunders, information is that type of resource which is not scarce. It has also economic value as when company uses the information effectively, the level of trade and revenue are maximized. Information and knowledge become the principal generators of wealth in the form of educational institutions of research and development establishment and science laboratories.

No national development programme can succeed fully without proper information support. As such, it is regarded as a national resource like energy, coal, water, etc. vital for national development. It is an important input for nation building. The impact of fast, reliable and inexpensive information would be as great as that of electricity in national and international economy. IBM, the giant computer company, says that information is like an inexhaustible and renewable source of energy.

iii) **Information is a Major Criterion:** Information is vital for national development. The backwardness or forwardness of any county nowadays is mainly due to the use of adequate information, especially in the field of science and technology. Presently the world is divided on economic consideration into economically developed and economically developing countries. According to Herbert I. Schiller, in future the division will be based on possession

of information into information rich or data rich nations and information poor or data poor nations.

iv) **Information as a Thing:** Buckland points out that in order to communicate knowledge it must be expressed or represented in some physical way as a signal, text or communication. Any such expression would, therefore, constitute information as a thing. The notion of information as resource attracts information economics and spreads to such diverse disciplines like management, transport and communication, consolidation and repackaging, pricing, marketing, distribution, exchange, etc.

v) **Satisfies the Economic Principle:** Information satisfies the economic principles of generation or gathering, processing, storage, dissemination, etc.

- **Demand / Market:** Information has a wider market. All people need information for some purpose or the other. There is a heavy demand for information from all around the world, so to get profit out of it, its production rate must increase.
- **Information Generation:** Information is generated mainly through research activities and research activities are highly price consuming business, which is just like other product whose production or manufacture involves a high cost.
- **Protection:** Information as a resource has been well established which is evident from the profusion of national and international laws and policies relating to storage, transmission and information related services including trans-border data flow. Just as in the case of various commodities or products, information is also protected by copyright and patent. However, the property right of information is weaker than the property rights of other goods we possess.
- **Consumption:** Information does not always flow across market. Within some private sectors information produced is entirely consumed within the organization itself, which is in the same line of other goods.
- **Different Forms of Products:** For the different categories of users, different forms of information are released into the market. In this regard it is just like any other services provided in the market place. Information is provided through books, magazines, business, news, investment, advice, legal advice, medical advice, consulting services, formal

education through school, colleges and universities, etc. So, we do have markets for information and people buy it depending on its perceived value. In this respect information is like other goods and services.

- **Transportation / Communication:** High cost is involved when we use the information technology for communication and transportation of information just like any other product.
- **Storage:** If information is stored for a long period just like other consumable products it loses its value because particularly in case of science and technology, historical information is generally less valuable.

b) Information is not a Resource / Commodity: Judith Jordet complains about the notion that information is a commodity. According to him, this notion will not only interfere with real knowledge creation, it will unravel what knowledge we have! When information is seen as a commodity, the users are seen as customers consuming a commodity identified as information. Users define usefulness. If it is not used, it is not useful. But in reality, how many users use all the information that are the product of large research investment, is itself a question. Again, against the view of information as a resource / commodity, the following arguments can be offered-

i) Shareable and not Exchangeable (Public Good): Most of the goods and services have the property that more for you means less for me; but in case of information, more for you does not mean less for me. Passing of information is not losing it.

ii) Assigning Value: It is very difficult to assign values to ideas because different people need information in different depth.

iii) Tax: Tax is not levied on information generation or its consumption; so it is not a commodity.

iv) Publicity: Before buying any other product or goods people know ahead of time what they are going to buy, but in case of information one will not be able to know the whole thing before buying it. If one knows the whole thing, then they may not feel the need to buy it.

v) Expandable and Compressible: Information increases with use, it can be expanded and compressed i.e it can be summarized, integrated, etc.

vi) **Non Materiality Problem:** The non-materiality of information creates several problems in respect of measurement, appropriateness, ownership, impact, costing, etc.

Information does not possess each and every property of other general resources or commodities but at the same time we also should not expect it to be. The people at large are favouring the view that information is a resource and a commodity.

Role of Information

Role of Information: From the primitive days of human civilization to the present day information has always been a component of growth and development and improvement of the living standard. Nowadays, the information has come to occupy the central position to be reckoned as the driving force for all human development. It is clearly interlinked with the growth and development in economic, political, social, occupational, cultural and other sectors of the society. Information and knowledge have become the principal generator of wealth in the form of educational institutions, research and development establishment, scientific and technological centres and other similar knowledge oriented bodies.

The impact of information and knowledge is seen in a number of human activities centering on information. Some of these which will give a cursory account of societal changes taking place in a few sectors are as follows:

a) **Education:** Education is the process of acquiring general and specialized knowledge by means of study and learning that develop intellectual power of reasoning and judgment. At no point of time in the life of a person does education really terminate and in real sense it is a continuous process. While IT provides easy and effective access to the different types of educational kits, information is the life blood of education. It is the essential ingredient in new ideas, in course content and curriculum development, and in the creation of material and methods of technology and learning. Students need information for pursuing academic studies; teachers need information for teaching their students.

b) **Research and Development:** Research is a never ending spiral activity. It aims to provide solution to problems. The inputs as well as the output of research are information. So information is the life blood for research and development. The quality of information content

alone will determine the success or growth and development of research. Researchers need information on a continuous basis for conducting research works.

c) **Management and Decision Making:** We are living in a world of change. We face complexities, uncertainties and risks unknown to our predecessors. The list of activities in our private life and its associated problems are virtually endless. In each of these personal activities decisions are required to be taken and information is needed to support the decision. People need information to make the best possible decision. People with information are likely to have better career opportunities and to be better equipped to make personal decision.

Information provides a means of improving the management of enterprises and services of all kinds. Information is needed by the decision makers in organizations. A common need basic to all decision makers is an understanding of the purpose of the organization, that is, its policies, programmes, plans and goals. The decisions to be made in an organization do vary and the information needs also vary. A manager needs information to choose the possible alternatives presented in terms of ranges of values of particular attributes. Information provides a wider knowledge base for the solution of any problem; it gives new alternatives and approaches to the solution of technical problems and opinions for minimizing future fault. It improves effectiveness and efficiency of technical activities in the production and service sector. So information is used for better decision making in all sectors and at all levels of responsibilities.

Governmental officials of different levels need information for decision making. They need census, weather and other related information. Legislators need information of different types to argue a point on the floor of the legislature.

d) **Daily Life of a Person:** Naturally, living today is quite different from what life was about a generation ago. Nowadays people in different situations require information on a subject in different forms and with different emphasis and different depth of explanation. An ordinary person in his daily life needs to have access to information on many of his daily activities. It may pertain to the quality, availability or cost of a number of things like articles of foods, health care, education, entertainment, travel, social security, etc. One may need information

on cooking, gardening, house decoration and maintenance, and a host of other subjects. In private life one needs information to organize vacation activities, to make intelligent purchases, fertilize a lawn, soup up an engine, prune a shrub, groom a pet, select a garment, vote for a candidate, choose a doctor or lawyer, protest a tax increase, evaluate career opportunities, pick an investment, select a course, make a trip, plan meals and so on. The list of activities in a private life is virtually endless.

e) **Business and Industry:** Information and knowledge are getting their appropriate place in enterprises that are not static, because it is increasingly being recognized today that external information on market, competitors, social and political environment, government regulations and trade and tariffs etc. are invaluable if an enterprise is to thrive. It is only due to the central role of information that business and industries are day by day inclined to invest in R & D to generate new knowledge which would ultimately provide them an edge over their competitors.

In business sector, information helps in telemarketing, better financial management, customer service, training, sales, product development, market intelligence, looking for customers, etc.

In industry, the types of information needed are not limited to production, but cover all aspects of industrial activity. The major types are: identification of product, determination of technical and economic feasibility including the potential for use of indigenous resources; outlets for disposal of waste either as saleable by-products or for further processing, market or marketing, etc.

f) **Scientific Development:** The increase in population has resulted in mounting social pressure for increased production, but as population increases, natural and near natural commodities start depleting. So there is an urgent need for exploitation of new resources, creation of artificial commodities. All these developments are impossible without the use of proper information and immediate use of new scientific discoveries.

Air transportation, the concept of global village, satellite communication, nuclear energy, exploitation of outer space, improvement in agriculture, health, environment, etc are some of the results due to exclusive use of information in the field of science and technology.

g) **Government:** Information improves the capacity of a country to take advantage of the existing knowledge and "know how" to achieve success in various fields. So, the governments of almost all the countries of the world are the largest consumers of information and knowledge. In their commitment and responsibility to create a welfare state, they need information and knowledge on every conceivable subject. They collect, organize and disseminate statistical data on all its activities which constitute the most important and vital information resources for their planning and later implementation and execution.

All ministries of the government need up to date and timely information on the overall management of the country's resources and general administration. Management Information System (MIS), Decision Support System (DDS) are widely used in planning and policy making.

h) **Socio-Economic Development:** The role of information in socio-economic development can be viewed from the following angles

i) **Entertainment:** With the viewer's complete control over programmes, interactive television (watch a missed TV show).

ii) **Health Care:** With information sharing and even diagnosis and treatment by means of interactive video link-up.

iii) **News:** With consumers able to point and click to select information for personally tailored news items.

iv) **Home Shopping:** With a 24 hours a day, virtual global mall accessed by two way video and digitized sales.

v) **Security:** Electronic fingerprint, retina scanning, voice recognition, DNA finger print, signature dynamics.

Today, information has become a great source of power as a principal driving force for the acquisition of wealth, political strength and more knowledge etc. Information-rich countries of today are becoming even more powerful than the colonial powers of the nineteenth and early twentieth centuries, on account of their expertise in creating new information and knowledge and exploiting them for their advantage. Information is not only the source of power but also an effective power in itself if released in appropriate time.

Information Transfer Cycle

Information Transfer Cycle: Cycle means a series of events that are regularly repeated in the same order. Transfer of information from its generation to its end user becomes possible through many processes. These processes are also regularly repeated in the same order. These processes complete a cycle, which is called Information Transfer Cycle (ITC). The ITC comprises generation, collection, storage, communication and retrieval.

a) **Information Creation / Generation:** Information is created with the happening of incidents and activities of humans. If an activity or an incident does not happen, no information is created. Information is mostly created by research and development programmes, government activities, survey and census of population, business and industrial organizations etc. and presented in format by author, scientist, researcher, editor, writer, poets, novelists, dramatists, etc. Over the web, information is produced by the general people irrespective of their background and is not restricted only to academics such as scholars, scientists, etc.

b) **Information Production and Dissemination:** It is the mass production of knowledge through publishing companies or others that will help the mass distribution of knowledge in some physical or electronic form. Previously the information had been disseminated in the form of book. Many conventional and non conventional, printed and non printed sources of information are nowadays available which are different in shape, size, type and format. Over the web, the production is accelerated by posting the information electronically over some kind of websites. It speeds up the transfer of information globally at a rapid rate instead of taking months or years to get published on paper.

c) **Information Storage, Organization, Retrieval and Communication:** The storage is the process by which the information described and presented in the documents are stored. Information is collected and stored by libraries, documentation centers, information analysis centers, data banks, data centres, etc. Computer has been accepted as a boon for storing of information. It can store a huge amount of information in the form of database. Besides, the computer, disks and CDROMs are the newly developed and very significant tools of storing information.

i) ***Organization*** is how that representation of knowledge is found among others of its kind. In the library environment, the classification and catalogue, shelf list, various kinds of guides, etc facilitate the retrieval function. All these tools are equipped with controlled vocabulary. In the computer environment, organization is facilitated by databases, search engines, etc. Knowledge is individual and the users determine its usefulness; so keyword and natural language searching in computer environment is more attractive.

ii) ***Retrieval*** is a process of getting information from the collection of a library, for providing answer to the queries of the users, etc.

iii) ***Communication*** is the process of transmission of information from one place to another, from the creator of information to its users. It is necessary for the best use of the same. It is the process of social exchange. In the library environment, communication of information can be made through telephone, CAS services, SDI services, teleconferencing, e-mail, etc. Sometimes the publisher also brings different kinds of information sources to the notice of the user community.

d) **Information Diffusion and Utilization:** Diffusion is viewed as a more targeted flow of information to a particular segment of society. The diffusion of information should find its way to people who actually need it instead of targeting the people who will use it for their own benefit.

Utilization is the adoption and implementation of the knowledge by the user. Information is needed by each and every person of modern society for some purpose or the other. When information is consumed by one person it gives new dimension to his knowledge. This knowledge when he applied to some other purposes it gives birth to new information. Thus the information cycle is continuum in nature.

e) **Information Preservation and Destruction:** The different kinds of libraries, archives are trying to preserve information in different format. Over web, the Internet archive and the cached page of search engines are serving some purpose in this regard.

The information that is less frequently accessed or has met its assigned retention periods may be considered for relocation to an archive. Then from the archive, it needs to be weeded at some time or other by means of appropriate procedure for the content.

The meaning of information cycle relates to that unit of knowledge from where the information is generated and then transmitted to the users with the state of various processes. The whole process of information from its creation to its use is called the information cycle.