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Contents:

1. APPLICATION OF INFORMATION TECHNOLOGY IN LIBRARIAES IN DELHI: A STUDY—PAGES 1-14
2. Care and Maintenance of Library Materials: A Study—Pages-15-29

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Full Length Paper

Paper No-1

APPLICATION OF INFORMATION TECHNOLOGY IN LIBRARIAES IN DELHI: A STUDY

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INTRODUCTION

In the present day life, we are experiencing the use of technologies and as such the libraries are not an exception. The single force that has brought revolutionary changes in functioning of the libraries is Information Technology (IT). The application of these modern means have elevated and modern day library to a high pedestal improving and altering its image, functions and service to revolutionary extent and with great efficiency and effectiveness. The present century has marked a period of revolution with the new technology. Instead of 'paper', computer terminals, printers and other types of data

communicating devices have been used effectively. Telecommunication and computerization are being increasingly seen as the means to improve efficiency and the quality of "Library Service" has greatly improved with the introduction of computers.

The primary functions of a modern library or scientific library are to acquire information from books and non book materials, process them and to disseminate them to the right person in the right form and at the right time, in other words, quick and fast access to information.

Technological advancements have facilitated the designing of new library software and thereby making the delivery of information quicker, more convenient and highly efficient than ever before.

The information technology is therefore, a combination of computer and telecommunications techniques which makes possible new systems and products to help people at work, in education, and at home. It is thus, all about the application of a wide variety of electronic technologies to the information handling activities that are central to the operation of any organization. Today we are living in an information society. Information has become the lifeblood of complex industrial societies and is growing importance day by day. Information is obtained from the processing of data i.e. assembly, analysis of summarizing of data into a meaningful form. Rapid changes in technology and communication have raised the need for acquiring new skills and knowledge in present day work environment.

The primary benefit of IT as experienced is to have better access to information wherever it is available. This helps management to take right decisions at the most appropriate time. The IT also implies the management to be fair and frank with the employees as they too can have access to information. Thus, it has immense potential for a variety of applications in libraries too and therefore, the most talked subject now a days is the need for application of IT Libraries to meet the growing information requirements of present changing society.

Information Technology

The two words, information and technology, combined together, have acquired a special meaning in the last few years. The technology is signified materials, tools, systems and techniques, although modern definitions of technology vary and to Greeks technology meant a discourse upon the arts, pure and applied. In popular parlance information is Libraries, the printing industry, telephone exchanges television studios, computers etc. all encompassed some aspect of information technology but in fact, as recently as 1981, a British opinion poll (printed in The Times, 14th Jan.1982) indicated that 80 percent of those interviewed, was not heard of the term information technology.

In the Western industrialized world (i.e. Western Europe, North America and Japan in particular) people have suddenly become aware of this new Information Technology. In some countries, the governments have started recognizing Information Technology as an important factor in maintaining and enhancing economic well-being.

In Sweden, a Commission on New Information Technology has been appointed in 1981. Canada and United States have placed high priority in developing Information Technology. They claim that information will be more accessible and that more information at low cost will open opportunities for all, with the greatest gain being to those at present at a disadvantage educationally and 'informationally'. In Western Society, Information technology is now a means of wielding power. In view of these factors it was also vital for us to arrive at some understanding of new information technology and of the benefits it can bring to indifferent fields.

This is a generic term used to denote all activities connected with computer based processing, storage and transfer of information. It includes microprocessors, cable access television, fiber optics, satellites, teletext, word processing, electronic mail, video, robotics and such others. The word 'documentation' and 'information science' are considered synonymous to IT. It includes computers, electronic media, satellite, telecom, communications and reprography. Therefore IT is convergence of computers,

telecommunication and information. IT is tools and applications support through which or by means of which information is transferred, recorded, edited, stored, manipulated and disseminated to distances. Thus it is a science of information handling, particularly using computers to support the communication of knowledge in technical, economic and social fields. IT is various means of obtaining, storing and transferring information, using computers, telecommunication and microelectronic. It could affect society, organizations and people in ways other than making jobs more interesting in improving productivity, etc.

IT is now regarded as a major economic factor in the development of post-industrial society; the production and sale of IT goods have revitalized some sections of economy and to some extent, replaced some of the losses, brought about by the decline in manufacturing. IT is also an enabling technology. Since it contributes to economic growth and development by reducing costs, improving and / or extending services, strengthening competitive advantages.

In brief, IT is the use of computing power: typified by the ability of machines to contain and handle very large amounts of information within comparatively small physical space coupled with ability to extend these reasons apparently indefinitely through a variety of communication devices.

It is believed that in the 21st century, a new information society has to emerge in which electronic information will play key role. The primary technology to support an information society is the information technology, which obviously will move to occupy a centre stage role. Information Technology is the modern science of collecting, storing, manipulating, processing and communicating information. Computer and communication technology are the two main supporting pillars of IT; while information science and management science are the two basic discipliners for proper understanding and utilization of IT. Librarian's connotation of IT should also include all those technologies, which are used for collection; processing, storage, retrieval and dissemination of recorded information and are operative in library automation, library networking, reprography, technical communication and library administration and management environment.

Indian university libraries are still behind their counterparts in developed countries in the matter of the application of IT because our attitude to modernization of libraries is not governed by some basic convictions such as :

That information is a resource which has value;

That the utilization of information resources is dependent upon application of information technology (IT);

- That the value and contribution of information in development is dependent upon the individual capacity to access and utilise information;
- That information gains value with use and it should be made available to the broadest possible audience by managing it as a resource;
- That positive framework of librarianship concentrates on the needs, wants, desires and expectations of the library users and not on bureaucratic rules and regulations.
- That information handling activities shift with technological stage of mankind and every organization is expected to remain ahead of its customers;
- That convergence of traditional and digital culture enables the libraries to provide internal and external information as a unified transaction;
- That university libraries are no more sacred cows. They must learn the language of rupees and paise (i.e. efficiency, effectiveness, economy) in delivering of services, products and consultations, and
- That customer service with ease, convenience, comfort, speed, completeness and excitement has become the norm of the day.

In addition to the above factors, increasing cost of reading material, escalating exchange rates, tight budgetary ceiling, self-sufficiency movement and financial crunch have further enhanced the problems of the university libraries. But this situation cannot be allowed to continue indefinitely. The University Grants Commission (UGC) and other funding

agencies, such as INFLIBNET programme of the UGC came to the rescue of the university libraries in developing modern information infrastructure. Moreover, availability of other information providers in the market, raising expectations of users for fast, upto date, consistent, accurate, reliable, comprehensive and exhaustive information services have forced the university libraries to use computers for housekeeping operations and to access national and international networks. It is in this context that the application of IT to the university libraries is timely and required. The study therefore, is an effort to investigate the existing level of IT application in the University libraries of Jamia Millia Islamia, IGNOU and Jamia Hamdard and to identify the problems and prospects in this regard.

Hypothesis

Majority of academic libraries in Delhi have introduced IT. Among academic libraries, University libraries are in better position in the application of IT. They are using commercially developed software packages, viz., Libsys, VTLS, etc. There is an increasing trend in the provision of IT based services in the academic libraries. The services like acquisition, circulation; CAS, etc have been automated. All the libraries in Delhi have access to the networks like DELNET and INTERNET, etc. users are making use of computerized services and they are availing of on-line services as well. Factors like budget, training to staff etc. have caused hindrances for the provision of IT in academic libraries.

Most of the operations within library are inter-related, inter dependent and mutually supportive for the overall mission of library. Use of IT applications to interface and integrate each function with the other saves lot of staff time as the same data used not to be entered at every stage. The IT can be applied in four ways in libraries :

- * Library Automation
 - Information storage and Retrieval.
 - Office Automation.
 - Resource sharing network.

Resource Sharing Networks

The libraries are also using computers for resource sharing. It can be a part of local library network or part of large joint program, now widely known as 'Resource Sharing Networks'. Libraries having computerized their working and services can be linked with each other through a suitable telecommunication network system. The system enables the participating library to obtain material from each others collection in the form of list of books, indexes and abstracts of required article, facsimile copies of required pages or documents, charts, figures, graphs, drawings by using computer terminals attached to a large or very large network system and data bases coupled with visual display units (VDUs) and attached with printing facility. Information can be scanned first on the screen, and if required, relevant information can be obtained in the print out form.

Thus, IT has its use on the time, accuracy, efficiency and effectiveness of the various library and information services. Due to advantages of IT devices, it has become inevitable to adopt such technologies by the L&ICs.

Limitation of the Information Technology

While computers can be seen in most large libraries of many small ones, traditional library operations have not been substantially altered. The speed, manner and success with which utilizing new systems by the libraries are uncertain and depend upon the solutions to operational and philosophical problems. Some of the factors are responsible for lopsided applications of IT such as attitude, financial constants, user charges and lack of trained staff.

Information technology has played an important role in the work of the society and library and information centres. The success of a library depends to a large extent, on the effective organization of the house keeping activities. Automated library system offers convenient more flexible and comprehensive storage and retrieval of information than manual system. Future libraries need to adopt a more particularly structure, as impact of information technology can not be contained within one section of its service. In the years ahead, the quality of library and information service will be largely determined by librarian's

skills and imagination bringing into balance the needs priorities, technology and funding. Growing information could with the changing lifestyles and demands of clientele offers wide array of challenges to libraries.

The adoption of IT can be attributed to four factors:

- i) attitude and interest of the Library Authority;
- ii) availability of trained professional in libraries; and
- iii) adequate funding provision for library automation.
- iv) Evolving a policy on library automation.

Adequate flow of fund for the library may give ample opportunity for adoption of IT, which is sufficiently available in libraries of central universities institutions. Hence the library automation is not suffering from the problem of inadequate finance but the inadequate infrastructure to cope up with the task of adopting IT in their libraries.

Libraries are primarily built upon the contribution and dedication of library professionals. The professional manpower requirement is a basic need in which real growth and development of library occurs.

The impact of new technologies can be seen in almost every human activity. The change in the pattern of collection, storage and transmission of information are some of the major challenges in any library. The basic concept in the use of new technology is to free the librarian and information officer from the routine jobs connected with library operations in acquisition, classification, cataloguing, circulation control, serial control, etc. which can be entrusted to computer.

In this age of information, easy access to information is an essential prerequisite for the development of country, and hence, the Third World countries like India should make earnest efforts to concentrate more on developing and using new technologies that provide better access to information.

Research Methodology

A cursory review of library literature reveals that quality service of the library has some relationship with applications of IT. With this objective, the present study was conducted as a case study on 'Application of Information Technology in University Libraries of Delhi with special reference to JMI, IGNOU and Jamia Hamdard and the problems and prospects of adoption in the stated scope. The questionnaire was also prepared and distributed among University Librarians, Deputy and Assistant Librarians and users of the above mentioned university libraries. Interview and observation methods were also applied as and when required for authentic and detailed information.

The study has designed to reflect the application and updating of information technology and to make comparative study to the problems and prospects in modernizing these University Libraries. It also aims to discuss the organizational problems associated with the application of IT and to provide suggestions for future improvement of the IT environment in the said library. The study is also based on the literatures available and written on the subject and appeared in the journals and books of the Library and Information Science. The application of information technology and progress in this regard has also obtained from the libraries.

Findings & DISCUSSION

With rapid use of information Technology every organization whether big or small, is trying to adopt a computer system in their working set up and so in Libraries.

Organizations/libraries who can effectively manage to computerize their library and information activities have properly adopted IT. Although, this needs a survey, one can hypothesize that the application of IT in libraries is at the minimal stage. The application and use of IT can be attributed to four factors.

- Attitude and interest of the library authority.
- Availability of trained professional in libraries; and
- Adequate funding provision for library automation.
- Evolving a policy on library automation .

Here it may be mentioned that the central universities have adequate funding provision for procurement of computer hardware and software, databases and other computer peripherals, and for providing training for their professionals, where as the university libraries do not have sufficient manpower and interest for the application of IT in their libraries.

Adequate flow of fund for the library gives ample opportunity for adoption of IT, which is sufficiently available in libraries of central universities institutions. The university under study has already earmarked sufficient funds under the head of modernization of the library in the Xth plan for their libraries. Thus, these universities Library have already made an application of IT but they are encountered with period of transition.

The library automation is not suffering from the problem of inadequate finance but in adequate infrastructure to cope up with the task of adopting IT the library as found in the comparative study of the data.

Libraries are primarily built upon the contribution and dedication of library professionals. Hence professional manpower requirement is a basic need in which real growth and development of library occurs in respect of library professionals having adequate training in IT, there is no scope and opportunity for such professionals to work in such libraries. The library authorities do not evolve any policy considering the importance of the technical know-how and technical manpower development as observed in the university libraries of Delhi under study. They are neither sponsoring their library staff for training in IT nor creating an environment of IT at the university level for imparting training.

Another significant aspect of development of IT is the right attitude of library authority, which appears to be mostly lacking here in contributing to inadequate application of IT. Although the facility of internet connection is provided on restricted basis in the vicinity of the library, for browsing and searching information either by the users on free or by the library professionals. It appears that lack of adequate attitudinal values given to library is responsible for such a poor plight of the use of information technology in libraries.

It was observed and also seeks opinions about what impact of IT applications has on the library functions. They expressed that the library services, users satisfaction, meeting users' demands and library image improved after the application of information technology but still there are services which is heeded attention for proper application and implementation of IT so that the remaining areas could be ensured its automated service.

CONCLUSION & SUGGESTIONS

The library is the heart and main information resource centre of any institution. It is the part and parcel of education and teaching system. The modern age of information explosion poses stiff challenges in providing right information to right user in right time. In such a situation Information Technology (IT) comes to rescue of libraries and information centres.

IT, networking, and the expanding information market -place represent a combination of factors affecting librarians and opinion of administrative decision makers about libraries. Technological advances affect the fundamental library operations, and can possibly even change the basic social role of libraries.

A revolution in IT, however, is generating a convergence in interests and an environment for interesting and necessary collaborations. A less visible, but significant collaboration is the one between librarians and engineers. Engineers and Lancaster predicted that we will soon be entering the era of paper less society, an era in which print on paper will be replaced by electronics. Thus library will not contain any printed material at all. It may become a room containing a computer terminal only.

IT intact has potential for a variety of applications in libraries which is helped libraries in creating databases of their collections and making them available for easy access to users inside as well as outside through networks. IT also enables libraries to provide most efficient and specialized information services. It has been fairly established that efficient information support and effective communication in an organization are closely associated with high performance, productivity and innovation.

Thus IT is a strong force, but not an independent agent. It provides librarians with a range of tools to help in providing efficient and effective services to library users. In future,

use of such libraries may go up, but the number of users visiting the library buildings may go down.

The application level of information technology in university libraries of Jamia Millia Islamia, IGNOU and Jamia Hamdard can be measured by a single indicator i.e., an insignificant collection (0.15 per cent) of all the libraries is in non print form, while the rest is in print form. The INFLIBNET Programme of the UGC could be helpful in establishing technological infrastructure and training human resources of the university libraries but its various databases are still beyond the reach of academic community.

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Full Length Paper

Paper No-2

Care and Maintenance of Library Materials: A Study

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Introduction: - Library is a community centre for constantly transmitting knowledge to individuals.

Library is a place where information is designed to promote better understanding to values and characteristics. It is a form of mutual trust cooperation, good will self -help, self confidence and self reliance initiative. It disseminates the preserved knowledge and information among the world population in irrespective of caste, crud, sex etc.

Type of Libraries:-

- Public Libraries
 1. National Library
 2. State Library
 3. Divisional Library
 4. District Library

- Academic Libraries
 1. University Library
 2. College Library
 3. School Library

- Special Library
 1. Govt. Research Laboratories Library

2. Govt. Dept. Library
3. National Library with subject
4. Research Library
5. Professional Society Library
6. Technical Library
7. Private Business and Industrial Organization Library

Type of Library Material:-

Information Sources

Primary Sources	Secondary Sources	Tertiary Sources
First Published	Condensation & Repackaging	Keys and Aids to Search
Periodical	Indexing Services	Year book
Research Report	Abstracting Services	Bibliographies
Conference Proceeding	Review of Progress	Location List of Periodicals
Patents	Reference Work	Lists of Abstracting & Indexing Services
Standards	Textbook	Guide
Trade Literature	Monographs	List of Research Progress
Theses	Treatises	Guide to Professional Organization
Etc.	Etc.	Etc.

Reference Sources: - Encyclopedias, Dictionaries etc.

Geographical Sources: - Atlas, Maps, Globes, Guide books etc.

Statistical Sources: - Govt. Reports, Yearbook, etc.

Biographical Sources: - Almanacs, etc.

Electronic Sources: - E Documents, E Journals, E Books

Non print Media: - Telephone, Telegram, Multimedia, CDrom, Email, etc.

Databases: - They are five in a nature

1. Bibliographic databases containing a bibliography
2. Numeric databases which contain numeric or statistical data
3. Full text databases containing the full text of a publication.
4. Factual databases which have directory type data.
5. Research in progress databases containing description of research in progress.

All type of sources depends upon Paper and Mass Media.

Paper:- Paper is a substance in the form of thin sheet or leaf which is prepared out fibers of rags, cotton and straw for writing purpose. China is a country who introduced paper in 200 BC and invented by Ti Sia Lun.

According to Clapper ton :- Paper is chiefly made up vegetable fibers of different length & width tussock and inter less and finally squc ssed together to form a wet seat, which is dried, removed and used for writing & printing purpose.

According to B.L. Browning: - Paper is a felted sheet of fibrous materials. This is prepared by introducing the fiber suspension on to a fine screen through which water during drains down leaving a wet sheet of paper which is dries removed & used for writing a nd different purposes.

Constitution of Paper:-

1. Cellulose
2. Sizing Materials
3. Loading or fillers

Cellulose:-

- Cellulose is originally white in color.
- It is a long polymeric chained compound.
- It can't dissolve in water, organic solvent and mild acids.
- It is a hygroscopic in nature.
- Its molecular formula is $C_6H_{10}O_5$.
- It can dissolve in CED (Cupriethylene Diamine) Solution .

Sizing Materials: - these materials is added during pulpine

- Starch
- Rosined
- Glue
- Gelative

Loading Materials or Fillers: - To develop the resistance power of liquid using loading materials.

- Clay
- Talc Powder
- Calcium Carbonate
- Magnesium Sulphate
- Aluminum Sulphate

Paper consist fiber and fiber is categorized in two parts

(A good quality paper contain long fibers)

- Long Fiber: - Jute, Sunn, Cotton, Kenef, Rages.
- Short Fiber: - Wood, Bamboo, Straws, Grasses, Bagasse.

Type of Paper

1. By Vegetable or Plants

- Papyrus
- Palm Leaf
- Brick Back
- Cotton Cloth

- Paper
- Sanchi Patra
- 2. By Animals
 - Vellum
 - Parchment
 - Leather or Skin

Deteriorating Agents are harmful for Library Materials & it's Control :-

These are categories in four parts

- ❖ Physical Agents
 - ❖ Chemical Agents
 - ❖ Biological Agents
 - ❖ Accidental Agents
-
- ❖ Physical Agents are
 - Dust Partials
 - Light
 - Heat
 - Humanity
 - ❖ Chemical Agents
 - Acidity
 - Pollutant Gases
 - ❖ Biological Agents
 - Insects
 - Fungus
 - Rodents
 - ❖ Accidental Agents
 - Fire
 - Flood
 - Earthquakes
 - Rains etc.

Some major discuss here

Physical Agents: - Climate is a general term whose different elements are light, temperature, rainfall, moisture, wind etc. these elements in turn upon several other factors like duration of sun sine, altitude of a place, wind direction, distance from sea etc. thus all these together constitute the climate of a place.

Out of several factors which constitute the climate, the most important factors which affect library are light, Temperature and humidity, although rainfall and wind do have their own deleterious effected on the objects, particularly those present out doors.

Light: - Light is necessary for the object of library, yet the light may be a major source for deterioration of the object of library.

All light sources, be they natural or artificial, may emit ultra violet and near infrared radiation. We know that the damage caused to different objects, is not always physical in nature, whenever serious type of damages are seen, they are mostly chemical and hence irreversible, radiation can cause chemical changes in an object and therefore energy content of the radiation is quite important as far as their damaging effects on object is concerned.

As we know that paper is made by cellulose and protein, these two components are most rapidly affected by light.

Damaging factors of light:-

- Intensity of Light
- Duration of Exposure in light
- Susceptibility of the objects to light
- Spectral characteristics of light.
- Certain external factors like Temperature, Humidity and Oxygen content influence the rate of deterioration by light

Its control: - The ultraviolet filter can be used on the glass cover of showcases or as cover of light sources. Thin foils sandwiched between two glass sheets can also be used. Varnish can be painted on the glass cover of showcases. Ultraviolet component of fluorescent lamps can also be used from using the objects.

If light is not allowed to fall directly on the object, if light is reflected from a surface painted with Zinc Oxide or Titanium Dioxide, the ultraviolet content of reflected light is much reduced.

In the library, our eyes receive visual information most comfortably and clearly when the light arrangement follows this pattern.

We could allow a sculpture to be seen better by directing light from above at around 45° and keeping ceiling and wall light toned but the floor of natural color.

Tapestries, hanging, paintings, showcases and other vertical surface required.

Light as close to the vertical as 30° gives excellent viewing, to soften the edges of shadows of contours. The light source should be extended to make an angle of 8°

For the purpose of library, a good lux meter should have the following characteristics:

- Its response to different wavelengths of light should match with human eyes.
- It should receive light from all directions. This may look simple, but in non standard lux meters, the glass covering of the photocell prevents light from low angles to reach the photocell due to reflections. This can be easily corrected by replacing glass by a non reflecting surface.

The ultraviolet monitor is designed to complement the length meter. It measures the proportion of ultraviolet radiation in the light and expressed in energy of ultraviolet in the luminous flux. A convenient unit to measure ultraviolet radiation in the light is uw/lumen. The

safe limit for ultraviolet radiation in library has been worked out to be less than 75uw/lumen. If a source gives ultraviolet fraction more than this limit, it necessarily requires ultraviolet filters.

Humidity: - Humidity is known as dry air, humid air is describing the absence or presence of moisture in the air, humidity depends upon saturation, condensation.

Condensation: - the Phenomenon of condensation takes place when the saturated volume of air is cooled.

Saturation: - is a phenomenon when a given volume of air at a particular temperature is no longer capable of taking in any more quantity of moisture. The saturation of air is dependent upon temperature and its value changes with change of temperature.

Humidity agents are

- Capillary size
- Leaking of pipes
- Gutter
- Wet mopping
- Human breathing
- Evaporation and condensation

Humidity causes

- Weakening of adhesive
- Rotting of size
- Staining of paper
- blurring of inks

Its control:-

Some instruments which are capable of simultaneous measurement of temperature and humidity are known as thermo hygrometers .

The advantage of the instrument are that these can be placed in a small area and provide quick results.

There are some cheaper options which can be equally effective. These methods include use of buffers or some specific salt solutions , like cotton paper, sawdust, silica gel, etc. which exhibit property of absorbing moisture in conditions of high humidity and giving out moisture in dry conditions act as buffers between the objects and the air.

Silica gel is the most common buffer used in display and packing cases. Generally 0.5 – 1 Kg of silica gel is considered sufficient for maintaining humidity in a sealed showcase of dimensions 1 cubic meter, but don't forget that these materials have limited capacity and need to be recharged when exhausted, thus during monsoon season a much higher quantity might be required.

It is very easy to identify when the silica gel need recharging as these turn pink upon saturation. It is also easy to recharge these by heating the pink silica gel in an oven at 65°C, when these gain turn to blue color thus silica gel can be reused several times.

In some cases, saturated solution of specific salts can very useful when humidity is near about 50% using saturated solution of **Magnesium nitrate** and if humidity is above 50% using saturated solution of **sodium bromide**.

Biological Agents:-Biological destruction suffered by an objects, depends upon two factors

- The chemical composition of the material.
- The particular insect that affected the material.

These two are interlinked; all biological agents will not attack all type of material, as each insect has its own food preferences. Any insect capable of entering in library from outdoor environment or introduced on material carried from library building are capable of becoming a pest and may pose a direct or indirect threat to the collection. The most obvious direct threat are those arising from feeding activities of insects and almost any insect with biting mouth parts are capable of causing some major harm to the library materials.

Protection of valuable objects from insect deterioration is very essential. A small percentage of the insects have the propensity to become a serious pest.

Major insects causing damage to the library objects and their characteristic features are: -

- **Silverfish** :- wingless, silvery more or less flattened twisting fish like body covered with scales, their life is 2 – 3 years, prefer to live in dark places and feed both carbohydrate and protein rich materials. In libraries they eat paper and fabrics. They remove sizing from paper, chew book binding and feed on glue and paste in bindings.



- **Cockroach**: - they are nocturnal and spend 75% of their time in dark, undisturbed crevices and voids close to food and water.

Breeding takes place throughout the year, their success is due to their faster breeding and omnivorous nature. They are especially fond of starchy material. They eat leather, hair, wall paper, animal skin and dead insects. Their damage reveals holding and notching of edges. In addition to chewing cockroaches can cause staining as a result of vomiting and depositing feces.



- **Termites** :- they are social insects always living in communities, the immature stages generally resemble the adult except that they do not possess wings the colony except that they do not possess wings, the colony consist kind like queen, soldier and workers. According to their habitat they are divided in two type

1. Wood dwellers
2. Soil dwellers

The damage is caused by workers and the soldiers defense colony from intruders such as ants, the head of the soldier termite is large and efficient, the workers keep the tunnels neat and clean at optimum and act as hygiene squad by eating dead individuals.



- **Book worm beetle**: - the adult beetle is small slender and testacies brown, inactive in bright light; the damage is caused by the larval feeding along the back of book cover. Cutting the threads that bind the pages together, thus causing the pages to fall apart, while feeding, the larva's line the pages with glue which make the pages struck together.



- **Rodent**: - We all very much know about it.



Its control:-

- Fumigation: - once infestation has occurred, the immediate treatment for pest is fumigation, fumigants usually kill all active stages of insects, but do not protect against reinfestation, in addition favorable conditions are usually required for fumigation to be effective. Fumigation of Para dichlorobenzene (40gm/m³) and DDVP strips are effective against all type of library materials.
- Baits: - are also very effective preventive control measures against silverfish. Following baits are recommended: -

Oatmeal power	86pt by wt
Sodium fluoride	7pt by wt
Salt	2pt by wt
Sugar	5pt by wt
- **Plant Products** :-
 - Dried neem leaves placed in muslin bags prevent textile from insect attack.
 - Seed power of neem is also very useful for insect attack.
 - Sarifa, custard apple seeds powder is also very useful for insect attack.

Chemical Agents: - Chemical Agents are basically acidity of paper and harmful gases. These affected over paper materials and mass storage.



Its control:-

To restore flexibility on object using: -

- Lemon grass oil
- Citronella oil
- Camphor oil
- Cedar wood oil

Miscellaneous non chemical methods for prevention of insect damage: -

- Reducing moisture contents of object and building.
- Trapping with sticky traps or jar tapes.
- Screening pest & entry points.
- Sealing or removing pest harborages .
- Physically removing pest harborages .
- Physically removing pest with vacuum cleaner, brushing etc.
- Cleaning attractants from fabrics.
- Use attractants and replants.
- Plastic bags used for protecting library items during tra nsit and storage which are resistant to insect.
- Removing surface preferred by pest.

Digital Preservation: - Digital information gives us wrong free preservation; it is arrested because an expert copy of a file can be made with the click of a button. Digital preservation is a management of digital information over time. Preservation of digital information is widely considered to require more constant and ongoing attention then preservation of other media. This constant input of effort, time and money to handle rapid technological and organizational advance is considered the main stumbling block for preserving digital information. Digital preservation can therefore be seen as set of processes and activities that ensure continued access to information and all kinds of records, scientific and cul tural heritage existing in digital formats.

Digital preservation is defined as: long term, error free storage of digital information, with means for retrieval and interpretatio n.

- ✚ Digital storage –
 - Magnetic disc

- Optical worm
- Digital video taps
- Digital audio tape
- CD ROM
- Floppy disc etc.

✚ Management of Digital Conservation – conservation programmed is the relationships among three concepts

- The purpose that the digital products will serve
- Source document characteristics
- Technology capabilities brought to bear during the conservation process.

✚ Preservation will fall in two categories

- Preservation of digital objects- Preservation of the digital image/ text and the associate digital Meta data achieved in practice through “refreshing”.
- Preservation of analogue materials- Preservation of the original collections and any film intermediaries.

✓ There are several justifications for central management of a digital image resonance

- The digital materials are in public domain.
- The copyright holder has granted permission for network distribution and use.
- The digital resonances are copies of works found in a different library.
- The digital copy has been made to replace a damaged, deteriorating lost or stolen copy of a work that can't be obtained at a price and the digital copie s of which will not be made available outside of the library.

✚ Good storage practice plays a key role in prevention, which is a crucial strategy to control and reduce resource requirement associated with preservation.

The following are the key requiremen t for proper storage and maintenance of digital collection.

- Backups: - create backups of the master files and store off site in a secure location.
- Storage: - storage media in a controlled environment, the range for temperature 62° – 68°f and humidity are 35 – 45%; store media away form strong magnetic files also.
- Security: - control access to storage facilities and processing areas. Store media in a separate preferable lockable area .
- Dust and vibration free zone.
- Avoid wormer and damper condition.

✚ Strategies for digital preservation

- Refreshing: - Refreshing is the transfer of data between two types of the same storage medium so there are no bit rating changes or alteration of data. This strategy may need to be combined with migration when the software or hardware required to read the data is no longer available or is unable to understand the format of the data. Refreshing will likely always be necessary due to the deterioration of physical media.
- Migration: - migration is the transferring of data to newer system environments this may include conversion of resources from one file format to another e.g. conversion of Microsoft word file to PDF file.
- Replication: - creating duplicate copies of data on one or more systems is called replication. Data that exists as a single copy in only one location is highly vulnerable to software or hardware failure, intentional or accidental alteration, and environmental catastrophes like fire, flooding, etc. digital data is more likely to survive if it is replicated in several locations.
- Emulation: - emulation is the replicating of functionality of an obsolete system. E.g. on a windows system or emulating WordPerfect 1.0 on a Macintosh. Emulators may be built for applications, operating systems or hardware platforms.
- Metadata: - metadata is data about data. Metadata is data on a digital file that includes information on creation, access rights, restrictions, preservation history, and right management. Metadata attached to digital files may be affected by the file format obsolescence.

Recommendations:-

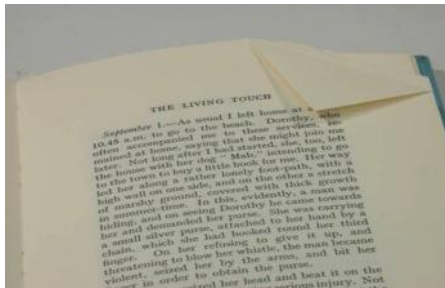
- ✓ Handle library materials gently and Set a good example for all library users.
- ✓ Never pull a head cap.



- ✓ Remove a book from the shelf by pushing back the books on either side, so you can grasp it in the middle.



- ✓ Do not “dog ear” a page



- ✓ Keep work surfaces clean and uncluttered.



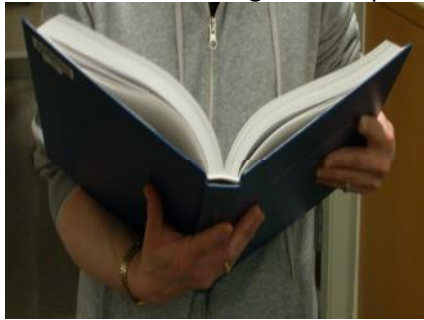
- ✓ Avoid tall piles of books that can topple over.



- ✓ Use flat cotton tape to secure damaged books.



- ✓ Support book spines and covers when holding books open.



- ✓ Do not drink or smoke where collections are stored used or displayed; these activities can attract insects and lead loss and staining.
- ✓ Do not transport rolled documents under arms or without support.
- ✓ Do not carry more than you can manage safe avoid accidents, strain on the documents on yourself.
- ✓ Do not handle documents more than necessary, this can tear and stain them.
- ✓ Do not use pens in collections
- ✓ Do not use any tape to repair tears, losses; even archival quality tape may have reversibility problem.
- ✓ Do not laminate document; heat / solvent can damage.
- ✓ Do not eat in work areas. This will attract vermin and insects.
- ✓ Always handle library materials with clean, dry hands.
- ✓

Suggestions :-

- ✓ Keep areas clean to avoid attracting insects and rodents; keep liquids away to prevent spills and stains, keep hand clean to avoid stains.
- ✓ For transport; support documents in folders, mats, boxes etc.
- ✓ Control light intensity, proximity, and duration.
- ✓ Arrange adequate space to examine Andre house documents.
- ✓ Convince visitor of library while reading, use graphite pencils.
- ✓ Rest books that lay horizontally on their spines.
- ✓ Copy damaged books, if necessary
- ✓ Do not pull books from the shelf by the head cap, or top of the spine. Push the two adjoining books inward and remove the book by grasping the spine.

- ✓ Be careful around food and drink which can cause stains and water damage.
- ✓ Folding pages to mark one's place can cause breakage over time. Instead, utilize a free library bookmark.
- ✓ Handle AV materials carefully; avoid touching tape surfaces and handle CDs and DVDs with your fingers around the outer edge.

Removal of stains

<u>S.N.</u>	<u>Stains</u>	<u>Removing Solvents</u>
1.	Ball point ink	Dimethyle form amide
2.	Cello tape	Dimethyle Chloride
3.	Grease/ Oil/ Smoke	Carbon Tetrachloride
4.	Fungus Marks	Ethanol
5.	Tea /Coffee	Sodium per borate solution
6.	Marker/ Sketches	Methanol/ Ethanol
7.	Seal	Methanol
8.	Red ink	1% Ammonia and Methanol
9.	Rubber	Carbon disulphide
10.	Blood Stain	Mixture of Hydrogen peroxide 2% and ammonia 2% with ethanol

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