1.1 Introduction:

Education is key factor in development and advancement of society. The need for information in education is unlimited. Scholars, educators seek and use information from different sources and formats for a variety of tastes. The information generally used for enhancing knowledge in the profession and education as well as decision making, discovering new concepts, new technologies by conducting research using technologies. In short information plays a role in reshaping human thinking. Tremendous growth in knowledge is reported as well as technological advancement and rapid changes led to necessity and awareness of information published in all formats. Academic, professional, research institutions play a key role in society by generating knowledge for future generations. The libraries associated with academic institutes serve as backbone and serve to variety of users like students, faculty, researcher, administrators etc. having diverse need of information. Libraries collect variety of published information and offer library services to support instructional, teaching and learning, study material, resources and learning activities. Importance of libraries in academic, professional, research institutions is considerable and termed as backbone of educational system.

The applications of information technology have brought about far-reaching changes in the information society as well as Library and Information Centers (LICs). Information is regarded as vital source for development of nation and building strong information society. Information society has put forth new demands and expectations to libraries and information centers. There is an influence of technologies in the overall set up of libraries. Due to enhanced use of technologies, it is now possible to fulfill the needs and wants of the users from libraries to user’s greatest satisfaction. The main aim and functions of every library and information center is to make effective use of library resources for prosperity and generating new knowledge base. Information is an important and vital in any fields including e-learning and teaching, which has added values to formal education. Libraries are treated as nerve system and backbone, and occupies leading place in supporting the information needs of education, research and academic
sector. There is an acute need of using information technology to provide latest information to users by way of developing information products and information services.

Libraries and information centers have to act as mediator of information supporter and provide information to academic support to users. The changing faces of libraries and their activities mainly observed due to advent and use of ICT, digital contents, consortium, databases, internet resources, search engines, meta search engines, and increased e-Resources (e-books, e-journals, databases etc) are the main elements in transforming of libraries. The information society is fully aware of all these developments and using these facilities in practice due to its merits. Library professionals and users from any technical schools, colleges, and universities research organizations use e-Resources for delivering better information to academics by providing need based information to users and supports studies. However for providing better support to the patrons form huge information, there is a need to assess user needs at regular intervals to understand their demands and needs. One of the fundamental ways of improving the quality of scholarly research work is to facilitate and support the processes of creating, accessing and using qualitative information and knowledge acquisition for the users in limited funds. The world of scholarship and academics has changed dramatically in the last few decades as they are using Information and Communication Technologies (ICTs) extensively. E-books e-journals and digital resources, internet resources have provided the power to information and helped in delivering information properly, timely and managed information more effectively which removes barriers in information usage and offered equity of access to global knowledge and information.

In ICT era, use of e-Resource and its generation is economical as well as easily accessible using computer networks and keep the information flow all over the world for effective use and developing new knowledge. The information explosion is at high potential and selecting the requisite literature for users is a difficult task for the librarians. But assessing the use reading habits and needs may assist in solving the problem to some extent. The users need pinpointed resources for getting qualitative information on the subject of interest. The librarians are also facing the issues of crunching budgets and
hence different resource sharing projects are initiated to manage the flow of right information for users in academics and research activities.

1.2 e-Resources: Role and Importance:

E-publishing has played a major role in information industry, due to factors like economy, easy publishing and distribution method, easy archiving and preserving as well as accessing and retrieving, free flow of information using computer networks, comfortable for resource sharing projects etc. Electronic resources are accepted by all information society, due to merits of e-Resources like ease in usability, readability, affordability and accessibility. The prominent advantages of e-Resources are:

a. **Multi access:** e-Resources can be accessed by multiple users (more than one at a time) at the same time @ 24x7

b. **Functionality:** e-Resource allows the users to approach the publications and analyze its content in new ways by clicking mouse.

c. **Accessibility:** Global access instantly for both paid and free resources.

d. **Contents:** The e- resources are generated in large volume consisting of different multimedia i.e. digital contents, images, videos, audio animations and also linked to each other (Hyper linking and hyper texting)

e. **Speed:** Electronic/digital resources are easy to browse or search and extract information speedily as well as disseminate information speedily at global level.

f. **Searching Power:** Pinpointed, accurate, multi access searching etc with current and retrospective information can be gathered on demand

g. **Economy:** Economical in acquiring, storing, archiving and retrieving as well as disseminating information.

h. **Hyper Linking:** e-Resources can be easily linked to get related and similar information. e-Resources made an impact over the traditional print media due to benefits and it is fact that in scientific disciplines generation of e-Resources in different forms is at an alarming growth and also libraries are acquiring and using them.

e-Resource usage is increasing in information society day by day as major publishers are migrating towards e-publications. Libraries are also transforming from traditional to
electronics, digital and virtual due to changes in forms of publications. e-Resources are now gaining more popularity in all the sectors of education.

1.3 Role of Libraries in Digital Era:

Since inception the role of libraries is to acquire process, preserve and disseminate information to the users from the collection in systematic methods. The traditional methods used for managing and handling information in libraries become difficult due to information explosion and exhaustive needs of users. The information collection and dissemination preserved in traditional media gets difficulties for librarians. The transformation in libraries due to use of technologies and publishing trends solved difficulties in managing resources. The role of librarians is also changing in handling and managing digital media. The role of librarian in procuring e-Resources and managing is a skill. The functions of libraries though remain same but the management methods are different since resources are in electronic form. The procurement and processing systems are modified. The acquisition policies of e-Resources are different than the print media.

At present in developing countries both media are being acquired and managing hybrid collection in libraries but the trend in acquiring e-Resources are increasing slowly especially more in scientific and professional education institutes. The initiation of e-learning and teaching in education system is progressive due to availability of more e-Resources. The formal education system is slowly replacing to e-learning. This change is mainly due to generation of e-Resources in all sectors of education branches. More availability of e-Resources also changed the collection development policies in libraries to support the education system. In developed countries the collection development in e-form is more prominent and the same trend is migrating towards developing countries. The libraries are also changing their roles and support the systems in managing e-Resources effectively. This change is now inevitable. The libraries of the future are based on managing e-Resources and developing advanced services using e-Resources. The practices in librarianship also transform to manage and handle e-Resources.

Library is a powerhouse of information and knowledge which is stored and transferred to users as per need. For optimum use of resources available in the libraries, users also have knowledge about collection of resources and access to these resources to fulfill needs.
Similarly library also have knowledge of user needs, without knowing the information needs of the users it is difficult to provide effective services to the users. In fact libraries also predict the future needs of the users. Information services are made available using various forms of information resources like books, journals, reports, thesis, etc available in print as well as digital form now a days. The complexity of electronic resources also led to pose problems in its use and cause discomfort to visit libraries since they do not know the resources available in electronic form.

In internet era many students surf information over internet but awareness of e-Resources in libraries are not known to them. But students who are regular user they know the resources and also consult them. But it is felt to assess the awareness of e-Resources to users for its optimum use. The role of librarian and libraries in these days is to develop awareness of e-Resources in their areas and enhance the use. Similarly understand user needs to acquire proper need based literature in libraries.

A vast and growing amount of information is available now in electronic information resources in S&T and its accessibility has given to students and faculties. This is an opportunity to enhance their academic performance. E-Resources supports to atmosphere to encourage sharing knowledge among users. Advancement in technologies and growth in e-Resources made higher learning easier, but depends on individual how they make use of technology and e-Resources in learning process. In today's world, technologies and e-Resources are integral part of higher education and learning. Thus main role of librarian in e-era is to manage e-Resources as per need of users and provide value added services to users.

1.4 Background of Research Study:

Libraries are functioning as an important and vital link in higher education system. Academic libraries in India are facing issues of budgets allocated for procurement of resources and exponential hike in prices of information resources. Libraries are facing issues of dynamic revolution and leading towards new generation libraries with the advent of ICT, e-Resources, internet resources, web tools, databases etc. Use of ICT in educational sector is increasing to maximum extent and libraries as backbone to this
system. Librarians have to modify to support the changing environment in the information society. The professional education systems are more prone towards using technologies and e-Resources. S and T libraries are more prone towards ICT and e-Resource and resources are also equally more available.

Medical and Engineering are professional main disciplines and the institutes managing these courses are highly advanced and invest more funds for providing advanced and modern facilities to both faculties and students. In the era of information explosion the available information in these areas are overloading. Library resources are inadequate to meet the needs and requirements of users since their expectations from the libraries are increasing. The users are more technology savvy and expecting more services and support from the libraries. The potential for delivering information anytime (24X7) anyplace, developed challenges in libraries to re-examine and re-engineer libraries as per user needs and demands. Since resources are available from different places over the web and internet, users would like to refer these sources using internet from libraries, so as to meet their information needs (on demand or in anticipation). Besides this need users also expect to get comprehensive information in their disciplines. Medical and engineering college libraries need qualitative collection in their disciplines to meet user needs which are specialized. The professional disciplines are more advanced and have more resources in print and electronic forms. More resources are available now in e-form in professional education systems. Hence libraries related to medical and engineering are acquiring more electronic resources in economical ways and saves considerable funds for acquiring more resources for their users. More qualitative resources can support to develop more qualitative services in same budgetary provision. The acquisition of the e-Resources helps in easy linking and developing library networks for resource sharing as well developing collaborative projects like consortium of libraries. Though e-Resources are economic as compared to print but also lacks in acquiring the required information sources for users interest. To enhance the use of e-Resources in the users there is a need to develop e-Resource literacy among the users of all fields and develop awareness of available literature in e-form in subject fields. For proper and qualitative resource management there is a need to assess the need of users.
Medical and engineering libraries are now changing their acquisition policies and acquiring resources from print to digital and getting e-Resources in the form of e-books, e-journals and databases. They are also becoming members of consortia in their field like IEEE, INDEST etc. to achieve economy and also provide maximum access to information generated on the topic and providing better services to users form the different free and paid resources. There is also a need for the library professionals to get themselves aware of resources available in e-Resources and internet resources and different resource sharing projects available for their users. The library professionals now need to develop and adapt skills necessary for e-Resource handling and management. To manage effective collection for users, librarians including medical and engineering areas have to assess user needs and evaluate the resources available in the area. Analysis of needs and resources helps librarian in proper collection development in libraries and provide services. Use and user studies, ISB studies are very useful tools for identifying the needs and felt necessary.

1.5 Need of Use and User Studies:

Use and user studies help to identify and support to activities like:

a. Improves need based library collection, facilities and provide library services.

b. Understand user needs and their demands in specific and general areas.

c. Ensure maximum use of resources available globally

d. Identify problems of users

e. Implement new library services and enhance existing services based on needs and demands of users

f. Developing information products from the information resources and market the products

g. A trend in user behavior helps in managing the libraries efficiently.

h. User studies are to be conducted at regular intervals as the needs might change continuously. (Thus a user study helps in identifying the requirements for the
libraries to fulfill the needs of users and also improves collection development based on needs).

1.6 Reason for selecting the Research Problem:

The professional academic college libraries are becoming important hubs of education institutes, where in users can check in and checkout of curriculum and other reading materials for completing studies, preparation for exams, seminars, presentations and dissertation etc. Users in addition to curricular resources also consult reference and specialized collection, journals, books, project reports, standards, patents etc.

Due to massive use of ICT the present era libraries are now fully automated and moving towards the digital and virtual libraries and use internet resources available mostly free. The libraries attached to professional courses like engineering and medical are automated and developing digital libraries by acquiring more e-Resources in comparison with print. They are also using digital resources extensively and developing network to share resources. The e-Resources are linked using web pages of their institutes or libraries independently and provide links to different resources to users at the click of the button. The efforts are taken to provide maximum access to resources to users and provide services using e-Resources.

But it is essential for librarians to assess user (students and faculties) opinions about use of wealth of resources and awareness of available resources to them for its effective use. To better understand the usage of resources by users it is necessary to assess students need, habits and explore how, why and form where they are getting resources for research and academic use. The survey of professional college library users is necessary and provides them need based information resources for their use.

In ICT and information explosion era the professional college students and users visit libraries for the following basic reasons:

1) Since the professional curricular resources are costly and also need to refer to more than one resource, visit to library is necessary.
2) To study in silence
3) Use of print, e-Resources and qualitative databases
4) Use of interest and internet based resources
5) Use of curriculum and reference literature
6) Meet the study groups for discussions
7) Preparations for seminars, assignments, class notes, examination preparations etc.

Tenopir (2003, 2005) in his article discussed the need to assess user habits through use and user study of electronic resources in libraries so that proper collection can be developed. Libraries of all sizes and types are embracing to digital collections, along with print for few more years to come. Now publishers of journals, databases, abstracting and indexing journals are moving towards digital. In era of ICT libraries prefer digital collections for many reasons including links and access from anywhere and accessible 24/7, saving space, time, finance etc. Dramatic shift from print to digital is observed in all most all academic libraries to support the visit and mission of education system. Though flow of e-Resources is increasing but it is also necessary to assess the use of e-Resources by the users and also find out their needs.

Keeping in mind the developments in publishing, library management, digital environment the future of the libraries is different than present which may be only digital. User preferences towards using resources might change and they need pinpointed information in e-from. The role of libraries and librarians are changing and migrating towards e-environment. The resource availability trends in libraries only in digital form. The librarians role in developing awareness among the users for identifying useful resources and evaluate the qualitative information is major task. The researcher being a librarian and transforming the libraries using e-Resources felt the need, to assess the need of users and then re-engineer libraries according to their needs. Hence felt the need to undertake a research study in which assess the user needs of professional education sector and improve the status as well as list out the resources available and make users aware of in the area of engineering and medicine. Hence the topic selected as “Use and User Study of e-Resources in Medical and Engineering College Libraries in Goa”. The increase in
use of e-Resources is noticed in professional and academic education sector. Though print media resources are still used more by the students and faculty but in professional education sector e-Resources are generated more and also noticed its increasing use of them as the users are technology savvy. User studies determine use of electronic resources and also assess the characteristics associated with the use of electronic resources. The present study is mainly focused to eliminate the barriers in use of e-Resources and also make users aware of availability of e-Resources in their areas and increase the use of resources more effectively.

1.7 Statement of Research Problem:

Libraries support to scholarship by acquiring print, e-Resources and internet resources, but users are not using these resources efficiently. Special efforts from libraries are necessary to enhance the use of both print and e-Resources. Users need to be motivated for using resources effectively and enhance the value of libraries. There are various resources available in libraries in print and e-format but users must know the location availability and awareness of e-Resources in their subject areas effectively. The study made efforts to disclose following:

- Assess need of professional education/academic users in engineering and medical colleges
- Develop awareness of availability of e-Resources in the field to users
- Develop information literacy among users
- To identify which resources are used more by users.
- Change the mindset of users towards library usage and orient them to retrieve information from e-Resources.

Hence researcher has considered the research problem “Use and User Study of e-Resources in Medical and Engineering College Libraries in Goa”, in which use and user views are assessed and their needs are identified to manage the collection and transform the libraries. Availability and assessing use of e-Resources is now more important for proper collection building and provide better and enhanced new services to users using e-Resources. The e-Resources help libraries to get large number of resources at an affordable cost. The present study is focusing to create awareness about e-Resources.
among students and faculty of medical and engineering colleges by listing out the problems faced in accessing to e-Resources and to identify the solutions for the problems through this study. This study identifies user needs, resources available in their areas (both print and digital), awareness of users about availability of e-Resources in their field, problem faced while consulting e-Resources etc. and deduce the solution for the effective use of the e-Resources and building e-collection development.

### 1.7.1 Significance of the study

The study helps in identifying following

- Types and nature of resources preferred by users
- Find out ways and solutions for libraries to motivate users for consulting more library resources
- Finding needs of the users
- Finding use of resources among professional academic libraries (Both print and e-Resources)
- Finding awareness of resources to users (both print and electronic)

### 1.8 Aim and Purpose:

The aim of the research study is to collect the information about awareness and use of e-Resources in the area of engineering and medical sciences and develop awareness among the users about these by providing training. Conducting use and user study in this area to find user needs to develop proper and qualitative collection in libraries. The main purpose of this study is to investigate the awareness about resources', level of use of electronic resources, and the perceived impact of use of electronic resources on the academic users like students, researchers and faculty and identify problems faced by them while using electronic resources and solve them.

### 1.9 Objectives:

The objectives considered for this study are:

1. To study availability of print and e-Resources in medical and engineering sciences and list for use (Chapter 5)
2. To identify awareness, purpose and frequency of use of resources by users in medical and engineering (Chapter 6A and 6B)

3. To assess the benefits of e-Resources over the conventional information sources (Chapter 5)

4. To study different types of electronic resources available and services provided by medical and engineering libraries in Goa. (Chapter 6A and 6B)

5. To understand, user needs, find out use of e-Resources and problems faced while using e-Resources. (Chapter 6A and 6B)

6. To understand the level of user satisfaction using e-Resources as well as print-resources. (Chapter 6A and 6B)

7. To provide solutions for improving and enhancing use of e-Resources and suggest a model for networking/resource sharing (chapter 7)

1.10 Hypotheses:

1. The users of libraries are using e-Resources for their information needs and increasing use of e-Resources slowly among users.

2. There is a need to build positive approach towards use of e-Resources among professional community by developing awareness of availability and information retrieval.

3. There is a need to prepare collection development policy for e-resources.

1.11 Scope and Limitations of the Study:

The present study is limited to assess the needs of users from the engineering and medical college libraries in Goa state. The study identifies e-resources acquired in the medical and engineering college libraries in Goa and attempts made to understand the information requirements of faculties and students from these disciplines. The survey of faculty and students considered for assessing the needs and for this purpose researcher has adapted methods like survey of users to understand use of e-Resources, considering advantages of new media. The aim and purpose of this study is to check the awareness of e-Resources among the students and faculties of medical and engineering colleges in Goa, and assess the user’s satisfaction from the libraries. In brief the scope is confined to following:
This study prevails among the user habits and information needs in engineering and medical colleges in Goa

This study has considered only graduate courses (BE and MBBS) in engineering and medicine

Diploma and certificate courses in engineering and medical science are excluded

Architecture colleges, Para medical courses are excluded.

Graduate and Post Graduate colleges/ institutes undertaking engineering and medicine course at regular intervals are only covered in the study

All part time, distance learning, online learning courses are not covered for review in both areas.

Study is carried out considering the first year to last year students selected randomly.

1.12 Research Methods Used:

Selection of research method for carrying out research study depends on the nature of research problem. Generally more than one method is adapted by the researcher to complete study. Keeping objectives of research in mind survey method of descriptive research is selected and tool for data collection is based on a questionnaire technique used for this study. A structured questionnaire has prepared to collect data from the faculties and students (users) of medical and engineering colleges in Goa. Questionnaire contains questions pertaining to the availability of information sources, information literacy, awareness and use of electronic resources in areas. Students randomly selected and faculties placed on permanent role are only considered for the survey. Since students and faculty population is more, researcher has selected from the total population of students from the both disciplines using random sampling technique to consider manageable number for assessment. The structure of questionnaire contains questions on the different concepts to get the data.

Questionnaire separately prepared and circulated among the librarians, of medical and engineering colleges of Goa to assess the status of libraries. The population for this study (survey) is medical and engineering colleges in Goa as listed in Appendix 2. The interviews of librarians and few users are also conducted to understand their views.
1.12.1 Selection of Population and Sample for Survey:

The selection of population and sample for data collection from medical and engineering college libraries considered on the intake of students and appointed permanent faculty in the colleges. The population and sample selection is given in table 1.1 below. The random sampling method was used for selection of sample. Researcher visited libraries and interacted with users of libraries who were available in libraries during the survey. While taking interview the year of study of student was confirmed so that first year and final year students can be covered.

Before distribution of questionnaires to the respondents, a record of total population as well as random sample of the population was prepared. The random sampling technique is followed for selecting users from each category in each library and on the basis of size of the sample. In case of questionnaire administered to the faculty users, a list of permanent faculty was obtained from the librarian. A representative sample of potential users on the basis of random sampling technique, were selected from the lists designed for this purpose. Thus, representative samples of users from the members of the library were selected.

**Table 1.1 User Sample Selection (Medical Colleges)**

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Medical colleges</th>
<th>Present intake</th>
<th>Duration</th>
<th>Population</th>
<th>Sample 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Goa Medical College Bambolim, Goa.</td>
<td>150</td>
<td>5 ½ yrs</td>
<td>750</td>
<td>75</td>
</tr>
<tr>
<td>2</td>
<td>Goa Dental College and Hospital Bambolim, Goa.</td>
<td>50</td>
<td>5 yrs</td>
<td>250</td>
<td>25</td>
</tr>
<tr>
<td>3</td>
<td>Kamaxi Devi Homeopathic Medical College, Shiroda Goa</td>
<td>30</td>
<td>5 ½ yrs</td>
<td>150</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Institute of Nursing Goa Bambolim, Goa.</td>
<td>50</td>
<td>4 yrs</td>
<td>200</td>
<td>20</td>
</tr>
<tr>
<td>5</td>
<td>BSP Gomantak Ayurveda Mahavidyalaya, Shiroda Goa</td>
<td>60</td>
<td>4 yrs</td>
<td>240</td>
<td>24</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>340</strong></td>
<td></td>
<td><strong>1590</strong></td>
<td><strong>159</strong></td>
</tr>
</tbody>
</table>
Table 1.2 User Sample Selection (Engineering Colleges)

<table>
<thead>
<tr>
<th>Sr No.</th>
<th>Engineering colleges</th>
<th>Present intake</th>
<th>Duration</th>
<th>Population</th>
<th>Sample 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Goa College of Engineering Farmagudi, Goa.</td>
<td>420</td>
<td>4 yrs</td>
<td>1680</td>
<td>168</td>
</tr>
<tr>
<td>2</td>
<td>National Insitute of Technology, Goa. Farmagudi, Goa.</td>
<td>150</td>
<td>4 yrs</td>
<td>600</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Birla Institute of Technology and Science, Pilani K.K. Birla Vasco, Goa Campus</td>
<td>500</td>
<td>4 yrs</td>
<td>2000</td>
<td>200</td>
</tr>
<tr>
<td>4</td>
<td>Agnel Institute Technology &amp; Design, Assagao, Bardez Goa.</td>
<td>180</td>
<td>4 yrs</td>
<td>720</td>
<td>72</td>
</tr>
<tr>
<td>5</td>
<td>Padre Conceicao College of Engineering, Agnel Ashram, Verna Goa</td>
<td>240</td>
<td>4 yrs</td>
<td>960</td>
<td>96</td>
</tr>
<tr>
<td>6</td>
<td>Don Bosco College of Engineering, Fatorda Margao Goa</td>
<td>240</td>
<td>4 yrs</td>
<td>960</td>
<td>96</td>
</tr>
<tr>
<td>7</td>
<td>Shree Rayeshwar Institute of Engineering &amp; IT, Shiroda Goa</td>
<td>160</td>
<td>4 yrs</td>
<td>640</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>1890</strong></td>
<td><strong>---</strong></td>
<td><strong>7560</strong></td>
<td><strong>756</strong></td>
</tr>
</tbody>
</table>

(The intake capacity of students for the both courses is collected from standard sources)
Table 1.2 (A) Sample Selection of Faculty (Engineering Colleges)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Name of College</th>
<th>Total Strength of Faculty</th>
<th>Sample 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Goa College of Engineering</td>
<td>95</td>
<td>10</td>
</tr>
<tr>
<td>2</td>
<td>National Institute of Technology</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>3</td>
<td>Birla Institute of Technology and Science</td>
<td>120</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>Agnel Institute Technology &amp; Design</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Padre Conceicao College of Engineering</td>
<td>60</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>Don Bosco College of Engineering</td>
<td>55</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>Shree Rayeshwar Institute of Engineering</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>450</strong></td>
<td><strong>45</strong></td>
</tr>
</tbody>
</table>
### Table 1.2 (B) Sample Selection of Faculty (Medical Colleges)

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Name of College</th>
<th>Total Strength of Faculty</th>
<th>Sample 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Goa Medical College.</td>
<td>50</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Goa Dental College &amp; Hospital.</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Shri Kamaxidevi Homoeopathic.</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>Institute of Nursing Education.</td>
<td>20</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>Gomantak Ayurveda Mahavidyalaya.</td>
<td>30</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
<td><strong>15</strong></td>
</tr>
</tbody>
</table>

### Table 1.2 (C) Total Sample size for Study

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Number of collection</th>
<th>Total Strength of Population</th>
<th>Sample 10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total number of medical college students.</td>
<td>1590</td>
<td>159</td>
</tr>
<tr>
<td>2</td>
<td>Total number of medical college faculty</td>
<td>150</td>
<td>15</td>
</tr>
<tr>
<td>3</td>
<td>Total number of engineering college students.</td>
<td>7560</td>
<td>756</td>
</tr>
<tr>
<td>4</td>
<td>Total number of engineering college faculty</td>
<td>450</td>
<td>45</td>
</tr>
<tr>
<td></td>
<td><strong>Total sample size of study</strong></td>
<td><strong>9750</strong></td>
<td><strong>975</strong></td>
</tr>
</tbody>
</table>
The total population of users (students and faculty) in medical and engineering colleges is 9750. The random selection of users is considered and sample selected for the user survey is 10% of population and it is 975.

Libraries of all 12 medical and engineering institutes are selected for the survey to assess the present status of both libraries.
1.12.2: Use of Morgan Table for Sample:
The researcher has referred to the Morgan Table for verifying the sample selected for the survey i.e. 975. The table clearly pointed out that for the total known population of 9750, researcher can consider sample for survey 367 (known population of 8000). As per the table it is suggested to select only 367 as sample of users. Researcher has decided to consider the sample of 975 (10%) of total population for the research study which is higher than the suggested sample in table.

Table 1.2D Sample as per Morgan Table

<table>
<thead>
<tr>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
<th>N</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>10</td>
<td>100</td>
<td>80</td>
<td>280</td>
<td>152</td>
<td>800</td>
<td>260</td>
<td>2800</td>
<td>338</td>
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<td>14</td>
<td>110</td>
<td>86</td>
<td>290</td>
<td>165</td>
<td>850</td>
<td>265</td>
<td>3000</td>
<td>341</td>
</tr>
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<td>19</td>
<td>120</td>
<td>92</td>
<td>300</td>
<td>169</td>
<td>900</td>
<td>269</td>
<td>3300</td>
<td>346</td>
</tr>
<tr>
<td>25</td>
<td>24</td>
<td>130</td>
<td>97</td>
<td>320</td>
<td>175</td>
<td>950</td>
<td>274</td>
<td>4000</td>
<td>351</td>
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<tr>
<td>30</td>
<td>28</td>
<td>140</td>
<td>103</td>
<td>340</td>
<td>181</td>
<td>1000</td>
<td>278</td>
<td>4500</td>
<td>354</td>
</tr>
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<td>32</td>
<td>150</td>
<td>108</td>
<td>360</td>
<td>186</td>
<td>1100</td>
<td>285</td>
<td>5000</td>
<td>357</td>
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<tr>
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<td>36</td>
<td>160</td>
<td>113</td>
<td>380</td>
<td>191</td>
<td>1200</td>
<td>291</td>
<td>6000</td>
<td>361</td>
</tr>
<tr>
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<td>40</td>
<td>170</td>
<td>118</td>
<td>400</td>
<td>196</td>
<td>1300</td>
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<td>7000</td>
<td>364</td>
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<td>123</td>
<td>420</td>
<td>201</td>
<td>1400</td>
<td>302</td>
<td>8000</td>
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<tr>
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<td>190</td>
<td>127</td>
<td>440</td>
<td>205</td>
<td>1500</td>
<td>306</td>
<td>9000</td>
<td>368</td>
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<tr>
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<td>52</td>
<td>200</td>
<td>132</td>
<td>460</td>
<td>210</td>
<td>1600</td>
<td>310</td>
<td>10000</td>
<td>370</td>
</tr>
<tr>
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<td>140</td>
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<td>217</td>
<td>1800</td>
<td>317</td>
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<td>63</td>
<td>230</td>
<td>144</td>
<td>550</td>
<td>226</td>
<td>1900</td>
<td>320</td>
<td>30000</td>
<td>379</td>
</tr>
<tr>
<td>80</td>
<td>66</td>
<td>240</td>
<td>148</td>
<td>600</td>
<td>234</td>
<td>2000</td>
<td>322</td>
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<tr>
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<td>650</td>
<td>242</td>
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<td>327</td>
<td>50000</td>
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</tr>
<tr>
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<td>260</td>
<td>155</td>
<td>700</td>
<td>248</td>
<td>2400</td>
<td>331</td>
<td>75000</td>
<td>382</td>
</tr>
<tr>
<td>95</td>
<td>76</td>
<td>270</td>
<td>159</td>
<td>750</td>
<td>254</td>
<td>2600</td>
<td>335</td>
<td>100000</td>
<td>384</td>
</tr>
</tbody>
</table>

(Note: N is Population Size; S is Sample Size)


(Note: There is no need of using sample size determination formula for ‘known’ population since the table has all the provisions one requires to arrive at the required sample size. For a population which is equal to or greater than 1,000,000, the required sample size is 384.)
Table 1.2 E Sample Selection as per Morgan Table and 10% of Population

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Number of collection</th>
<th>Total Strength of Faculty</th>
<th>Sample 10%</th>
<th>Sample as per Morgan Table</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Total number of medical college students.</td>
<td>1590</td>
<td>159</td>
<td>310</td>
</tr>
<tr>
<td>2</td>
<td>Total number of medical college faculty</td>
<td>150</td>
<td>15</td>
<td>108</td>
</tr>
<tr>
<td>3</td>
<td>Total number of engineering college students.</td>
<td>7560</td>
<td>756</td>
<td>367</td>
</tr>
<tr>
<td>4</td>
<td>Total number of engineering college faculty</td>
<td>450</td>
<td>45</td>
<td>210</td>
</tr>
<tr>
<td>5</td>
<td>Total sample size of study</td>
<td>9750</td>
<td>975</td>
<td>995</td>
</tr>
<tr>
<td>6</td>
<td>Morgan Sample</td>
<td>10,000</td>
<td></td>
<td>370</td>
</tr>
</tbody>
</table>

As per table given by Morgan the sample selected for the users both (Medical and Engineering) is 995 for the users. But for the total user population of 10,000 (the figure of population is 9600) sample as per table is only 370.

If sample is considered 10% of the total population of 9750, it comes to 975. The sample as per Morgan and 10% is nearing (995) and hence researcher has considered 975 as sample for user survey.

The Questionnaire for the users is circulated among 975 users of medical and engineering both faculty and students. Out of these 975 circulated questionnaires 960 respondents have responded to the survey. The user survey response is almost 98% due to personal visits and librarians supported in getting questionnaires filled in from the users.
1.12.3 Structure of Questionnaire:

The purpose of designing questionnaire was to assess the awareness and use of e-Resources by users in the area of engineering and medical which included students and faculty both. Two questionnaires were prepared for survey.

• Librarians Questionnaire (to assess status of libraries and availability of resources for the consultation to users and facilities provided by libraries to the users)

• User questionnaire (for student and faculty users) (To assess the awareness and use of e-Resources by users and use of services provided by libraries)

The aim and purpose of the questionnaires was to get the data form users and assess their needs and awareness of e-Resources as well its use. The questions asked in the questionnaire were focused on these concepts. The few questions asked to respondent’s covers information on:

1. Important resources considered for research / study / teaching (e.g. books, journals, databases, web resources etc)

2. Sources used for getting data / information from the collection (suggested by friends and colleagues, faculties, librarian or information professionals, from the different sources like reviews, thesis, technical reports, abstracting and indexing journals, library catalogues, internet and web pages etc)

3. To assess awareness of e-Resources and using e-Resources from libraries or from other sources.


5. Media of information sources preferred. (print / e-Resources/both)

6. Reason for consulting and accessing e-Resources (to keep up-to-date, assignment and seminars, research purpose, teaching, contributing to knowledge, to get information on particular area/topic) and type of e-Resources mostly used / consulted.

7. Places from where e-Resources are accessed (library, home, cafe, hostels, departments etc)
8. Factors influenced more for using e-Resources? (easy access, comprehensive access, current information access, time saving, easy to use, more informative, less expensive, not all the above etc)

9. Frequency of use of e-Resources and print resources and hours spent on using e-Resources as well as search techniques used for searching information (Key words, general subject, Boolean, field, phrase, truncation, federated etc)

10. Preferred format of text (Txt, PDF, HTML, print), which medium used for communicating e-Resources (Email, www, e-journals etc)

11. Using search engines for getting data over net and ranking of search engines as peruse (Google, Google scholar, Any other)

12. Finding usefulness of e-Resources over P-resources and Problems faced while using e-Resources (lack of training, lack of knowledge of availability of resources, insufficient infrastructure, lack of availability of resources in libraries, lack of information staff support, any other)

13. Awareness about subject databases in disciplines and opinion on use of e-Resources over traditional resources.

In general questions were asked to understand the user needs and use of libraries, reasons to consult information sources, (study, research, updating knowledge, teaching, project work, seminars, assignments etc), satisfaction level of usage of e-Resources etc.

The structured questionnaire was administered to the librarians, students and faculty by the investigator contacting them personally. The questionnaires were distributed in the month of June 2015 and responses were collected in January 2016 after constant reminding to respondents. The responses to questions are studied and presented in chapter “Data Analysis and Interpretation”. In addition to survey interview / interaction / discussions with library professionals, faculties helped in getting tacit and implicit data from users. Literature collected also considered for building the concepts while narrating the study for justification. The areas selected for the study are, prominent and valued in the education system and are professional courses in which users are more dependent on resources for regular study or research as well as teaching. The users are using advanced technologies and ICT literate and they need advanced literature in the area for pinpointed, current information for the study.
For the present study is based on following medical and engineering colleges in Goa.

A) Medical Colleges

1) Goa Medical College, Bambolim, Goa.
2) Goa Dental College and Hospital, Bambolim, Goa.
3) Kamaxi Devi Homeopathic Medical College, Shiroda, Goa.
4) Institute of Nursing, Bambolim, Goa.
5) BSP Gomantak Ayurveda Mahavidyalaya, Shiroda, Goa

B) Engineering Colleges (including similar studies)

1) Goa College of Engineering Farmagudi, Goa
2) National Institute of Technology Farmagudi, Goa.
3) BITS Pilani, Vasco, Goa
4) Angel Institute of technology and design Assgaon, Goa.
5) Padre Conceicao College of Engineering, Verna, Goa.
6) Don Bosco College of engineering Fatorda, Goa.
7) Rayeshwar Institute of Engineering and information technology Ponda, Goa

Data Analysis covered the following aspects:

1. Use of various e-Resources
2. Access to resources (print and electronic)
3. Use of Internet
4. Use of e-Resources
5. Awareness and frequency of use of e-Resources
6. From where access the e-Resources
7. Purpose of using e-Resources
8. Level of satisfaction
9. Use of Social Networking sites
10. Specific e-data used by users
1.13 Review of Previous Studies:
While conducting the literature search, researcher observed that few studies are conducted in the area previously and presented in the form of articles, papers, case studies, reports, dissertations etc. Few studies reported while conducting literature search on the use of e-Resources in different sectors are:


2) Hughes, H (2009). International students using online information resources to learn. (Thesis submitted in Queensland University of Technology)

3) Jange, S (2004). Use of Internet as an information source by engineering faculty and research scholars and its impact on libraries of REC of India : A study (Degree awarded by Gulberga University)

4) Prabh, R (2011). Networking of college libraries affiliated to Bharatidasan University: A case Study (Degree awarded by Bharatidasan University Tiruchirappalli)

5) Rao, N V (2013). Managemnet of electronic resources in NBA accredited engineering college libraries in Andhra Pradesh (India) : A survey (Degree awarded by Andhra University Visakhapatnam)

On searching Shodhganga database of theses developed by INFLIBNET following few studies are reported which are related to e-Resources in different libraries.


2. Use of resources by teachers and science faculty of grant in aid universities of gujrat state (2016). Jodhani Varsha K.

3. Use of e-Resources by chemists and physicians in university of Haryana, Punjab, Chandigarh an analytical study (2015). Rani Sakhi

4. Use of e-Resources by students and researchers of Pravara Institute of Medical sciences Loni (2013). Hapse, S.S.
5. Use and awareness of print and e-Resources by students in women college AMU Aligarh, a survey (2015). Shamin U.


8. Use pattern of information resources for engineering colleges in Kerala (2013). Abdul Azeez TA


Searching resources in Google and Google Scholar search engines few studies are noticed are:


10. Indian journal of information science and services vol. (2) Jan-Jun 2008 1-64 (Sp issue on use of e-Resources) 13 articles


17. Tenopir, C. (2003). Use and users of electronic library resources an overview and analysis of recent research studies


From the literature review it is noticed that there is no study reported which is selected by the present researcher and is of different nature. The researcher has conducted a literature review to get an idea about the status of usage of e-Resource and noticed that different
studies are conducted related to use. These studies are conducted having different considerations by different scholars and personalities.

1.14 Structure of the Research Study:

The research work is presented in seven chapters.

Chapter 1: Introduction - This chapter highlights the design of the research work in brief and narrated role of e-Resources, role of libraries in digital era, background for research study, need of the study, reasons for selecting the research problems etc. The researcher elaborated aim of the research, objectives, hypothesis, limitations of study, research methods used for conducting research (descriptive, survey, questionnaire, interviews, literature analysis etc), previous studies reported and structure of the research study in brief.

Chapter 2: Review of Literature - In this chapter presented reviews on related literature published, and analyzed in this chapter suitably and used to build the concepts in different chapters. The literature is collected on the theme of the research topic covering e- resources and use of e- resources etc. The facets selected for review are e-Resources and use of e-Resources, e-Resources in engineering sciences, e-Resources in medical sciences, importance of use, user and ISB studies, use of libraries by academics and related studies on the topic in different subjects etc.

Chapter 3: Profile of Medical and Engineering Colleges in Goa - This Chapter gives information about different medical and engineering colleges in North and South Goa. The information presented in this chapter is collected from the colleges as well as using information disclosed on the web sites of colleges. Researcher visited all the institutes and under survey and presented the information of professional medical and engineering institutes in Goa.

Chapter 4: Use and User Study: Brief Review - This chapter focused on importance of use and user studies in libraries. The role of use and user study is discussed in development of libraries and building collection development practices etc.
Chapter 5: Resources in Engineering and Medicine - Highlights the availability of the e-resources in medical and engineering science with their brief information for use of academic/research workers. In this chapter prominent and most useful information resources in both the streams are discussed. This is useful information to users for using best resources in the field.

Chapter 6 A and B: Data Analysis and Interpretation - analyzed and interprets the data collected from the librarians, faculties and students through structured questionnaire. The analyzed data is presented systematically deducing observations in this chapter.

Chapter 7: Findings, Suggestions and Conclusion – In this chapter researcher concluded the study with findings, and suggestions for the successful utilization e-Resources and explore the scope for further research. A tentative model for the e-Resource sharing and networking is presented in this chapter to develop a local resource sharing activity.

Summary:
Education is key factor in development and advancement of society. The need for information in education is unlimited. Scholars, educators seek and use information from different sources and formats for a variety of tastes. The information generally used for enhancing knowledge in the profession and education as well as decision making, discovering new concepts developing new technologies by conducting research using technologies. In short information plays a role in reshaping human thinking.

The main aim and functions of every library and information center is to make effective use of library resources for prosperity and generating new knowledge base. Information is important and vital in any fields. Libraries are treated as nerve system and backbone, and occupies leading place in supporting the information needs of education, research and academic sector. There is an acute need of using information technology and use of e-Resources to provide latest information to users by way of developing information products and information services. E-resources are more popular in S and T areas. More e-Resources are being procured in libraries as compared to past. There is a need to assess the use of e-Resources in professional courses and also understand the user needs in information era. This research study is mainly focused on the use of e-Resources and
reasons for consulting them by the professional educators. There is a need to assess the use and user needs to provide efficient services to users from the libraries especially using e-Resources. This chapter is introductory in nature and presents research design by the researcher.
References:

