1.0 Introduction

In the modern information society the development of Information technology and Telecommunication networks is accompanied by increasing of knowledge and growing flow of information. This new information environment requires new skills between different type of users for retrieving, exchanging, processing and using information. The skill or ability of any individual to understand the use of information is a qualitative, ongoing learning process. Learning and teaching are important for the educational system and information society. The education system is changing for several reasons, such as social, cultural, political and economic changes etc. The role of librarians and information professionals in this new environment has been strongly influenced by these changes.

Information explosion has reduced the working capacity of library professionals. The automation process of a library has increases the capacity of professionals and also makes it easy to implement the technology in the library. ICT has made very dramatic and unbelievable changes to the traditional library services such as Circulation, Bibliographic services, Document delivery, CAS/SDI and Inter library loan services etc very effectively. The library can offer these up to date services to the users in the very convenient and faster way by using ICT resources. The role of library and information science professionals have changed during a few decades in which Internet has played an important role to the obsolescence of some traditional information services into advanced web based services.

The development of ICT resources has explored the field of information and knowledge. Gradually all the world is using and implementing these resources and now it is being used most of the libraries in all the countries. The Information technology with Computer technology has conquered even time and space with regard to dissemination of Information.
The ICT plays a vital role in the various fields in the world. It has made the communication process very easy and simple to communicate. The whole world is just in figure touch and users can access to the most of the big and large libraries on the Internet. ICT is also becoming a major driving force of globalization to improve the global health-care systems. The implementation of ICT resources is a process of using the latest technology for making working process easy and which reduces the time of manually done functions. It is also called the process of automation in the libraries. The use of computer hardware, software and other peripherals in manual library functions is called automation. Through automation different operations can be performed automatically by the machines. Some definitions regarding the Automation, Library Automation and Automated Library are given below-

1. As per the Encyclopedia of Information and Library Science, “Automation is the technology concerned with a design and development of the process and system that minimize the necessity of human intervention in the operation”.

2. The library automation can also be defined as “The process of mechanization of routine library functions which includes almost all the functions of the library i.e. Acquisition, Serial control, Cataloging, Circulation, References and Administration works”. In other words, computerization of all library functions is called library automation.

3. The word “Automated Library” refers to a library in which all the routine operations of reading material are done through the using computers. The documentation work of the library reading materials are primarily on the paper but the operations have been computerized. The medical library required the automation mainly for following reasons-

   a) Library automation helps in improving the quality, speed and effectiveness of work.

   b) It improves access to remote users and other general public.

   c) It provides the facility for access of information to their clients.
d) Improve the management of their physical and financial resources.

e) It helps the rapid communication with other libraries and professional peers.

f) The automation also helps in keeping record; it is much easier in automation to work rather than in manual way.

g) The data can be shared easily with users and other general public.

1.1 Definitions & Meaning of ICT

A. Information- When timely and accurate, accrued data is presented in the meaningful and relevance form for a specific purpose that is called information. This data that has the meaning in some context for its receiver. When information is entered and stored into a computer, it is generally referred to data. After processing (such as formatting and printing), output data can again be perceived as information and packaged or used for understanding or doing something, to gain the knowledge. This processed data has been organized for the direct utilization of mankind.

B. Communication- Communication is a diverse discipline which includes inquiry by social scientists, humanists, and critical and cultural studies scholars. A body of scholarship and theory, about all forms of human communication, is presented and explained in textbooks, electronic publications, and academic journals. In the journals, researchers report the results of studies that are the basis for an ever-expanding understanding of how we all communicate.” Here are some definitions given below-

1. National Communication Association defined the Communication- “The discipline of communication focuses on how people use messages to generate meanings within and across various contexts, cultures, channels, and media. The discipline promotes the effective and ethical practice of human communication.
2. **Wikipedia of Communication** defined that “It is originated from Latin word “Communicare” which means "to share". It is the process of conveying information through the exchange of ideas, feelings, intentions, attitudes, expectations, perceptions or commands, as by speech, gestures, writings, behavior and possibly by other means such as electromagnetic, chemical or physical phenomena. It is the meaningful exchange of information between two or more participants.

Communication requires a sender, a message, a medium and a recipient, although the receiver does not have to be present or aware of the sender's intent to communicate at the time of communication; thus communication can occur across vast distances in time and space. Communication requires that the communicating parties share an area of communicative commonality. The communication process is complete once the receiver understands the sender’s message.” Communicating with others involves three primary steps-

a) **Thought**- First, sender has an existence of information in his mind. This can be in the form of concept, idea, information or feeling.

b) **Encoding**- Next, a message is sent to a receiver in words or other symbols.

c) **Decoding**- Lastly, the receiver translates the words or symbols into a concept or information that a person can understand.

C. **Technology**- Technology is the vast field to define; in general it is the use of machines to make the manual works easy. It is the use of scientific applications for the practical purposes- in the academics, industry or in daily lives to achieve some specific purpose. Technology usually involves a specific kind of equipment or application designed to make the whole process of that work incredibly simple or dazzlingly complex. It could be understand the inventions of computers and smart phones. These are the best examples of technology and its use form the daily lives.
D. Information Communication Technology-ICT stands for Information Communications Technology. It is a technology, which supports the activities to process the information, such as gathering, storing and presenting data. These activities are also involved in the collaboration and communication of the information to the destination. Mostly, it refers to the system or device that promotes the exchange, storage, retrieval, manipulation, transmit and receipt of information in digital form. It is the combination of Information technology, Communication technology and Networking technology. It is similar like Information technology. For an Example–Computers (Desktop, Laptops, Palmtops etc. which includes Hardware and Software parts), Televisions (LCD, LED), E-mail, Robots, etc.

1.2 Components of ICT- The components of ICT- Print media, Broadcasting media and Internet are also affecting the health-care and medical systems and showing the improvement of ICT resources such as E-mail, Mobile-phone and Digital videos in the medical field.

1. Information Technology- Information technology is an umbrella term for Networking technology, Communication technology. When technology is implemented on the exchange, retrieval, storage of information, it is called Information technology. Educational technology, Instructional technology and Learning technology are collectively used in the delivery of educational material. These technologies have the ability to provide access to the world-wide resources. The Innovative use of information technology on research and development should have equally included in the professional recognition of faculties, not just a glamorous task for the most enthusiastic and inspired.

2. Communication Technology- Communication technology is related to the process of communication with various tools and technology of IT. ICT promotes communication through various IT tools and technologies. It mainly deals with Online messengers, Applications, E-mails and Websites.
It is the process of constructing, designing and maintaining communication systems through IT applications. Now it is referred to as ICT and includes many communication devices or applications such as Radio, Television, Internet, Mobiles.

3. **Networking Technology**- Networks provides facilities for sharing and transferring data through various ways. Without a network, files or data cannot share by another computer user. When users want to use the data they have to carry or send the data in the disks, CDs from one computer to another. But in the network transferring files or data is very time-consuming. Network technology is mainly deals with computer networks. A computer network consist a collection of Computers, Printers and other equipment that are connected together through Modem, Data cable etc. for communication. It is a telecommunication networks that allows computer to exchange of data through wireless or cable media.

An ICT System can also divide in to 6 different components. They describe as follows-

1. **Data**- A data can be defined as a raw material for information. The data is the plural form of Datum. Raw data has been converted in to the information after the process of collection and analysis by the processor.

2. **Hardware**- Hardware is the physical components of a computer system. The parts included – Keyboard, Monitor, CPU etc. which can be physically touch by a person called hardware. These hardware components are very easy to recognize.

3. **Software**- Software is the computer programs which operates a computer hardware unit. Software can’t be touchable. It is a set of human instructions for a computer system to perform specific operations. We need both hardware and software for a computer system to work. Both Hardware and software make a computer unit.
4. **Information**- It is the set of data which converted to give it a meaning after processing. It is a data recorded, organized, related or interpreted within context to convey meaning.

5. **Procedures**- It is related to the chain of actions conducted in a certain order to make sure that the system runs on regular interval and very smoothly.

6. **People**- When a human being entered data into processor he controlled the whole process of making information. For example- Keyboard, Pen-drives, etc.

1.3 **Different Areas of Automation in Libraries**- The medical libraries also have the similar areas for automation like the academic libraries. Given below are the following areas of library automation:

1. Acquisition
2. Cataloguing
3. Circulation
4. **Indexing & Abstracting**
5. Serial Control
6. **Library Administration and Management**
7. **OPAC**
8. Resource sharing through Library Network/Internet;
9. CDROM database searches
10. **Office Automation & Desktop Publishing (DTP)**
11. **Information Storage and Retrieval**
1.4 Emergence of Special Libraries- This modern age is called the era of “Knowledge Explosion” due to the flood of information in the global world, where the information is continuously pouring in various forms of data in which facts, figure pictures etc. are included. Over the past few years’ rapid scientific inventions like- Computer technology, Communication technology and Network technologies have forced Business houses, Educational institutions and other organizations to develop special information centres/libraries to collect, control, organize and disseminate information.

The flow of information is coming in various form of literature. In the last few years scientific inventions have rapidly come and various means of communication have changed our lifestyle. Due to these developments, need of special information centers are increased for control, organize and dissemination of the information. These types of libraries are called as special libraries. These libraries are involved to promote the use of special kind of knowledge. Following special elements can changed a library into a special library-

1. Library serves their services only to its members.

2. Library has collected material on basis of single discipline.

3. Library is responsible only for their parent institutions.

Medical college libraries are also a type of special libraries because they serve the specific needs of their users. These libraries could also be similar like as an academic library due to its nature to supports for medical science students. The medical college library supports the users in the study, teaching, learning and research work to fulfil specific requirements.

To promote the knowledge related to the medicines and medical colleges, medical college libraries are playing vital role. The medical college library works as a tool or instrument for the medical institution. The prime objective of a medical college library is to become a knowledge house of medical information and provide that information to the medical practitioner or students.
While, achieving to the goal of a medical college library it should be determined that what and how the strategies follows to achieve those goals. The medical colleges should determine the limitations to the user for using the library resources for their study. Meanwhile, in the traditional library system, the teachers and students depended more on the textbooks of the library. A medical college library should support to the medical colleges to achieve their own objectives. Like any other library the basic functions of a medical college library is to provide the reading material and information to its users on the required time and fulfill the requirement of the faculty/students.

1.5 Emergence of Libraries in Medical College Development- Medical college libraries is different among special libraries because they provide services to special kind of users who are medical professionals, doctors, and medical scientists. Like other academic libraries medical college libraries also support to users to fulfill their need and research programs. These are also the part of special libraries. “Health-care librarianship has its own character and tradition determined by special characteristics of its users and the unusual nature of their structure of medical knowledge. Its users are studying, teaching and researching at the highest intellectual levels at seldom, even in a university context think of themselves, as academician. They are practitioners and the unique practice generates a special sense of urgency and value in every supporting activity”. There is no. of libraries comprised in the health-science libraries- such as Medical college libraries, Medical research institute libraries, Hospital libraries, Government health department libraries etc.

Medical college libraries have become an important tool for teaching and research and development. Leake (1965) defined that “Medical school libraries are particularly important in the educational process. Effective training of modern medicine requires diligent self learning. The best knowledge can obtain by teaching and working in medical libraries. It is also helpful to engage at firsthand in research efforts in association of field master research effort, however experimental or clinical, inevitably rest on the accumulated expenses of the past and this is or should be, available in the medical library”(p.292-293).
At the primary stage of medical college libraries the collections of reading material were very small and service were quite simple. A third grade clerk issued the books and tracked down those issued. The authority issued very low budgets to the libraries. There was no particular acquisition policy for the reading materials at that time. With the introduction of new technologies in the medical institutions, there have been a bewildering feature in the field of medicine and allied sciences in the last few decades, better facilities for keeping a breast and probing into the widening field of medical literature became a necessity to all those interested in medicine and the medical profession.

Year after years, medical professionals and scholars went overseas for advanced research and studies because at that time they felt the lack of good library facilities, the quantity of reading material was not so sufficient and quality of library services was not satisfied in comparison to the foreign countries medical libraries. As a result, standard medical education and research facilities were very far from the approach of the medical students but the things have been changed with the time and medical college libraries are also doing very well after applying the ICT resources.

1.6 Overview of Medical College Libraries- In India, medical profession is a systemic implementation of scientific applications of maximum utilization of human power for a healthy society. It is a combination of arts and science to recover a human body from a disease and which is made useful for the development of the society and the nation. The medical education is the result of the different scientific experiments and observations in the medical field. It has received a lot of attention globally because of its urgency in dealing with the various diseases and securing the people from them to maintain a global relationship in social order. With the development of science and technology applications, the needs of medical professionals have been increases day by day.

Medical education is a big challenge to the medical professionals because all the new methods of the science, technology and education have been integrated in it by the scientists, physicians and other health professionals. The field of medical education includes the field of medicine, medical education and research.
Introduction

It is also a challenge to medical educators in the context of universal declaration of human rights of people to medical welfare which covered all the risks related to the sickness, maternity, old age and death. It is a human right to get information related to health education and development for a better and healthy living. Human health is the one of the basic human rights of human being without un-equalization of racism, religion, political, economic and social condition.

Modern medical educators are facing different types of problems than their predecessors. In the medical field new things are being invented day by day. At present, the field of health research and development has become mandatory for the socioeconomic society. India has already taken initiatives to improve the quality of health-care services and medical education. As a result, there have been so many numbers of medical organizations, nursing and pharmacy colleges’ rises and the numbers of student are taking admissions in all programs of these medical institutions. Thus, the importance of medical college libraries can be visualized for the medical professionals. These could be the best medium to get information about anything. Library users can get the latest updates about new inventions and the librarian can help them find out the information resources in the libraries.

Traditional way of instructor centered teaching is yielding to a learner centered model that puts learners in control of their own learning. A recent shift toward competency-based curricula emphasizes the learning outcome, not the process, of education. Medical education refers to the use of information and communication technologies to deliver a broad way of solutions of medical field that enhances the knowledge and performance of the medical professionals.

Medical educators use the medical information to improve the quality and effectiveness of educational interventions to face the social, scientific, and pedagogical challenges. The use of medical education is highly variable among medical schools and appears to be more common in basic science courses than in clinical clerkship. Medical institutions of the regional, national, international level have largely benefited by the rapid changes in advance technology.
Medical knowledge and skills, equipped the medical students and professionals with the necessary knowledge for their future use. The usage of medical college library in the world has a significant impact on the communicating and exchanging the information of continuing medical education.

The growth of medical college libraries in the medical field helps to research and development of the physical and mental diseases and the rapidly changing health care environment have led to the development of new kind of services in the medical education. The complexities of medical content have increased the demand of on-line or off-line electronic reading material for continuing medical education and knowledge updates. The advent of information, computer, telecommunication and audio-visual technologies has opened the new ways of collecting, organizing and disseminating scientific and technical information to the users. The library professionals of medical college libraries need to update their knowledge about information and communication technology if they want to perform an important role to support the human society. This is very important for a professional of a medical college library to get aware the users about the information of all new technologies in the medical field by using ICT resources.

1.7 Brief History of Medical Education in India- India is a great witness to the history of its great medical education. The facts of Indian medical history found from the ancient Vedic times and continued in the Hindu, Muslims and British rules. The medical history of India began about three thousand years before the Christ. Maharishi Charak has written the first books on medicine in India that are Charaka Samhita and Sushruta Samhita. In the post Vedic period (600 BC to 200 AD), Samrat Ashoka and his successor established public hospitals and schools of medicine for the welfare of the public. The history of Indian medicine divided into three phases Ayurveda, Unani and Allopathy. Ayurveda medicine, that has been dated to be the oldest and is believed to have initiated and practiced between 2000 and 3000 BC. The growth and development of medical college libraries could be divided into following three parts on the basis of the periods-
1. Ancient and Medieval Period of Medical College Libraries- In Ancient and Medieval period medical college libraries have also largely developed like other institutions libraries. The systematic teaching of Ayurveda is known from the second century B.C. at Taxila University and fourth and seventh century A.D. at Nalanda University. Mostly literature was found only in the Sanskrit manuscripts because Sanskrit was the lead communicating language at that time. After Charak and other great classical writers when Muslim rule came in to the India, the Unani system was also introduced in the country.

2. Pre-Independence Period of Medical College Libraries- In the year 1824 the first medical school was started in Kolkata and followed by another at Chennai. In 1845 there were three medical colleges started in Bombay, Hyderabad and Indore. All the established medical schools were up-graded into medical colleges after the establishment of universities at Kolkata, Chennai and at Mumbai. In year 1835 “The Madras Medical College” was established at Madras, which was the first medical college in the country. The second college was “the Calcutta Medical College” in 1836 and was followed by “The Stanley Medical College” which was started in 1838 in Madras. “The Grant Medical College” was established at Bombay in 1845.

In the first half of 19th century there were only 4 medical colleges in the country and by the end of this century, 10 colleges were working. The General Medical Council of Great Britain recognized the MBBS Degree Since 1892. Library facilities were not so satisfied in those libraries. Norman Walker and Colonel Nudham studied the problems accruing the increasing number of medical colleges and their maintenance problems, submitted a report recommending establishing a central coordinating body of medical libraries in India. The result came into the form of Medical Council of India (MCI) in 1933. The MCI was constituted on the Guidelines of Medical Council, U.K. and set standards and norms for the establishment of medical colleges in India.
Since independence in 1947 there has been a rapid growth of medical colleges noticed and apart from these medical colleges a large number of institutions in the related disciplines of dentistry, nursing, pharmacy and Para-medical sciences were also started.

In 1945 Lt. Col. McDonald surveyed the 25 medical colleges and 7 research institutions for finding library facilities were adequate or not in these colleges. He found that the annual budget was not sufficient for proper library working. The library holding was very low and there was not any professional library staff in any library. The Bohre Committee (1946) also surveyed these libraries and strongly recommended the establishment of a Central medical college library in India with more than 11000 books and periodicals. This has now become the National Medical Library of India.

3. Post-Independence Period of Medical College Libraries- After the independence during 1947-1955 total 19 Medical colleges was established. In this period the condition of medical college library was also the matter of discussion. Libraries were not the essential part of the academic and research activities of medical colleges. T. Laxminarayan said in his reports that “it is striking, how scanty the provision of libraries in the medical colleges as they suffer from all the disadvantages namely lake of space, fund, trained professionals and total lake of any training in the use of the library to the students”.

In 1956 the prestigious All India Institute of Medical Sciences was established in New Delhi. There were a lot number of other institutions of medical research established under the Indian Council of Medical Research. With the rapid growth of these institutions and to meet the user’s information need, there had been a corresponding development in the number of medical college libraries. Medical library professionals have made great progress during the post-independence era. The constitution of India provides all Indian states full autonomy in various fields such as medical education as well as health matters.
The medical education and health matters are included in the concurrent list of Indian Constitution. Now many medical colleges of the various states are affiliated to the respective State's Academic Universities. Government of India has established a Health Survey and Planning Committee in 1962 to examine the high cost of medical education at that time in India. This committee has recommended the establishment of a central library, which would have been opened for during working and non-working hours for visitors with all type of library facilities. There were 71 medical colleges in 1963 and 89 in year 1965. With the time the number of medical institutions have been increased and now at present in India total 460 Medical institutions are affiliated to different Medical, Central and State level Universities.

A. National Medical Library of India- The National Medical Library was established in 1966 by the Central Medical Library of the Director General of Health Service to provide and disseminate relevant medical literature to the medical students. The government of India was renamed National Medical Library of India in place of Director General of Health Service Library on the recommendations of Bohre committee. Government decided to develop previously established this library as a national library. It is situated in New Delhi. It was the benchmark in the history of medical library development in India.

HELLIS network was launched by National Medical Library in 1980 in a meeting at Delhi, which has established NML as National focal point for Libraries and Information centres. The library has the collection of 3.6 lakh volumes of books, reports and bound journals and it adds more than 3000 books and journals in its collection. The library subscribes approx 2000 current journals. The aims and objectives of National Medical Library of India are as follows-

1. Available and provide a copy of expensive and useful reading material to every library of medical colleges which has not proper budget.

2. To collect the all type of reading materials, available in different languages from different parts of world.
3. To promote the resource sharing facility at inter-state and international level.

4. To build the collection of old manuscripts those are related from medical field of India and other countries.

5. To maintain a treasury of collection in proper way with useful volumes that is needed by the State medical college libraries of the country.

6. To prepare and continuously update the union catalogues of reading literature involving whole medical college libraries of country.

7. To conduct the training and orientation programme for the librarians and documentation officers whose work with medical college libraries of country.

8. To provide time to time guidance and consultation services from experts to librarians of medical college library.

9. To help for the creation of the reading room in medical college libraries and provide retrieval facility accordingly.

10. To provide facility of indexing and abstracting services in the field of biomedical and allied sciences at national and international level.

11. To compile and provide a bibliographical services to State medical college libraries.

The library works on 359 days of the year and open normal office hours from 9.00 am to 8.00 pm during March – Oct- and from 9.00 am to 7.00 pm during Nov – Feb. The users of libraries are P.G. students, teachers, research-scholars, practicing-doctors/surgeons, health-administrators, drug-manufacturers, and pharmacists etc who visit the library every day. The library has a heavy burden because it is to satisfy more than 200 users every day. It provides free service to all medical and health science professionals for reference and consultation. Library also receives and provides a number of reference queries and its answers on telephone. This library conducts the activities given next-
1. It involves in the set up of six Regional Medical Libraries.

2. It involves in the xerography services, and installing on-line search capabilities on its database.

3. It organizes a five weeks orientation course for librarians in the field of health sciences.

4. It provides available literature through photocopy service for personal use at nominal rate. A private operator has appointed for it.

5. It issues books only registered members

6. It publishes following publications-
   a) Library collection– a bimonthly list of additions
   b) Chetena- A current health literature awareness service
   c) Index to Indian medical periodicals.

7. It provides CAS through circulating core lists of useful books and periodicals for the medical college libraries in India.

B. Indian Council of Medical Research Library, New Delhi- The head-office of Indian Council of Medical Research (ICMR) is situated at New Delhi and its library initiate with few books. Previously, the role of this library was similar as store house. After the year 2006; this role has been changed in the form of modernized information centre. The library has the collection of more than 15218 books and 27,118 bound journals.

The library subscribes 247 periodical from more than 150 countries of the world and received 285 journals on exchange basis, which satisfies the need of medical professionals, scientists, researchers from within and outside Delhi. At present, library is adopting modern ICT resources and equipment such as computers, laser-printer and photocopier machines for the automation.
Library management software has been also installed for the automation. It also provides Internet surfing facility to the user to search. The library is also subscribes Med-line CDs (168) and Journal Citation Reports (11727). The library has a good collection of on nutrition (Reports of NNMB), ICMR, WHO publications on CDs (Approx-1000). This library involves following activities-

(a) **LIBSYS**- Library has used this Library Management Software for various library functions such as issue/return, searching reading material through OPAC module.

(b) **DELNET (Developing Library Network)** - Library gets membership to the DELNET and access to various databases of various libraries through it.

(c) **ICMR E-Consortia**- The library has accessed E-journals such as BMJ, Lancet, Nature, NEJM, Science.

(d) **Publication and up-dation of Union Catalogue of journals in ICMR Libraries**- ICMR Hqr. library has also published a “Union Catalogue of Journals in ICMR Libraries” and updated time to time.

(e) **JCCC@ICMR**- It is subscribing since 2004 by ICMR which is a customized internal database of ICMR. It provides access to all articles published in 550+ unique journals subscribing by all the 25 ICMR Institutes Libraries. This service is obtained through NIC India.

(f) **Pro-Quest**- It is a full text electronic database containing about 550 full text medical journals which is used by the library. Required articles can be accessed though Internet and its full text can be downloaded or printed.

(g) **Training**- Training programmes are organized for the library employees under automation program of library. Training for searching of on-line and off-line databases is also organized.

(h) **Publication of ICMR Library Bulletin**- It is an in-house publication which is published since 2004 and quarterly.
C. Medical Council of India (MCI) - The milestone of Medical Council of India was initiated in 1934 under the Indian Medical Council Act, 1933. The main objective of the establishment behind MCI is to set uniform standards of higher medical qualifications and education in the field of medicine and health-care in India and abroad, with the recognition of medical institutions. Post-independence the numbers of recognized medical colleges have been increased. So in that situation, the provisions and standards of Indian Medical Council Act were not able to satisfy the challenges faced by medical institutions and professionals due to fast technological developments in the country. As a result, in 1956, the old act was replaced with new act and modified in 1964, 1993 and 2001. The new amendments came into the existence in the year 2010, 2011, 2012 and 2016. The aims of the council are as follows-

1. Set uniform standard of medical education, at undergraduate and postgraduate level.

2. Registration of the medical degrees.

3. Recognize or de-recognize the medical courses of medical institutions of India or foreign countries.

4. Maintain the relation with foreign countries for mutual recognition of international medical education.

C.A. Functions of Medical Council of India

1. Inspection of standard of medical education in India that is properly followed or not.

2. Recognition/DE-recognition of Indian qualifications and Foreign qualifications

3. Give permission to start new medical colleges, new courses including P.G. of Higher Courses, increase of seats etc.

4. Maintain Indian Medical Register for the registration of qualified persons.
5. Do various type of Registration, such as Permanent registration, Provisional registration. Registration of additional qualifications, Issue of good standing certificates for doctors going abroad.

D. Madhya Pradesh Paramedical Council- Madhya Pradesh Paramedical Council was established to maintain and promote the qualitative uniform standards of paramedical courses in M.P. State under the Madhya Pradesh Paramedical Council Act. It functions in various ways such as conducts examination, issues guidelines and a professional code of conduct. It works as on regulatory and disciplinary body for the paramedical courses and solve the general queries to the public.

E. The Indian Medical Association (IMA) - Indian Medical Association is the well-established national organisation and representative of the Indian Doctors and medical professionals of modern medicine and health-care system. It was established in 1928 in Delhi to looks after the interest of medical community. It was also the founder member of World Medical Association in 1946. It hosted the III World Conference on Medical education under the joint auspices of W.M.A. and I.M.A. in New Delhi in 1966.

1650 active branches of IMA are spread in all over Indian States and Union Territories. Over than 2,15,000 doctors are the member of this organization. The major aims of the Indian Medical Association include-

1. To work for the promoting and improving of public health and medical education in India.

2. Maintaining the honour and dignity of the medical profession and professionals and the co-operation among the members.

3. To work for the abolition of compartmentalize in medical education, medical services and registration in the country and this to achieve equality among all members of the profession.
The Indian Medical Association and Madhya Pradesh- On Dec.1921, the first effort of Dr. S.N. Barat and others was for its establishing. Late Dr. S.N. Barat was the first president and Late Dr. B.B. Chatterjee was the first Secretary of the Association. In year 1928, the Indian Medical Association was established and this Association affiliated with it. In 1948, the Jabalpur Medical Association celebrated its silver jubilee.

In 1956 the present Madhya Pradesh was reformed than Jabalpur was decided as state Headquarter it. After reorganization, its first president was Late Dr. C.K. Bhalerao with the secretary Dr. R.N. Chatterjee. The first state conference was held at Jabalpur in 1958. Since then every year annual conference is organizing at different places in the state. It publishes a newsletter for the many years. It also organizes various workshops.

All India Institute of Medical Sciences (AIIMS) - The establishment of AIIMS was the great step in the development of medical college libraries in India. It was established as an autonomous institution under an act of Parliament in 1956. The institute has kept national importance for grant medical degrees and other academic certificates.

The Institute provides the opportunity to the PG students for research and inquiry. The postgraduate students are learned the newer methods of teaching and provide opportunities to actively participate in teaching exercises.

It also provides training of personnel in all important branches of health activity and to attain self-sufficiency in Postgraduate medical education. Its library has very good collection of important medical books and journals. It provides facilities of photocopying, Med-line, video-monitor facilities and modern learning resource materials (LRM) and loan of reading material. The National Medical Library is situated in Institute’s New Delhi campus.
1.8 Brief History of Medical Education in M.P. State- The history of medical education started with the establishment of Gajra Raja Medical College, Gwalior in 1946, which was inaugurated on 1 August 1946 by Gwalior Maraja- Shri Mant Jiwaji Rao Scindia. The college building was inaugurated by the then Deputy Prime Minister of India Sardar Vallabhbhai Patel on 5 December 1948. The college was affiliated to the Agra University and MCI recognized the MBBS course.

King Edward Medical School, Indore was established in the year 1848. The school was re-inaugurated in 1955 as a hospital and was named the on the last Holkar ruler- Maharaja of Indore- Yashwant Rao Holkar. It was Asia’s largest government hospital and largest hospital till date in central India. To produce the good medical professionals to rescue the region’s medical needs, the Mahatma Gandhi Memorial Medical College, Indore was established in 1948. It is the first govt. hospital to be computerised in central India.

Gandhi Medical College, Bhopal was inaugurated on 13 August 1955 by Pt. Lal Bahadur Shastri and started its functioning with its first batch of 50 students and two departments: Anatomy and Physiology.

Government Medical College, Jabalpur was founded in 1955. It is the second oldest medical college in the state of Madhya Pradesh after the independence. It is named after Netaji Subhas Chandra Bose (NSBMC), the most prominent leader of the Indian independence movement.

Shyam Shah Medical College, Rewa is one of the oldest medical colleges of the M.P. as well as the country with glorious and rich heritage. The College is affiliated to A.P. Singh University, Rewa and approved by Medical Council of India, New Delhi and established in the year 1963.

Bundelkhand Medical College, Sagar was established in 2007 to provide advance medical facilities to the people of Bundelkhand region. This is the sixth Govt. medical college of MP. The buildings of this Medical College & Hospital are very unique and made in accordance with Medical Council of India’s requirement.
As the further development Madhya Pradesh Ayurvedygan Vishwavidyalaya or Medical Science University, Jabalpur was established under the Madhya Pradesh Act No. 19 of 2011 by the State government to manages and control over all the affiliated medical colleges and set-up uniform standards for excellence in academics and administration of teaching and learning of health sciences in the M.P. This is the governing body for all 271 medical colleges of various streams such as Medicine, Dental, Nursing, Paramedical, Ayurveda, Homeopathic and Unani in the state of M.P. Many yoga colleges are also affiliated with this. It runs 24 courses and has the yearly intake of 23,800 students through all the affiliated colleges.

To provide all the information regarding the operations & activities, conducted by the university and geographical convenience of students and affiliated institutions now it has been extended itself in the whole state through its Regional centres. It has the four Regional coordination centres, which are located at GRMC, Gwalior, MGMMC, Indore, GMC, Bhopal and SSMC, Rewa. Shri Om Prakash Kohli (Governor of Madhya Pradesh) has the additional-charge of as a Chancellor of this university and Dr. R.S. Sharma is the Vice Chancellor.

The MPMSU (Madhya Pradesh Medical Science University) has the very well-maintained and spacious library for the users with the collection of various types of books, periodicals/journals, reports, magazines and newspapers etc. It also has the first departmental library in the state. The library is the member of NDL and Knimbus (An Indian on-line E-library of E-books, Audio books, News and AV/VD, which includes a wide range of the different subjects). It also subscribes some Indian Journals, Directories of Open Access Journals and Open Access News etc. related to Medical field. The library is doing very well in the field of Medical Science in Madhya Pradesh State and its collection is increasing day by day, which is very useful for the medical science students of the state.

**NOTE:** the detail descriptions of all the Medical colleges have been given in the Chapter 4- Profile of the Medical College Libraries of M.P.
The All India Institute of Medical Sciences, Bhopal (AIIMS) is one of the seven AIIMS apex health-care institutes being established by the Ministry of Health & Family Welfare, Government of India under the Pradhan Mantri Swasthya Suraksha Yojna (PMSSY). This autonomous medical body functions under the Central Ministry of Health and Family Welfare, India. It was inaugurated on 26 January 2013.

1.9 Functions of Medical College Libraries- Though, the functions of a medical library have remained significant changes in both the user population and the way of access. The usage of information communication technologies and their resources in the functions of library operation and services has given the way for scientific management of medical literature and their fast retrieval and demand as well as in anticipation. Like any other educational institute, the medical college library is also working for achieving same goals. The functions of medical college library are as follows-

1. To build a comprehensive collection of medical literature.

2. Organize and provide access to the all type of information sources to all users.

3. To retrieve the vast and fast growing medical knowledge through various library and information services.

1.10 Nature of the Medical College Library- Medical college library has become the main source of information for the medical students, teachers, and other professionals also. Hospitals are the essential part of a medical institution which doesn’t have separate libraries. So medical student visits the library on the regular basis and used the resources for their study. Medical college library has also the same constituent factors like-

1. Sources of Information- Just like other special libraries, medical college libraries have also three kinds of information sources-Primary, Secondary and Treasury source of information. The health information deals with the humanity which play vital role in the global world. Medical literature is in growing stage which is growing tremendously and continually.
Medical information is multifaceted and embraces research data, drug information, demographic and statistical information and educational material. Usually medical literature can be dividing in to two groups-

a) Basic medical division such as- Anatomy, Pharmacy, Physiology, Microbiology, Forensic Medicines etc.

b) Clinical medicines like- Cardiology, Nephrology, Neurology, Orthopaedics, Gynaecology, Obstetrics etc. and other general medicines. Medical literature is quiet extensive and complicated.

2. **Users of Information**- Medical students, researchers, and teachers are the primary users of a medical college library. Medical practitioners are the secondary users. Most of the researchers and teachers are also the practitioner and they always use the library on regular basis for the study. There are multidimensional and multidisciplinary researches are very common in medical field. Students require the basic knowledge of the subjects through text, reference books and available online and off-line journals. Faculty members cum practitioners are engaged in their researches, teaching and medical practices. So they require a lot of information in books, conference proceedings and journals etc.

3. **Information Services**- The knowledge world or environment has been changed due to the rapid globalization of technology. Modern libraries have also become the part of storage and exchange of the knowledge. The services which provided by library include provision of physical access of information, document delivery service through latest technology and other services like inter-library loan, reference service, message alert service, CAS, SDI are also the part of advance library system.

1.11 **Objectives of Medical College Libraries**- A medical college library is designed to assist the medical professionals, students and researchers to collect, store and disseminate the health care information and to improve, update, access or evaluate the information resources which are related with the desire information of the users. Medical library keeps the faculty and practitioners aware with the latest developments.
These are typically found in Medical institutions, Medical schools, Private medical industries, Medical research centres and medical or health associations. Medical libraries are a life-long system for medical professionals because it has become an effective instrument for them.

The main objective of a medical college library is to provide information about new medical theories, views, innovations, patient care and research etc. to the medical professionals and help them to upgrading knowledge to use in the future. A medical college library has the responsibility to keep up to date to medical professional with new knowledge and information.

The main function of a medical library is to hold a comprehensive collection of medical literature with organized and provide access to all type of information sources with the help of different type of tools. The various types of library services has been introduced in recent years like Inter library loan, CAS, SDI, Abstracting and Indexing services, Reference services, Article alert services, CD-ROM etc.

In the medical field every professional wants to get more knowledge to improve their abilities by the help of these services. This is the responsibility of medical college libraries to identify the needs of medical professionals. It is a learned organization in its own right. Technology has provided an important communications vehicle for outreach services. Library-sponsored information networks that offer rural practitioners dial access services to a computer-based information system provide end-users with fast access to information.

1.12 Missions of Medical College Library- According to Matheson (1984), the mission of medical college library may be outlined as to enable medical discovery by connecting people with information and knowledge of the medical field. It helps to create, acquire, deliver and integrate information to support the medical professionals in the research, education, and patient care. The missions of a medical library can describe as follows-

1. Help to create an infrastructure of medical colleges to offer the medical educational courses.
2. Provide clinical information with the varieties of information search services.

3. Provision of patient-education literature and information search services.

4. Audio-visual support and management for the medical college library users (p.308).

1.13 Visions of Medical College Library- A medical college library should have a vision to serve, support, and enhance the teaching, learning and research needs of the medical and health community. Here are some visions of a medical college library are given below-

1. To deliver the qualitative information at anywhere anytime to the medical library users.
2. To give their contribution to the development of knowledge within the medical community.
3. To provide education for the effective use of medical information and information-gathering methodologies for lifelong learning.
4. To execute the information components of medical programs, collaborate with medical educators, researchers and professionals in planning.
5. Up-to-date the information and knowledge resources according to the latest techniques of information and communication technology to improve the distribution of information.
6. Aware the users about the information resources with the new products and services.
7. To enhance the contribution of medical library professionals in the field of health sciences librarianship.
8. Help to the parental body to recruit, develop and retaining a diverse, exceptional library professionals, who are committed to achieve the library's mission.
9. Creating an exemplary program of library outreach to the medical and health community.
1.14 Applications of ICT in Modern Medical College Libraries- The invention and growth of Information and Communication Technology always effected to the world. Libraries are also using these great technologies to improve their services and working process. These more advanced technologies are affecting the various aspects of information gathering and spreading in the libraries. These technologies enhance the use of Information technology, Communication technology and Computer technology on the different areas of library and information centres which affects the functions of a library such as- information access, retrieval, storage, manipulation, and dissemination to the users.

The applications of ICT resources have lead to personal management- training and placement, change in work pattern, demand and supply of professionals. The developments of ICT resources have been entirely transformed the usage of on-line services, electronic databases and Internet. ICT effects the routine planning of a library such as- collection development, library building and consortia. It helps to the librarian to provide authentic digital information services to the users in a vast variety of amount. Now modern libraries are also using the ICT resources for the automation of their core functions of library-cooperation and resource-sharing, developing institutional repositories and a strong management information system.

The ICT plays a vital role in the various fields in the world. It has made the communication process very easy and simple to communicate. The whole world is just in figure touch and users can access to the most of the big and large libraries on the Internet. ICT is also becoming a major driving force of globalization to improve the global health-care systems. With the use of computer hardware and software the automation process could be performed to reduce the physical or mental efforts of professionals and users.

Today library automation signifies the process of computerization or semi-computerization of information retrieval and storage system. The networking of an automated library system is also treated like the integral part of the library automation process.
Now most of the modern Indian libraries are using computers and ICT resources to manage their in-house operations, print or electronic reading materials, processing and disseminating the information to the end users. In India the reducing cost of hardware and software and their availability in the markets shows the impact of ICT in the library and information centers. Associated universities, institutions and other parent organizations of the libraries are also affecting by the use of technology.

INFLIBNET (Information and Library network) is playing a vital role from its establishment in the automation and networking activities of library and information centers of academic and higher education. The INFLIBNET Program enables higher academic libraries to purchase Computers hardware, Bar-code detector, Modem, Printers, Air-conditioner and Software- Operating-system software and Application software and get connect them to the Internet. Thanks to the UGC to provide sufficient fund for the expanses of data support works of information scientist. Through Internet, INFLIBNET databases can also be accessed and UGC provides maintenance charges for first five years from the date of installation of system in the library.

1.15 Impact & Trends of ICT in Medical College Libraries

The recent developments of ICT resources have fully changed the traditional roles of medical college libraries and librarians. Before the development of ICT resources, all the documents were available in the print form in the libraries. The emergence of Internet brings access and communication of information very fast on an unprecedented scale. In the era of digital information processing there is a huge demand for a new technique of information storage, processing and storing for the medical library users also. ICT is a very big term used to describe any electronic communication device included Radio, Television, Cellular-phones, Computer Hardware/Software, Computer network, Satellite systems and many more.

The ICT resources could be define as the mechanism to process, store and transmit information in the numeric, text or graphic form. Traditionally the medical librarian works manually for the sourcing, acquiring and processing of information for the various types of medical library users.
Now the medical college librarian has been transform into the information scientist who provides the information to the users in the as approachable digital form. The expansion of ICT has upgraded the modern medical college library services and the role of medical librarian. Here are some ICT facilities, which enhances the delivery of various services in the medical libraries such as- Computer Hardware/Software, Scanners, Telephone, Photocopier, Bar-code Reader, AV/VD, E-book, E-journals, Internet connection, CD/DVD Rom, Email, Printer, etc. ICT can be implemented in the every section of a medical library for example- Acquisition, Cataloguing, Classification and the Circulation. In the use of ICT computers have affected the whole cataloguing process.

This is well-known fact that cataloguing is the sole responsibility of library professionals in the every library. Now semi-professionals are involved in the process of cataloguing, who have not the more knowledge about the process? ICT makes the process of cataloguing very easy to the professionals. It helps in resource sharing process of sharing catalogue data. The impact of ICT on medical college libraries can be defined from the following study given below-

1.16 The Attitude of Medical Library Professionals towards Technological Developments- The library professionals’ attitude could be defined as the professional’s feelings, emotions, past experiences, objects or ideas, convictions and fears for a specific issue which prepared the professionals to react on that. The technological developments may have more advantages for the peoples and society but society also fears for using technology. The term such as “Techno phobia” and “Techno Stress” describes this fear. According to many researches the number of Techno crate people who are using the new technology very excitedly in the routine life and official works are not more than a numbers of people who are resistant to the latest technology.

This fear of technology emerges due to the lack of knowledge and it has been replaced by the people who have the expertise in relevant technology. Development may also bring the unpredictability and uneasiness in the human life. It can be responsible for the strong emotional human reactions such as confusion, fear and stress.
The introduction of computerization and after that the automation in the various departments of a library system was the turning point for the library professionals since it involved learning and implement new technologies and processes in routine library works. The working processes of professionals have been immediately changed with computerization. These new technological changes could be the big reason of worrying about library staff and their working proficiency.

For the implementation of new technology positive attitude of professionals have been required to influence the professionals behavior of working. Positive attitude helps to enhance the skills of library professionals towards learning and implementing the new technology. The technology reduces the efforts and time consumption of managing library resources.

The efforts and time both have an important impact on professional’s positive attitude towards using the technology but, when a professional hold negative attitude for using the technology, he could not be able to understood the usefulness of technology. How library professionals react on development and changes of technology, it could be a big matter of discussion for the management of parent institution.

In many researches it was found that while implementing the technology in the different departments of library, library professionals keep very positive attitude regarding the technology, which increases the working capacity and reduces the job limitations. The reaction of library professionals towards the computers is an appropriate focus for organizations attempting to increase the number of hours that their employees use the computers. There are so many factors available such as age, gender, training & placement, educational & professional qualification and overall knowledge about the technology.

The management should understand the attitude of library professionals towards the implementation and usage of ICT resources in library. The reaction and attitude of library professionals have been depend in the libraries on the implementation and usage of ICT and its resources in the modern age.
How library professionals react on the implementation and if they don't want (because some of the modern library professionals, even today also believe in traditional system and they don’t want any change in that) then what the reason behind it? The management should clear the objectives of implementation and talk to the professionals about the benefits. The ICT resources have been caused many significant changes and developments in the different departments of library such as Automated Cataloging, Circulation, Information storage and retrieval, Electronic document delivery services, and CD-ROM database.

The relationship between attitudes of library professionals towards using ICT resources and their personal behavior affected the implementation of ICT in library. It also showed that how library users are influenced by the professionals opinions of using library services. The professional’s attitude always affects the organizational behavior and should always be considered in managing library staff during the developments and change when new innovations are implemented in the library.

The advancement of the Internet provides the access of various libraries and their reading material from the remote locations. The process of digitization makes available all the reading materials of libraries in the digital form on the digital platform of Internet. The digitization brought tremendous changes in the automation of traditional libraries. Wireless network, virtual collections, expert systems, Interactive Web interfaces, Virtual reference service and personal web portals have changed the old concept of providing library services and the librarian-ship.

Due to ICT implementation, many rapid changes have been shown in the working procedure of modern libraries. Modern science has introduced many technologies like-Computer hardware/software, Internet, E-mail, CD-ROM, On-line databases, Smartphones etc to the librarians to perform the various library functions and developed their professional’s skills. The libraries should be well-equipped with these technologies and the parent organization must show interest to conduct skill development and training programs for the professionals to enhance their working capacity.
1.17 Changing Role of Library Professionals in Medical College Libraries- The development of ICT has been changed the role of LIS professionals in the modern libraries and librarians are going to play the role of information professionals or information scientists beyond their traditional job. The medical library professionals are also not untouched with it. The demand and need of users of medical college libraries have been changed due to the implementation of the technology.

Now the medical college libraries are also adopting new technologies and shifting their emphasis from traditional to multidimensional work. So, medical LIS professionals have to play versatile role in every department of medical libraries to achieve their realistic goal. Now their job is to keep up to date their various users about the library activities and promotes special issues and projects.

1.18 Library Staff Training and Implementation of ICT Resources in Medical College Libraries- To develop the professional skills in employees and introduce them to the recent developments, training and development programs about ICT, should conduct essentially in the organizations or institutions by the management. The effective training programs are always beneficial for the employees to understand employee’s skills, remove their scariness and boost their performance that brings the qualitative work efficiency in professionals. After having trained in their specific work area professional may be very confident about his work and provides good services to the end users. Accurate time and places are very essential for good training. In-house training programs save the time of employees and provide the opportunity for the practice in the training period. Long distance or local training programs may take the extra time for traveling and other allowances which do not make able to employee to concentrate on the practice. The medical library professionals always adopt self teaching and learning, training program which support a specific framework for a specific work area.

1.19 Essential Skills Required for the Modern Medical College Library Professional- In the ICT age the modern library demands various professional skills from library LIS professionals, including-
a) Technical Skills

b) Managerial Skills

c) Information Technology (IT) Skills

As per the National Knowledge Commission of India, library professional have the following skills to change the role of libraries in the world. They are-

a) ICT knowledge skills

b) Library and information handling skills

c) Communication and training skills

d) Marketing and presentation skills

e) Understanding of cultural diversity

f) Knowledge mapping skills

1.20 How ICT Help to Medical Library Professionals and Users- In the present scenario, users of the medical libraries also need the help from the medical LIS professionals in- how to retrieve the information, how to get the online journals/databases, how to conduct the fundamental research and many more. In the India, all type of libraries are facing the different type of problems and trying to solve these with the help of adopting ICT resources. In the modern world of ICT there is decentralization of information and knowledge sources.

Today technology is not using as the tool but it must be utilized to remove the barriers and challenges present in the system. ICT provides opportunities to complement on the job training and new research areas for the library professionals, which requires major shift in the way of reading material is designed and accessed. ICT improves the quality, working capacity and spread awareness among the professionals and users will have the positive impact on the modern libraries and society. The medical LIS professionals have played the key role in the whole process of getting medical education whereas in the modern ICT based medical education system. Various types of ICT resources and tools support the easy information retrieval system in the medical college libraries.
ICT makes the information storage and retrievals system very easy and effective to maintain the standards of modern medical libraries. Now this has become very essential for the medical LIS professionals to be updated with the latest technology to survive in the ICT era. In M.P., medical libraries are also going to try to be the digital as in the rest of the world phenomenal changes are taking place very fast in almost all the fields. In the developing countries ICT has been characterized as having the potential to enable national development. ICT helps to improve the quality of the national educational system as well as the medical education system and medical libraries are the important part of this system.

It has the ability to store the data in minimum place, to retrieve the information in less time, to make the users library friendly etc. Such a few medical libraries equipped with the AV/VD materials, Projectors, Slide showing materials such as Manuscripts, Rare books influences not only the modern medical library system but also attract the users of these libraries. ICT results in transformation from traditional libraries to user oriented information centres. It helps to make multiple innovative and interaction modes adopted for transmission of information and knowledge. Successful implementation of ICT in the medical libraries requires strong support from the government and the parent body.

The main goals of the ICT adoption in the medical libraries are reducing the cost of reading materials, library building, increasing the quality of getting education and meeting the needs of the parent body. The library professionals are considered to be the architects of the nation because they are the information provider and information makes the man perfect for the carrier and life. Learning and course management systems are full in gathering and managing a variety of students support services and products such as digitally recorded reading material lab assignments, live lecture, virtual reading for medical teachers and students. These services are provided by the ICT resources to the users and medical libraries can show the path to the medical students and teachers to use these resources. Virtual libraries, where they exist, are a particular boon to the users as they cut down on costs on acquiring expensive textbooks, medical journals and other reference material.
There are many tools and resources available on the Internet for the medical library users to get recent updates in medical field. Some of them are described here-

1. **Daily Round for the doctors**- This tool can be used by the medical students, teachers, researcher and practitioners for getting the recent medical science updates from the field. Its user-friendly interface is a resource full tool, which allows the users to experience real life based clinical scenarios on the electronic device and delivers new and relevant knowledge every day to the users. This app famed to be as the Best medical mobile app–GSF – NDTV 2015.

2. **Medscape**- This leading medical resource with a million of users, is mostly used by the physicians, medical students, nurses and other healthcare professionals for the medical information in the world. This high rated and speedy growing app offers a variety of features and allows users to keep update with medical news and disease along with the medical calculators and medical education courses.

3. **Epocrates** This app provides all the information about the drugs on the fingertips. Users can review the prescribed drugs and safety information for the various medicine brand, generic and OTC drugs, their harmfulness, users can choose the medical insurance policies for drug coverage information, they can identify the drug by their imprint code and physical characteristics and perform a lot of calculations such as BMI and GFR.

4. **Prognosis: Your Diagnosis**- This app informs the useful practice and reading material to the medical students and other healthcare professionals for facing their various exams. In this a new scenario of the clinical cases added every week. It has the series of clinical cases scenarios, which increases the decision-making power of the users. A panel of over 120 specialist physicians review these cases. It is the No.1 medical app in USA and awarded the best medical/health app at the World Summit 2012.
5. **Skyscape Medical Library**- This app is also a kind of virtual library, which provides medical information on various 850 topics, such as drug information, medical calculators and clinical information. It includes Smart Link, Skyscape’s proprietary cross-reference functionality, medical calculators, algorithms, interactive images, flowcharts, and frequent content updates. The users can purchase more than 600 premium medical resources from this app. More than 50 known publishers and content providers offer a virtual “greatest hits” of the most trusted medical resources by it.

6. **St. John Ambulance First Aid**- The app helps to the users to know the first aid procedure in the crucial conditions. It gives the advice for the first aid and protocols for dealing in the emergency. It provides an easy illustrated guides and voiced instructions for the emergency.

Above study indicates that the integration of ICT in medical education is inevitable. The very high demand for the medical education has stimulated significant growth in the public and private health-care sector. ICT has also led to the emergence of Open medical educational resources. The strength of computers technology in the medical libraries can manipulate the strength of the professionals. The use of ICT can create an open environment which enables the medical libraries an interface among the teachers as well as students. Apart from having enabling the telecommunication and ICT policies, government and parent medical institutions have to develop strategies for effective ICT and networking sustainability.

1.21 **How ICT Enhances the Performance of the Medical Libraries**- India is the second most populous country in the world and the medical education system is also one of the largest and old systems in the world. The numbers of Indian medical colleges have been rapidly grown since 1950 and there has been many developments driven largely in the government and private sector. Despite of the huge number medical colleges in India, there is still a shortage of specialist doctors. In the rural area it’s nil. After completing the medical degree most of the doctors emigrate every year for residential training practise abroad and most of the times they settled there permanently.
The accreditation process of Indian medical colleges is carried out by the Medical Council of India, which focuses specially on the basic infrastructure and human resources required for the process to maintain the quality of medical education & its outcomes. Looking at the growth of the private medical colleges and there advance developments and weak government regulation of the government medical colleges, there should need to pay a lot of attention on the quality of government medical colleges and their education system in the country. Critics insist that the students are overloaded with the curriculum and not getting right guidance what is essentially needed. The one the suspecting reason could be the lack of use to the advance technology and more use of the print resources as the main sources of information.

The usage of ICT in medical education need appeared to unravel the myth that surrounds the use of ICT as an aid teaching and learning and it impacts on the academic performance of the medical students. ICTs are said to help the medical college libraries to strengthen the relevance of medical education to raise the digital form of the modern education. However, the experience of introducing different ICT resources in the medical college libraries setting all over the world over the past several years suggests that the full realization of the potential education benefits of the ICT. The direct link between ICT and the medical libraries has been focus onto the extensive use of literature during the last few decades. ICT helps medical libraries to improve them self and the reading habits of the medical library users.

The arrival of ICT in the modern libraries can have a profound effect on the way users learn and the way library operates. The management of the medical colleges integrating the use and application of computers and other technologies into the curriculums, so very soon they modify their libraries to reflect the changes in the users learning behaviour that inevitably emerge.

Creating space in the libraries for computer peripherals such as printer, network connections and large monitor initiates a rethinking process by library professionals, leading to re-evaluating how experience of library services and fulfilment of the demand of the reading material work best. In the modern medical college libraries, the focus is on providing the best library services to the users in minimum time.
The influence of the ICT on UG medical students (recently pass out out-of-school) is affected their self learning capacity in the libraries. Literacy of Information and Communication Technologies (ICT) has become the fundamental right of the modern technological society and the medical libraries are not a part of it. To literate the medical library users about the ICT resources are the basic responsibility of the parent medical institutions. ICT is the valuable resource to enhance the teaching and learning capacity of the medical library users and medical libraries can help to provide these resources to them. However, if all the library users are to have the ability to develop their ICT skills to achieve their study goals, issues of equity and access to the technology must be address.

1.22 Current Trends of Implementing ICT in Medical College Libraries- The technology is playing a bigger role in transforming the modern medical libraries imparted by the medical institutions to the next level. The ICT resources help to create a social, high collaborative and personalized environment with innovative solutions that will enhance the way users learn, communicate and collaborate the study both on and off campus. The traditional libraries were as the storehouse of the printed reading material i.e. Books, Manuscripts, Journals, and other sources of printed information. Now in ICT era the libraries have been transformed into the provider of information and information sources.

The emergence of Internet and Information Communication technology, has given opportunity to the libraries to adopt different technologies and convert them in to modern digital or automated libraries that has changed the work pattern of library professionals. The medical education is purely a content driven play where the medical students learn about to medical treatment of the human body and the content of the medical science can delivered through the innovative use of the ICT resources. With the development of ICT, there are many changes have been found in the type of libraries. Some of them are given below-

1. The Automated Library- The type of library where all the housekeeping operations such as- Cataloging, Circulation and the access point are computerized i.e. called an automated library.
The automation is a process of making easy to the library housekeeping operations, working procedure reduces the time and increase the working capacity of the library professionals.

2. **The Digital Library**- The concept of a digital library is known as an electronic version of a library where the information stores in the digital form. Digital library is the place of digitization of traditional resources of information for better access in the form of electronic resources.

3. **The Digitization of Books**- also increases the trend towards creation of a digital repository of books to make a digital learning environment for the users. The digital version of books embedded with text, pictures along with videos, simulations and visualizations help users to learn the concept in the interactive way. The National Mission on Education through ICT plans to generate various new on line sources content for the students of the various streams.

4. **The Virtual Library**- A library where the access point and the graphic records of information and information resources are in the electronic or digital form is called a Virtual Library. These libraries are interconnected via various networks. In the virtual library the collections do not exist on traditional material such as paper, micro-form/microfilm or other tangible form at a physical location. The collection can accessible via computers and other electronic devices. These libraries also called without wall and exist only on a very limited scale. They mostly offer on-line services to the end users. Colorado Virtual Library is the biggest example of Virtual Library.

5. **The Internet Technology**- Internet is called a network of networks. It is the largest computer network in the world, which enables computer networks to provide and share all type of services to the people and communicate directly to each other. Internet provides access to the AV/VD, graphics, database, documents, software, archives, picture, sounds etc. On the Internet user can search libraries to worldwide in the very short time. Internet helps to exchange the multimedia information in the required form.
Many universities, colleges, schools and other educational institutions libraries connect on Internet to share and exchange their valuable information. Users can get Library of Congress, British Library and many more on the internet and use their on-line services.

6. The Web Technology- Tim Berners Lee developed the World Wide Web in 1989 and in 1995 it has expanded in the global platform. A website is a collection of many web pages, which are linked together and stored on a host server. The Web technology includes Topologies (LAN, WAN, MAN) Client Server Technology, Web Browsers (Google Chrome, Microsoft Edge and Firefox), Document Markup Language such as HTML, XML, RDG, TIE etc. The web technology has huge impact on modern library services for retrieving information worldwide.

7. The Mobile Technology- With the proliferation of mobile phones in college campus and libraries are compelled to capitalize on feature-rich smart phones that are capable of much more than just voice calls. Adoption of the latest Smart phones such as-Samsung, iPhones, Blackberry and others have the option of Internet access, that allows students and faculty to perform wide range of assignments, download E-books, search the required information. Libraries can also update their users about the new content, new arrivals, changed library times and other updates on the smart phones of the users. Smart phones are also being used to access E-books from the remote locations.

8. The Social Learning- The emergence of Web 2.0 and Social networking such as blogs and wikis, on-line video repository, on-line video delivery websites- YouTube, iTunes and Big Think is influencing a new trend in the education system. Medical education system is also not untouched with it. The emergence of smartphones and other intelligence electronic devices has enhances the concept of mobile learning. These technologies create new channels for the content delivery, on-line video expansion and broadcasting also. Medical college libraries can also take the advantages of these technologies to provide information to the users.
9. The Optical Disc Storage Technology- Optical disc storage technology is also the latest computer technology to for the library community for the some years. CD-ROM has become the most important storage medium for the users, which has the ability to represent various media such as Text, Graphics, Animation and AV/VD into the global digital environment. Digital video disk (DVD) is the next generation of CDs, which can store any type of multimedia information. Due to the high density storage capacity, low cost, inexpensive hardware requirement these discs have become ultimate storage devices in the world.

10. The Scanning Technology- Scanning has become an important process to convert a printed document in the digital form to use that for the long period through the multimedia devices in the modern libraries. The Scanner is an important tool for the scanning in the libraries. The scanner scans text, image and content pages of books for the display in the digital form. It also used in optical character (OCR) applications. It’s very easy to circulate, accessed and maintained the scanned printed document on the multimedia devices. They are very helpful to established digital and virtual libraries.

11. The Bar-Code Technology- A Bar-code is a graphic figure of small vertical bars, which is affixed to the various retail stores products, identity cards and many more to identifying the product detail such as product no., location and particular person’s detail. In the Bar Codes all type of information is stored in form of vertical bars in which spaces, numbers and other symbols are included. Now the Bar-coding has become the essential process for an automated or computerized library. All the modern library automation software is compatible to generate Bar-codes for library materials. Circulation and stock verification process has become very easy, efficient and time saving by using the Bar-code technology.

12. The RFID Technology- RFID (Radio Frequency Identification) is the latest technology after the Bar-code Technology, which is being used in the automated libraries to prevent, secure and theft the library reading materials. The RFID refers to small electronic chips that capable of carrying 2,000 bytes of data or less.
The purpose of the RFID device and Bar-code are the same i.e. to retrieve the identifying information but now the RFID has become the tracking system also, which is being more efficient for the security of reading materials throughout the library than the others systems. In the RFID technology, information about reading material contained on the small electronic microchips, which affixed on to the reading materials and which could be read using the radio frequency technology. Now the RFID has been the essential requirement for digitization and security of modern libraries.

1.23 Future Trends of ICT in Modern Medical College Libraries- In the ICT era LIS professionals are going to transform into the ICT resource experts, they are going to perform their ICT skills to do library works and to provide services to the users. So, now they are increasing their technological skills to stay in the field and to automate their libraries for the more advance future. Here are some responsibilities of the medical college library professionals to make their libraries digital in the future-

1. In the digital form it is very easy to maintain the various types of information resources. As a provider of these information resources, the librarian can help to the users to use these resources for getting their wanted information in the required time. These information resources can increase the awareness of the importance of information resource sharing. To promote the sharing of information resources on-line campaigns for the digitization process and the open access approach to the information resources can be used.

2. As an information resources provider, modern libraries can team up in the network with other libraries having used some standards and policies.

3. As a member of a library network, these libraries can also exchange their information act as the organizations deputed to define and put in place these models.

4. In the future, libraries would promote the creation of Digital libraries, which play an important role between the digital infrastructure and the users. They can also help to the users to provide, select and disseminate the information.
5. It could be realized and it is happening that the future libraries would be fully globalized and all services will be available in the digital form at anywhere.

As the technology is developing day by day, it could be find from the above study that as like other fields medical libraries are also going to be affected by the ICT developments and this is going to change the role of modern medical libraries in the global world. To increase the technological efficiency of medical library professionals, they must need to be the trained with the latest technologies.

A medical college library professional is the key person to provide information from the various sources of information and because all the information sources are going to be digitized, so it would be a big challenge for the future medical college library professionals to provide authentic information to the users. In the modern world it is not possible for the modern librarian to run their libraries without automation and technology makes it possible and technology alone cannot do it, it needs the manual support and so both are the complementary for each other now a day. Believe in self attitudes towards the technology as a library professional, daily practices and good management are those factors, which can change today’s libraries and it would be very beneficial for the modern digital library professionals and libraries.

1.24 **Statement of the Problem**- Information and knowledge both have become essential part of this global world and successfully respond to the opportunities and challenges of technological, economical, political and other types of many changes. Information and knowledge both would be used to the users when they must be effectively communicated to the users. Today an ICT application affects all human activities like-education, governance, community development emergencies and health-care also. ICT helps to remove barriers of distance and time of technology. Now the medical libraries should have to be move ahead for the adoption of advanced technologies and reduce the problem of ‘Digital divide’ in the knowledge world. The government should develop a national information policy for the library professionals of all sectors. Medical college libraries of India are suffering the lack of ICT infrastructure and manpower due to the proper funding.
The development stage of medical college library has changed from country to country and region. In the developed countries people always recognized to the role of medical education, practice, research and development in the society. ICT has helped medical practitioners to provide access to medical literature. Developing countries people understand the importance of information retrieval and dissemination but not provide the proper funds for the development of libraries.

In India in case of digital information the consortium of E-journal is not available in the most of the medical libraries. The medical colleges are recognized in the world very much but their library services have remained far from satisfaction level of users. In the developed countries medical libraries are well-equipped with the technology and doing very well in the society. Parent organization provide proper fund to the development of the library. On the other hand in the developing countries medical libraries are suffering from inadequate staff, lack of funds, mostly libraries are not well-equipped and they are unable to use modern technology. Medical libraries should have to initiate the maximum use of latest technologies, study of use and impact of ICT and its resources in the medical college libraries is need of the time, the results, which facilitate to other type of special libraries follow.
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