

Defination of computer Sci.

Computer education refers to awareness, understanding and ability to use computer, appreciate its role in development of society and impact on education. The term computer education is comprehensive in scope. It does not include the programming aspect or knowledge of computer both the operation and application of computer. This means that computer education is not only knowing the different parts or operations of computers. It includes more the application of knowledge related to computers.

All the educational efforts executed to make the student aware of computer and enable them to use computer is computer education Ministry of Education under Government of India has launched a Pilot Project for introducing 'Computer Literacy And Studies in School (CLASS) (Computer is now extensively used in various fields of human activities. Applications of computer in industries and business are considerable. From computer one can know about the recent innovation in each and every field to broaden one's mental horizon. At the time of independence computer was not extensively used in any system, but with the advancement of time it is felt that there is great need of computer education in India due to wide use of computer in business, industry, education, trade, commerce, guidance, counselling and providing information etc.

NEED AND IMPORTANCE OF COMPUTER EDUCATION

Computer education means making the students computer literate and them able to use computer. We know that the modern age is the age of computers. Computers are seen working in every field. Where there is lack of human resources, computers can be used. They are speeding up the work, reducing work load. There a very few students who do not need computers. The common man is using computers in many fields. It should be kept in mind that computer does not mean the desktop computers placed in the computer laboratory only. Computer has many forms. Todays banks, offices colleges, railways etc are being computerised. Thus, everyone dealing with any of these is using computer. Thus computer education is needed for all the persons. Let us see the need and importance of computer education for the students as they are the citizens of tomorrow.

- **Use in daily life-** Computers are now used everywhere. Every person whether he is literate or illiterate uses computer directly or indirectly. So there is need of computer education not only for the students but for all The students uses computers in homes, schools, markets etc. So, there is strong need to educate them in computer so that they may be able to use computer comfortably anywhere anytime.

- **To understand other subjects-**The students now use internet as a source of information and computer to study other subjects. They can study the other subjects only if they are able to use computer. For this purpose they may be computer educated.
- **Speeding up one's work-**Computer is much faster than any machine and human. They can perform work of many persons at very less time. Thus computer helps in speeding up the work. The work can be speeded up if one is able to use computer efficiently. So the persons should be made able to operate the computer by educating them.
- **To earn livelihood-**Computers have given a lot of opportunity to new vocations. New types of jobs and services come into existence after the invention of computer] The students and even every person need earning for living By having appropriate computer knowledge any person can have his earning by for using his skill in computers. So it should be considered as a new vocational stream in education.
- **For problem solving-**Each person faces many problems in daily life. The problems are mostly time consuming and lengthy. These problems can be sorted out with the help of computers. The computer provides an easy and quick solution. This can be done only if one knows the various options in computers. For this the concerned person should be educated properly.
- **For Developing Creative abilities-**Computer does not work in convergent areas only. It has its applications in divergent fields also. There are many divergent or creative areas in computer. Each student is not going to become a doctor or engineer. They can be writers, painters or designers. These works demand creative abilities and these can be developed by giving the knowledge of computer.
- **Accessing treasure of knowledge-**Today education is not limited to books and school buildings only. The students need a lot of knowledge in personal, vocational, educational and entertainment fields etc. Anybody can access the treasure of knowledge easily and quickly only if he knows how to use the computers.
- **Expanding oneself globally-**One cannot progress by keeping himself in limited geographical areas. Computers have removed the boundaries of geography One can publish one-self around the world using digital media and can access others from any part of world with the help of computers. This can only be done by making the persons computer educated.
- **For National development-**The student of today are doctors, engineers, politicians, builders, planners, and businessmen of tomorrow. The work of each of them will contribute to the development of the nation. The development can be increased and speeded up with the help of computers. India is producing largest computer engineers in

the world but are being used by other countries. If these are utilized by India, then the progress can be accelerated and the 'Infosys' can become 'Microsoft.'

APPLICATIONS OF COMPUTER IN SOCIETY

The use of computer is rapidly increasing in societal arena Every field is using computer to store and retrieve data One cannot be considered as a literate now a days unless one knows the fundamentals of computer. Computer literacy is considered as the top educational goal There are diverse uses of computer. There is no field in which one cannot see the use of computer. Computer has entered in the banks, supermarkets, stores, medical line, engineering, trade, communication, railways, airlines, business, education and even in the daily home life of people This vast use of computer has increased the working area of computer and hence the scope The scope of computer education can be seen in following areas.

1. HEALTH AND MEDICAL SCIENCES:- Computer has brought a drastic change in medical field. It has made medical sciences very simple. There was a time when some diseases like blood clots, tumour, cancer could only be diagnosed after a exploratory surgery. But today with the help of computer the task of diagnosis has removed the danger of such surgeries. There are certain diagnosis computers which helps the doctors to find the disease without causing any pain to the patient. Computer has changed the consultancy way of patients with doctors. Today even the patient does not need to go to the doctor. He can consult him online or using his telephone. The doctor recommends medicines on that very moment. This saves a lot of time and the pain of patient with the help of internet patient can even interact with any doctor anywhere in the world.

2. SCIENCE AND ENGINEERING:-The introduction of computer in science and engineering has brought about a revolution. If we compare the progress of these fields before and after computer we will be able to reasalize its effect. It has made study of science very simple and productive. Everyday science is facing newer and newer problems. The problems are so large that they cannot be solved manually. They involve a large number of calculations.

Internet has brought the world in a room. Scientists can exchange their ideas from their working place. Certain scientific works or experiments are conducted all over the world simultaneously and data is collected at a single place with no loss of time. Today nuclear tests are performed on computer. The other scientific and engineering uses of computer can be seen from following points.

(i) Astrological Analysis

(ii) Monitoring and processing experiments

(iii) Space flights and satellite control

(iv) Space technology

(v) Weather forecasting

(vi) Architectural designing

(vii) Chemical processing

The list is endless Thus, we see that computer has put its emphasis on every field of science and technology This has happened only due to computer education.

3. TRADE AND COMMERCE:- Human beings are trading from ancient time. In early times the quantity and speed of trade was very-very slow as the needs were few. But with the passage of time the population grows, needs become more and this effects the trade also Now-a-days trade is done at a very high speed. Also, the trade is not limited to one state or country. Whole world is trading. This has become possible only with use of computer has revolutionised the trading system. At initial stage it changed only the information system of trading but now it has changed the whole trading system. The concepts of online shopping, e-commerce and e-banking have done all this. The trader need not go anywhere. He just has to switch on his computer and perform the deals The deals are fixed within seconds across the world? This has increased the working area of computer education. Today computer literacy is not only needed to computer engineers but also to the traders.

4. ENTERTAINMENT:- Computer has totally changed the entertainment world. Now-a-days no film is developed without special effects. These special effects have made the films more and more daring. Cartoons are another product of computer in entertainment field. These cartoons make people and children laugh. These cartoons have shown impossible to be possible. The world famous cartoon 'Tom and Jerry' has shown the cat and mouse together, talking, playing, fighting and saving each other's life also. We know it is not possible in real world but computers have made it possible and nobody on earth can help without laughing while watching them. Thus computer animation has entered in the heart of human beings and it provide them a way to be happy in this world of worries and tensions

The other aspects which the computer has touched in field of entertainment is music is the language of love. It is used by all peoples. Computers have made it possible to listen to music anywhere anytime There was time when gramophones were used to listen to music. It is a huge bulky device with very less capacity but now-a-days certain computer devices like MP3 players, I-pods, etc. are developed which let a person to listen to music anywhere anytime and set his mind balanced in the world of work, anxiety, tension and frustration.

The other ways of entertainment like drawing, painting, photography, gaming etc. have also been changed by computers; Today painters do their painting on computers. Photography has become digitised. The total concept of games has been changed. Earlier concept of games in playground has come to computer screen. Children love playing

5. TRANSPORTATION:- The world is becoming smaller and smaller. In earlier days the means of transportation were animals or totally mechanical. Now more fast and accurate means have been developed. Also, their number has been increased. These means cannot be controlled manually. They need some type of automatic system which can control them. This system is provided by computer. Computer has fulfilled the requirement of transportation system. In railway and airlines, computers are used for seat reservation. A seat to any destination can be booked from anywhere and anytime. Also, the status of seats available is made clear to the passengers with no time delay. Similar is the case with that of seat cancellation.

Another area which computer has controlled is the traffic control on any transportation system, whether it be railway, air or sea. The timings and distance of railways is controlled by computer. It keeps its eye on each and every train on the track and helps the officials to avoid any type of accident. It keeps the trains on time, provides the information of weather and track to the drivers. The status of one train is shown on a screen in driver's cabin. He can have the knowledge of status of his train with no time loss.

6. COMMUNICATION:- The earlier system of communication through regions has been replaced by digital pigeons. Computer has revolutionised the communication world. It has developed a lot of means of communication such as mobiles, telephones, internet, email, chattel-conferencing etc. The term 'computer network' has done all this magic. It is the basis of communication. It has introduced the means like satellites, fiber optics, wireless E communication, tooth services, etc. for communication. The revolution started just 50 years ago and has reached its peak point. Easy, effective and accurate communication is possible today. This communication is the basis of all other uses of computers. Without communication transportation will fail, business will collapse, trade will end, entertainment will stop! Today we have so much modes of communication that earlier man could never think of it. Every person in the world is connected to every person of the world through a mode of communication. The most important mode is internet. It has brought the world on single screen. It has given a lot of ways to communicate like email, chatting, video conference, voice chat, etc. Any person can send his message to any part of world within seconds and can have any type of information on just click of the mouse. Large amount of data and necessary information can be sent directly to the destination. Students can communicate with experts of their field. Patients can interact with

doctors. The business world is totally dependent on communication. A single second's delay in communication can lead to loss of thousands of dollars. Knowledge is increasing every second this knowledge is of no use if it does not reach the related person(s) Taking the knowledge to the right person, in right form, at right time is possible only with computers.

7. BANKING:- Banking of old days has now become e-banking. It is heavily dependent on the computer and network systems. Earlier system was manual and book dependent. Now each and every thing has been computerised. Accounts are maintained on computers and interests are calculated by computers. A person does not need to go to bank to check his account. He can do all this on his computer with the help of internet. He can have his balance inquiry statements and even transfer the money to some other account.

The evolution of ATM (Automatic Teller Machine) have reduced the burden on the bank employees and also it saves the valuable time of customers. ATM infact is a network of computer controlled machines. These ATM machines provide a lot of services to the customers. They reduce the crowd in the banks, e-banking is another application of computer in banking Any person can manage his account on internet irrespective of the location where he is. Thus we see that the banking sector is also not left untouched by computer and it has increased the scope of computer education. Banks are giving these

8. DESKTOP PUBLISHING:- Publication sector is another work area of computer. There was a time when the books or newspapers were printed manually at very slow speed, but now-a-days computer has taken the responsibility Newspaper, books, magazines, advertisements, visiting cards, etc. all are being designed by computer and then printed. The mechanical printing process is being replaced by computer controlled printing machines. All this is done in the area of desktop publishing (DTP)DTP is the process of designing and printing with the help of computer. It contains a collection of large number of computer graphic software These software's provide a lot of options to have wonderful effects in the work whether it is text, photographs, painting or other graphics One can have a digital view before having it in real printed shape and can do the necessary changes it. So one can remove the mistake before the final print is out and thus saving labour, time and wrong output. Computer has really changed the publication work

9. BUSINESS AND STOCK MARKET:- Business world has been changed by computer. The old ways of business are now not used. Business is done on computer. Business records are maintained on computer. They provide easy access to records and the effective decision making on right time. Now-a-days the small industries are also being computerised.

The business of a country has a lot of impact of stock market. Thousands of crores of rupees are being exchanged at that place. The information is changed in seconds This needs to reach

worldwide within seconds. What is going in Bombay stock exchange is known anywhere in the world within seconds. The data keeps on changing This needs a lot of complex calculations. This has become possible with the introduction of computer in stock exchange if the computer stops for a single second then there will be loss of thousands of crores of rupees. We cannot imagine the existence of stock market without computer. Many persons are getting employment in these markets. They all are computer literate Thus a person desirous to have job in this field must be computer educated this adds the field of business and stock market to the scope of computer education

10. EDUCATION:- Computer is a composite of print and audio-video communication technologies. The combination of these technologies provides opportunities for the practical use and operation of the computers for the learner. Computers have large and varied information which is readily available and can be put to use for educational purposes. Computers play a great role in making teaching learning process more interesting and effective. It provides information and the same can be stored in the memory. The use of computer technology in the field of education has made learning process easy and speedy Its use is of significant value and influences the process and product of education. Most of functions of teachers in classroom can be performed through the use of computers.

Computer has a great role in education. It is considered as a super teaching machine. As a teaching machine it has proved to be very useful. Computer has improved teaching efficiency in and outside class rooms. Computer helps in classification of students according to their abilities. It stores the particulars and merits of students in its memory which can be retrieved with no time loss. Computer prepares time tables and other schedules in schools. It helps in maintaining accounts of schools which otherwise are manually maintained by a teacher and is a very complex and time consuming process. Computers are used for allotting learning materials to the students according to their abilities and interests. Educational progress reports of students are maintained on computers. Computers maintain examination records and propose results of students. Relevant information is given to the student in a guidance program with the help of computers.

APPLICATIONS OF COMPUTERS IN EDUCATION

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SCOPE OF COMPUTER EDUCATION IN EDUCATION

Computers as an instructional aid have proven to be a big asset in the field of education. They are the latest arrival in the field of audio-visual technology. They are valuable for various issues and affairs related to the teaching learning process and world of education. The scope of computer education in education is very large. It is a boon for teachers, students, planners, organizers and administrators. The scope or educational utility of computer education can be seen from the following discussion.

1. Controlling learning activities- Computers keep a proper control over the learning activities of each and every student by arranging the diagnostic testing and remedial education. They also help to diagnose a very large number of students and providing them feedback with no loss of time. Today most of the competitive exams are either conducted online or checked with help of computers.

2. Providing Individual attention- Computers are giving individual assignments to learners and check their progress properly. They help in self study, group study, supervised study, etc. These are such situations where the students are learning without direct contact with the teachers only with the help of computer.

3. In field of Evaluation- Computers are playing a leading role in the task of evaluation of students' progress. They are preparing progress reports and maintaining cumulative records. The evaluation process is designed according to the needs of each individual and they get the result immediately and then the remedial education.

4. In Educational Research- Research is an integral part of education. Today the world is changing every second. Teaching and learning conditions are changing. Research provides guidelines for new situations. Computers help to carry out the processes like data storing, processing and analysis of data.

5. In Special Education- There are a large number of devices invented so far in the field of education. They are fulfilling the challenges in terms of special provisions and specific education. Computers help in planning good education program for the handicapped children like deaf and dumb, mentally retarded children and delinquents according to their needs.

In Organisation and Administration- Computer is helping in Administration also. The activities like setting time table, organising co-curricular activities, discipline, observation, record

maintenance, arranging information, keeping top-accounts and financial responsibilities etc. are being done in schools on computer.

6. For guidance purposes- Computers are now-a-days serving as sincere, resourceful and energetic enquiry officers. They are used to guide the students educationally, vocationally and for personal guidance also Computer brought the counsellor and counselee on a single table. Now students can get guidance from any part of world.

7. Drill and practice- Computers can be used for drill and practice purpose. The students can work on computer to practice what they learn in classroom. Immediate feedback is provided to them. Students work according to their pace and abilities Certain drill and practice softwares focus on previously learned factual knowledge and skills. There are also certain knowledge development softwares which focus on learning new knowledge.

8. Tutor Services- Computer has been proved to be very effective in providing tutorial services to a number of students at a time on individual basis. It has showed its capacity as a good teacher, subject expert, demonstrator and supervisor. Computer can very well maintain a perfect interaction and dialogue with the individual student. It can ask questions, answer them, solve problems, assign and check work etc. Infact computer helps at each and every step of teaching-learning process.

9. Developing Problem Solving ability and Creativity- There are so programs available on problem solving and creativity. Students can variety of practice for solving problems, thinking new strategies, giving ideas, and developing new concepts. Students become productive and creative in their educational outcomes.

10. Simulation and gaming- Simulation and gaming are being used to necessary training to the students. Students acquire valuable training experience without evolving in risks and dangers. Computers are providing perfect simulation of real life situation to the student-teachers.

11. Laboratory and practical work-Students often feel difficulties in their laboratory recording and practical work. Computers are helping a lot in this direction. Sciences and other practical subjects are being demonstrated to them. Computers are what has been done in laboratory. They also check the results, analyse and draw conclusions based on data. Computers guide students to proceed properly on their learning paths.

12. Instruction to learners- Using computers programmed learning instructions are provided to the students. Computer assisted instruction takes care of individual differences and handles each student accordingly. CAI is being used to teach successfully subject like Sciences, Mathematics, etc.

13. Data Analysis- Research is an integral part of education. New findings are given by research. Research work needs analysis of data and lot of calculation work, which is very difficult

manually. The task is made very much easy by use of computer. Students can perform complex calculation within seconds on computers.

14. Upgrading General knowledge- Internet is an ocean of knowledge and knowledge is increasing day by day. It is very difficult for persons to study books for this. Internet provides fast and easy access to the knowledge. Students onal and even teachers can upgrade themselves in their respective subjects with minimum effort and time. This saves their valuable time which can be used for other work.

15. In supervision of work-Students are supervised at every step of their progress. This supervision helps the teacher to provide necessary feedback and plan further. Traditionally supervision work was done manually. With the help of computer the supervision work can be made more effective and time saving. This can only be done if all the persons involved in the process have adequate by computer literacy.

16. Library Services- Library is the centre of all the knowledge for school students. They may face problems in finding books They may need additional books on some topic which are not available to them in the library. Using computer and internet the libraries of the world can be brought to their own library Students.

17. Information Services-Every school has its subsystems. These subsystems can work effectively if there is proper exchange of information among these subsystems. The on time delivery of information makes the whole system more effective, stable and progressive. Computer provides this information service and takes the information to any part of world within seconds.

18. Dialogue-Dialogue is a type of interaction. Traditionally students have dialogue with their teachers. Computers are so developed that the students can talk to them and can listen to them. Thus this system helps them to have a dialogue whether the teacher is available or not. This increases their work timing and area of work. That is they can have dialogue with any expert in the world at any moment of time.

19. Record maintenance-Teaching-learning requires a lot of records to be maintained on the part of teachers, students and administration. Computers provide an easy and effective way to maintain these records. Records can be easily stored and effectively retrieved with no time delay.