III Year B.Com. Computer Applications
Revised Syllabus Under CBCS W.E.F. 2022-2023
V-SEMESTER – COURSE 7C: REAL TIME GOVERNANCE SYSTEM (RTGS)
SRI VENKATESWARA UNIVERSITY, TIRUPATI.

UNIT – I
Introduction to E-Governance

(Q) Explain about Government, Governance and Good Governance?

Government: A Government is a group of people who rule or run the administration of a State / Country.

(OR)

A Government is the body of representatives that governs and controls the state at a given time.

(OR)

A Government is the medium through which the power of the state is employed.

Government may be of different types. It maybe a democracy or autocracy, but most of the modern Governments are democracy. A democracy Government may be defined as that which has the public mandate to run the affairs of the country or state with a well-define term after which in the successive term the same people may be elected again. If a Government provides capable governance, then it has a chance of coming back into the power again.

Governance: Governance is the act of governing or ruling. It is the set of rules and laws framed by the Government that are to be implemented through the representatives of the state. Simply put, governance is what Governments do. Governance may be various types:

- Global Governance.
- Corporate Governance.
- Non-Profitable Governance.
- Private Governance.
- Public Governance.
- Health Governance.
- Internet Governance.
- Information Technology Governance. etc.,

Good Governance: The concept of good governance existed even during the days of Chanakya. He had mentioned it elaborately in Arthashastra. Good Governance is made up of the following 8 attributes:

1. Accountable
2. Transparent
3. Responsive
4. Participatory
5. Consensus Oriented
6. Follows Rules of Laws
7. Effective and efficient
8. Equitable and Inclusive

Main Pillars of Good Governance: Good Governance aims at providing public services effectively, efficiently, and equitably to the citizens. The true test of 'good' governance is the degree to which it delivers on the promise of human rights: civil, cultural, economic, political and social rights.

- ❖ Ethos (of service to the citizens).
- ❖ Ethics (Honesty, Integrity, and Transparency).
- ❖ Equity (Treating all citizens alike with empathy for weaker sections).
- ❖ Efficiency (Speedy and effective delivery of service without harassment and using ICT increasingly).

********** (Q). What is e-Governance or Electronic Governance?**

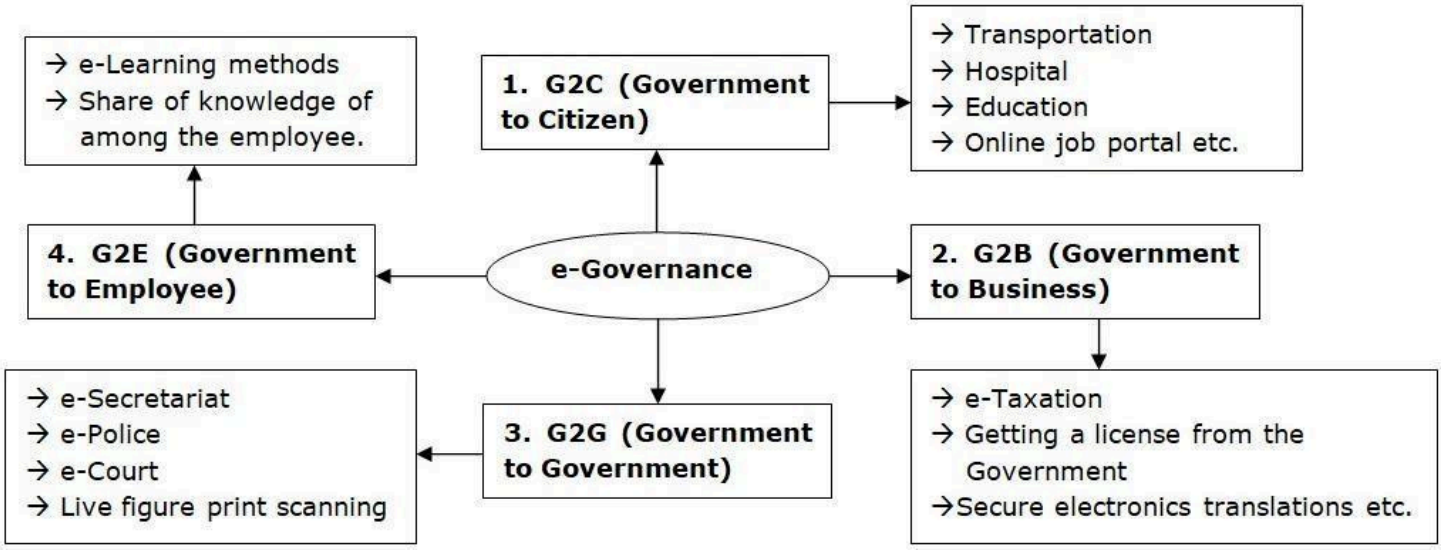
Definition of e-Governance:

Electronic governance or e-Governance implies Government functioning with the application of ICT (Information and Communications Technology). Hence e-Governance is basically a move towards SMART governance implying: Simple, Moral, Accountable, Responsive and Transparent governance.

What is SMART Governance?

- **Simple:** Implies simplification of rules and regulations of the Government and avoiding complex processes with the application of ICTs and therefore, providing a user-friendly Government.
- **Moral:** Meaning the emergence of a new system in the administrative and political machinery with technology interventions to improve the efficiency of various Government agencies.
- **Accountable:** Develop effective information management systems and other performance measurement mechanisms to ensure the accountability of public service functionaries.
- **Responsive:** Speed up processes by streamlining them, hence making the system more responsive.
- **Transparent:** Providing information in the public domain like websites or various portals hence making functions and processes of the Government transparent.

Interactions / Types / Scope of e-Governance: There are 4 kinds of interactions in e-Governance, namely:



1. **G2C (Government to Citizens):** In this connection the Government is responsible for promoting the social opportunities and public services in the field of:

- **Transportation**: Registration of motor vehicles, Issue of driving licenses, Issue of plying permissions, Tax and fee collection through cash and bank challans and control of pollution etc.,
- **Hospitals**: Linking of various hospitals in different parts of the country to ensures better medical services to citizens.
- **Education:** Availability of the e-learning modules to the citizens, right to education.
- **Online:** Job portal and various customer services.
- It also ensures services such as issue of certificates, job cards, passport, ration cards, payments of bills and filing the taxes from the door step through e-Governance platform.
- Interaction between the Government and the citizens.
- This enables citizens to benefits from the efficient delivery of a large range of public services.
- Expand and accessibility and availability of Government services and also improves the quality of services.
- The primary aim is to make the Government citizen-friendly.

2. **G2B (Government to Business):** G2B is mainly concerned with these things:

- e-Taxation, getting a license from the Government etc.
- Secure Electronic Transactions, It has included the policy of Government with business.
- It enables the business community to interact with the Government by using e-Governance tools.
- The objective is to cut red-tapism (comes from the ribbon used by citizens encounter when dealing with Government, the practice of requiring excessive paperwork and tedious procedure before official action can be considered or completed) which will save time and reduce operational costs.
- This will also create a more transparent business environment when dealing with the Government.
- The G2B initiatives help in services such as licensing procurement, permits and revenue collection.

3. **G2G (Government to Government):** G2G has been referring to raising the quality of the Government process by cost cutting, managing performance, and making strategic connections within Government. The major key areas in this type of e-Governance are:

- **e-Secretariat** all the valuable information regarding the function of the Government are interlinking throughout the various departments)

- **e-Police** police personnel records, criminal records etc.,

- **e-Court** creating a database of all the previous cases, pending and ongoing cases and Statewide Networks.

- It enables Government institutions to be more efficient and more effective by the use of IT tools such as: Live fingerprints scanning and verification, Electronic entry of reports and paperwork etc.

4. **G2E (Government to Employee):** The G2E model refers to providing information and services from Government to employee and employee to Government as well.

- It involves training through e-Learning methods;
- Consolidating the employee and share of knowledge among the employees.
- It has also facilitated the employee to access information regarding pay and benefits policies and manages their profits through online.
- This kind of interaction is between the Government and its employees.

- ICT tools help in making these interactions fast and efficient and thus increases the satisfaction levels of employees.

(Q) Discuss about features and benefits of e-Governance?

Features of e-Governance: It has been proven from the concept of e-Governance that it is a powerful means of public service in the present era. Some of its features can be found by observing the functioning of e-Governance.

- **De bureaucratization:** Due to e-Governance, the gap between the people and the Government in all the services of the Government is narrowing and the dependence of the people on the bureaucracy is also greatly reduced.

- **E-Services:** Its main feature is the provision of services through the Internet. As a result, we get G2C, G2B, G2E etc. services. This is already discussed in the section of „types of governance".

- **International services:** Through e-Governance, all the essential services can be delivered to the citizens who are living outside of their country for job purposes or any other reasons.

- **It enhances the right to express to the citizens:** Using the means of e-Governance anyone can share their views with the Government on any bill or act or decision taken by the Government.

- **Economic Development:** With the introduction of e-Governance, various information like import-export, registration of companies, investment situations, etc. are available through Internet. As a result, time is saved, procrastination decreases, and economic dynamism increases.

- **Reduce inequality:** Using e-Governance tools everyone can gather information and empower themselves. In this globalized world, knowledge is power, and means of e-Governance empower us by providing relevant information at minimal cost, effort, and time.

Benefits of e-Governance:

ICT Enabled connected Governance contributes to:

Internally:

- Avoidance of duplication.
- Reducing transaction costs.
- Simplifying bureaucratic procedures.
- Greater efficiency.
- Greater coordination and communication.
- Enhanced transparency.
- Information sharing between agencies.
- Security of information management.

Externally:

- Faster service delivery.
- Greater efficacy.
- Increased flexibility of service use.
- Innovation in service delivery.
- Greater participation.
- Greater citizen empowerment.
- Citizen participation.

(Q) What are the Advantages and Disadvantages of e-Governance?

Advantages of e-Governance:

- Improves delivery and efficiency of Government services
- Improved Government interactions with business and industry
- Citizen empowerment through access to information
- More efficient Government management
- Less corruption in the administration
- Increased transparency in administration
- Greater convenience to citizen and businesses
- Cost reductions and revenue growth
- Increased legitimacy of Government
- Flattens organizational structure(less hierarchic)
- Reduces paperwork and red-tapism in the administrative process which results in better planning and coordination between different levels of Government
- Improved relations between the public authorities and civil society
- Re-structuring of administrative processes

Disadvantages of e-Governance:

- **Loss of interpersonal communication:** The main disadvantages of e-Governance are the loss of interpersonal communication is an aspect of communication that many people consider vital.

- **High setup cost and Technical Difficulties:** Technology has its disadvantages as well. Specifically, the setup cost is very high and the machines have to be regularly maintained. Often, computers and Internet can also break down and put a dent in Governmental work and services.

- **Illiteracy:** A large number of people in India are tech-illiterate and do not know how to operate computers and smart phones. e-Governance is very difficult for them to access and understand.

- **Cybercrime/leakage of personal information:** There is always the risk of private data of citizens stored in Government servers begin stolen. Cybercrime is a serious issue; a breach of data can make the public lose confidence in the Government"s ability to govern the people.

(Q) What are the difference between e-Government and e-Governance?

Key Points	e-Government	e-Governance
Objectives	e-Government focuses on improving and accelerating administrative efficiency	e-Governance focus on to increase citizens" interactions within themselves, as well as with Government agencies.
	By e-Government we mean the use of ICT in Government operations, as a tool to increase the outreach of the Government services.	e-Governance, on the other hand, implies the use of ICT in transforming and supporting functions and structures of the system.
	e-Government is a system.	e-Governance is a function.
	e-Government is a one-way communication protocol.	e-Governance is a two-way communication protocol.
Benefits	Improving service delivery	Increasing modes of Citizens" Participation.
	Increasing Operational Efficiencies by reducing consumer time, efforts and costs.	Improving Public Policy Formulation.

Benefits	Increasing Outreach of public services	Redefining Democracy and Communities with citizens“ participation.
	Its ensures greater level of efficiency and effectiveness in Government activities and operations.	Revenue Growth.
	Improves access of information to the common mass.	Enhances transparency, efficiency, accountability and citizen participation.
	It ensures the transparency in the operation of Government programmes.	Cost Reduction
	It increases the reach of the Government to the general public.	Guides the Government to make improvement in the key areas.
	It helps in improving the quality of public services.	Citizen“s empowerment to make improvement in the key areas.
	Increases communication between various Government agencies.	Increases the reach of the Government to the last beneficiary.

(Q) Discuss about components of e-Governance?

e-Governance is the application of IT to the processes of Government functioning to bring out smart, Moral Accountable, Responsive, Transparent Governance.

e-Governance is the application of information and communication technology (ICT) for delivering Government services, exchange of information communication transactions, integration of various stand-alone systems and services between Government-to-Customer (G2C), Government-to-Business (G2B), Government-to-Government(G2G) as well as back office processes and interactions within the entire Government framework.

Through e-Governance, Government services will be made available to citizens in a convenient, efficient and transparent manner. The three main target groups that can be distinguished in governance concepts are Government, citizens and business/interest groups. In e-Governance there are no distinct boundaries.

Types of interactions in e-Governance:

1. Government to Citizen (G2C)
2. Government to Government (G2G)
3. Government to Employee (G2E)
4. Government to Business (G2B)

Vision/Mission/Goal of e-Governance:

- e-Governance master plan (e-GMP) takes a holistic view of e-Governance initiatives across the country; provide all Government services through automated system by maximizing the use of IT.
- Make all Government services accessible to the common man in his locality, through common service delivery outlets, and ensure efficiency, transparency, and reliability of such services at affordable costs to realize the basic needs of the common man.

Components of e-Governance:

1. Awareness and communication
2. Assessment
3. Capacity Building
4. Common Services Centre
5. Infrastructure and technical
6. Monitoring & Evaluation
7. Research and Development
8. Project and Financial Appraisal

(Q) Discuss about Application domains of e-Governance?

e-Governance is the use of information and communication technologies to support good governance. It has the following main applications:

1. **Government to Citizen (G2C):** G2C will aim at connecting citizens to Government by talking to citizen and supporting accountability, by listening to citizens and supporting democracy, and by improving public services. It will involve better services to the citizens through single point delivery mechanism and will involve areas like: e-Citizen, e-Transport, e-Medicine, e-Education, e-Registration.

- **e-Citizen:** Under e-citizen integrated service centers are created. The purpose of these centers is to provide various customer services. It offers services like issue of Certificates, Ration Cards, Passports, Payment of Bills and taxes etc. These centers will become one-stop Government Shops for delivery of all services.

- **e-Transport:** The transport aspects that can be easily e-governed include: Registration of motor vehicles, Issue of driving licenses, Issue of plying permissions (Permits), Tax and fee collection through Cash and Bank Challans and Control of Pollution.

- **e-Medicine:** It involves linking of various hospitals in different parts of the country, thus providing better medical services to the citizen.

- **e-Education:** E-Education constitutes various initiatives of educating the citizen and the Government with the various Information Technologies.

- **e-Registration:** E-Governing the registration and transfer of the properties and stamp duty to be paid thereon brings substantial reduction of paper work and reduces the duplicating of entries. Further the transparency in work increases and the overall time of process registration reduces.

2. **Consumer to Government (C2G):** C2G Mainly constitutes the areas where the citizen interacts with the Government. It includes areas like election when citizens vote for the Government; census where he provides information about himself to the Government; taxation where he is paying taxes to the Government.

e-D emocracy:

- The e-democracy is an effort to change the role of citizen from passive information giving to active citizen involvement.
- In an e-democracy the Government informs the citizen, represents the citizen, encourages the citizen to vote, consults the citizen and engages the citizen in the Governance.

- Taking the citizens input about the various Government policies by organizing an e-debate will further strengthen the e-democracy.
- The concept of e-debate is similar to chat over the Internet, wherein not only the citizens but also the political leaders contesting the elections participate.
- The citizens give their feedback about the various policies of the parties and particularly the manifesto of the party.
- The initiative will further strengthen the process by enhancing the representative role, improving accessibility of citizens to their elected members and developing the capacity of elected representatives to engage in e-Government.
- Elected members will also be provided with access to the local authority"s Intranet and e-mail systems so that they become available online for decision making and people can easily access them.

Citizen Participation:

- For achievement of the above initiative the citizen has to participate in the Government Business and therefore spreading awareness becomes the responsibility of the State.
- The elections should not be fought on the principle of what one party or other has to offer.
- But they should be fought on the principle of what the citizens require.
- Market research programs should be carried out using the Information Systems to determine the needs of the citizens.

3. **Government to Government (G2G):** This can also be referred as e-Administration. It involves improving Government processes by cutting costs, managing performance, making strategic connections within Government, and creating empowerment. It involves networking all Government offices so as to produce synergy among them. The major areas are: e-Secretariat, e-Police, e-Court, state wide Networks.

e-Secretariat:

- Secretariat which is the seat of power has a lot of valuable information regarding the functioning of the State.
- The cross-linking of various departments and exchange of information amongst various components simplifies the process of Governance.

e-Police:

- e-Police will help to build citizen confidence.
- There will be two databases: one, of police personnel and the other of criminals.
- The database of personnel will have the records of their current and previous postings. This will help to track policemen specialized in certain geographical regions and skills.
- The second database will be of criminals. This database has to be upgraded to national database for its total utility. By just typing the name of a criminal a police officer will be able to know the details of his past activities, including his modus operandi and the area of operation. Further, a database like this will help tap the criminals easily as all the police stations will have simultaneous access to their record.
- The module also includes G2C activities like online filing of FIR"s, finding the case status of an FIR etc. Creating a database of Lost and Found can assist further lost and found of valuables and individuals.

e-Court:

- The pending court cases in India have brought the legal system to a halt.
- Not only are the consumers asking for changes in the administration, but also the system will collapse if it continues in this manner.
- Information Technology can transform the system and bring in the court cases to a level of zero dependency. Creating a database of cases can do the same.
- In fact such a system will help to avoid all the appeals to High Courts and Supreme Court, for the Judges can consider the appeals from an Intranet wherein the case remains in the same district court but the Higher Court gives their decision online based on the recorded facts of the case.
- Such a step will not only help the citizens but will also reduce the backlog of cases.
- Further the use of IT in the areas like recording of court proceedings, high resolution remote video to identify fraudulent documents, live fingerprints scanning and verification, remote probation monitoring, electronic entry of reports and paper work will further speed up the court proceedings.
- State Wide Networks
- This involves linking all the departments of the Government with various district headquarters and the state capital, facilitating the flow of information between the various state departments and its constituents. Here various blocks are linked to district Headquarters, district headquarters to State Headquarters and State Headquarters to the National Capital.

4. Government to Business (G2B):

e-Taxation:

- This constitutes the various services that a business house needs to get from the Government, which includes getting licenses etc.
- In a similar scenario, it can also flow from a business house to the Government as in the case of procurements, from such business houses by the Government. This will become a B2G service.

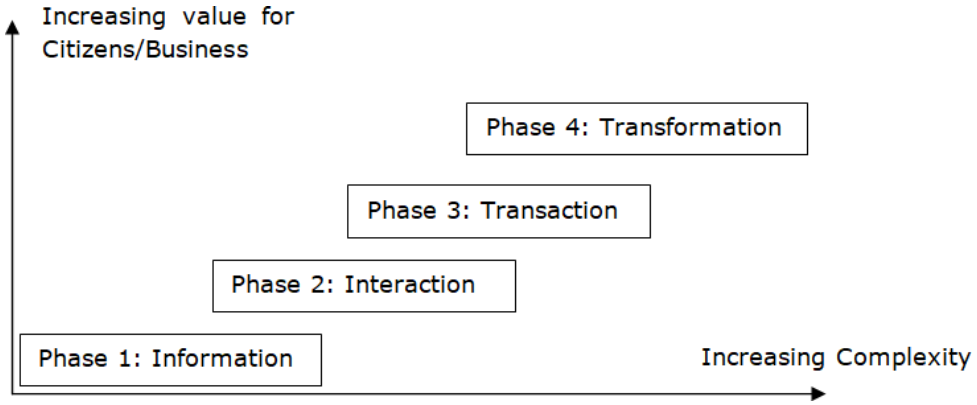
5. Government to NGO/Non-Governmental Organizations (G2N):

e-Society:

- Building interactions beyond the Government boundaries by developing communities, building Government partnerships and civil society.
- It involves building various associations or interest groups that will ensure the betterment of the society.
- Such initiatives deal particularly with the relationship between Government and citizens: either its legitimacy, or as customers who consume public services.

**************(Q) Discuss about Four Phase Model of e-Governance?**

Most widely accepted maturity model is the "Gartner e-Governance Maturity Model". The maturity model, comprises of „four" phase, viz. Information, Interaction, Transaction and Transformation. In each of the four phases, the delivery of online services and use of ICTs in Government operations server one or, more of the aspects of e-Governance and the phases are:



1. Information:

- It means being present on the web, providing the external public (G2C and G2B) with relevant information.
- The value to the public is that Government information is publicly accessible; processes are described and thus become more transparent, which improves democracy and services.

2. Interaction:

- In the second phase the interaction between Government and the public (G2C and G2B) is stimulated with various applications.
- People can ask questions via e-mail use search engine for information and are able to download all sorts of forms and documents. These functionalities save time.
- In fact the complete intake of (simple) applications can be done online 24/7.

3. Transaction:

- The complexity of the technology increases but, customer (G2C and G2B) value also increases.
- Complete transactions can be done without going to an office.
- Examples of online services are filing income tax, filing property tax, extending/renewal of licenses, visa and passports and online voting.
- Complexity is due to issues of security and personalization through it paperless transactions with legal certification.
- The complete process is online, including payments, digital signature etc. This saves time, paper and money.

4. **Transformation**:

- In it, all information systems are integrated and the public can get G2C and G2B services at one (virtual) counter.
- One single point of contact for all services is the ultimate goal.
- In this phase cost savings, efficiency and customer satisfaction are reaching highest possible levels.

(Q) Discuss about Implementing e-Governance?

Requirements for implementing successful e-Governance across the nation are:

1. **e-Governance framework:** It is across the nation with enough bandwidth to service a population of one billion.

2. **Connectivity framework:** For making the services to reach rural areas of the country or development of alternative means of services such as e-Governance kiosks in regional languages.

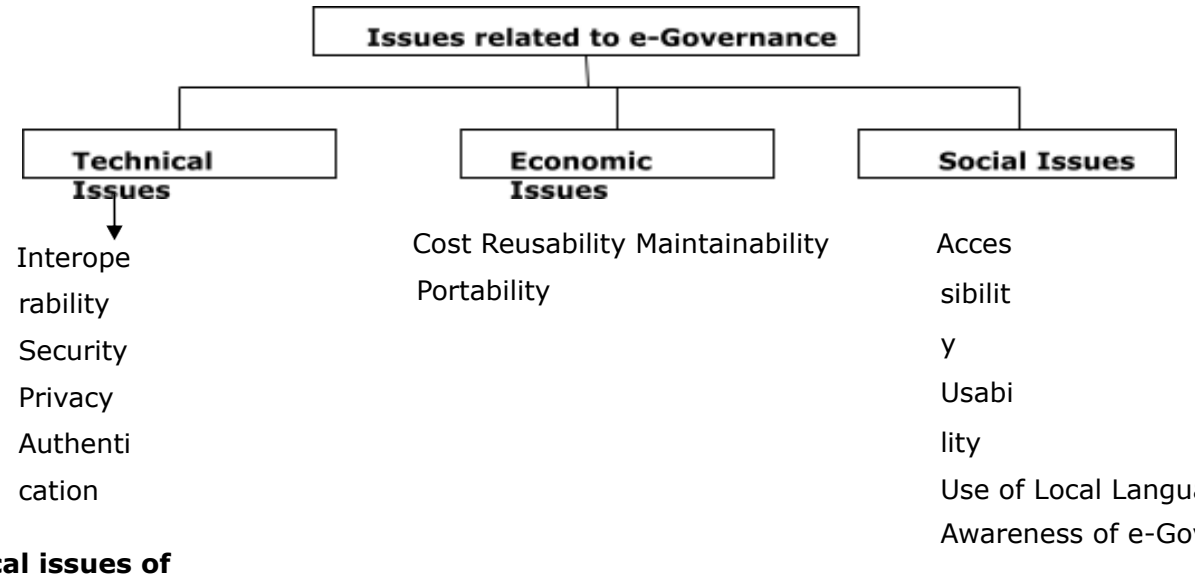
3. **National Citizen Database:** This is the primary unit of data for all governance vertical and horizontal applications across the state and central Governments.

4. **e-Governance and interoperability standards:** For the exchange of secure information with non-repudiation, across the state and central Government departments seamlessly.

5. **A secure delivery framework:** By means of virtual private network connecting across the state and central Government departments.

6. **Datacenters in centre and states:** To handle the departmental workflow automation, collaboration, interaction, exchange of information with authentication.

(Q) Discuss about issues while implementing e-Governance?



Technical issues of e-Governance:

1. **Interoperability:** it is one of the critical issues of e-Governance. Interoperation among ministries and departments is difficult, and it became hurdle for processing and sharing data. In other words, web based data how to be captured and in which format these seem to be major issues of e-Governance.

2. **Security:** Now days, security of online transaction is becoming big issue; insurance, banking, utility bill payments, all these services done by e-Governance. In fact, there is still discontent to citizen on availing Government services due to lack of security.

3.
4.
5.
6. **Privacy:** This is another key issue of e-Governance, any information provided by citizens should be ensured by Government, otherwise, any person or institution may misuse the valuable information.

7. **Authentication:** It is very important to know the right user of the services or it may be misused by private competitors. Meanwhile, the digital signature plays major role in providing authenticity. In fact, it is expensive and causes for frequent maintenance.

Economic issues of e-Governance:

1. **Cost:** It is one of the economic issues, implementation of e-Governance operations and maintenance of services fetch huge cost to Government.

2. **Reusability:** Any models developed by Government, must be reusability. e-Governance is being national plan, what it incorporates any software or modules should be used by other administrations.

3. **Maintainability:** Maintenance should be given due importance. Because, IT ministry has been continuously developing new software"s in order to fill the current needs of citizens. Consequently Government launched new projects for example, Digital India.

4. **Portability:** The primary requisite for portable applications is independence of components from hardware and software platforms in order to help in possible reuse by administrations.

Social issues of e-Governance:

1. **Accessibility:** In the era of technology, mostly number of people using Internet via computers and mobile phones. In the context of India, there is still gap arising between users and nonusers; it is because of language barrier, inadequate infrastructure in rural areas, etc.

2. **Usability:** Users of e-Governance may be literate or illiterate. Any technology or software to be used as user friendly to greater extant, only then, citizens could use it as smoothly as possible.

3. **Use of Local Languages:** Indian"s population is second next to china, over 65% only literate citizens are there; rest of population cannot understand the English language. Therefore, Government should make it more it more comfort by translating this language into their regional languages for the sake of benefit of e-services.

4. **Awareness about e-Governance:** Number of people in the country has not been aware of it, on account of illiteracy, non-accessibility of Internet in rural areas, lack of will using Internet services, etc. Therefore educated citizens, concerned institution and department should come forward to get rural people benefited by e-services.

(Q) Discuss about Opportunities and Challenges of e-Governance?

The opportunities provided by e-Government are economic development in the general improvement in the quality of life, efficient and effective monitoring systems to check corruption in Government setups. e-Government can narrow the development gaps of the urban and rural areas. It also affords citizen to access online services anytime, anywhere in the world thereby enhancing the interaction of citizens with Government and businesses.

Nowadays, it is well recognized that engagement in virtual electronic worlds is must. The question is how and to what extant Governments are able to use the ICTs to take advantage to e-Governance. The new era entails multiples opportunities such as:

- Improvement of public services
- Access to information
- Citizen"s engagement in governance
- Policy development

1. **Improvement of public services:** e-Governance value for individuals is described usually through the saving citizen"s time and avoiding complicated situations when dealing with public administration and acquiring different services for daily work life. Overall, e-Governance reduce administrative burden and save time for citizens, which enhance the quality public services delivery. This process is directly linked to communication infrastructure, telecommunications system, and broadcaster connections. ICTs have the potential to ensure that citizens benefit from e-Governance and the question emerged from this fact is what capabilities must Governments have to fully embrace "big data" as a tool for governance.

2. **Access to information:** Nowadays, increase transparency and openness concepts have become key issues in e-Governance. In this context, communication networks facilitate individuals, groups, organizations, etc. To interact among them. Government agencies use ICTs to disclose information, provide public services and interact with citizens. In this context, agencies and institutions should disseminate information in a timely, equitable, efficient and appropriate manner. Overall, we can say that ICTs offer citizens and Government a new way to create transparent, to promote accountability and to empower citizens.

3. **Citizen's engagement on governance:** e-Governance brings the opportunity of creating a two-way interaction among multiple stakeholders. Indeed, ICTs and networks facilitate interactions among individual citizens, business groups, and Governmental institutions. Individuals and organizations interacting directly or indirectly with the Government are known as the payers of e-Government.

These interactions can be named as:

- B2B: transaction between businesses with each other
- B2C: communication between business and customers
- G2B: interaction between Government and businesses
- G2G: interagency relationships
- G2C: communication between Government and citizens
- C2C: communication among citizens themselves
- G2E: Government-to-Employee

4. **Policy development:** Giving the new transformations, technology management and information

access have to be enforced. Indeed, information policy framework should specify the rules and conditions under which information is gathered, used, protected, and shared by Government, individuals and private sectors.

Challenges in e-Governance:

- **Trust:** People should trust the Government and they should be comfortable and confident of the tool and technology that they are using. But due to fraudulent transactions and other factors, the trust of the people is compromised which becomes one of the factors responsible for the limited use of e-governance.

- **Digital divide:** It refers to the division between the people who have access to digital technology and the others who don"t have access to it. Economic poverty is one of the main causes of the digital divide. People are unable to afford computers.

- **Lack of Awareness:** Due to the use of digital technology also contributes to the limited use of e-governance techniques. People are not aware of the scope of e-governance and depend on intermediaries for its use.

- **Cost:** In a developing country like India, cost plays a major role in regulating the use of e-Governance.
- Privacy and Security: People are apprehensive about the security and privacy of their personal data. Government should ensure that no compromise should be done at that end.

- **Accessibility:** Due to inadequate infrastructure facilities in rural areas and language barriers people are unable to access e-governance.

- **Low Computer Literacy:** More than 90% of India"s population is digitally illiterate. In addition, the illiterate population comprises 25% to 30% which is one of the biggest challenges.

- **Resistance to Change:** Due to the introduction of Information Technology, a lot of changes have taken place but still, there are various officials, citizens, and politicians who are resistant to change and have different opinions regarding e-Governance.

We can summarize the key benefits of e-Government as below:

- ❖ Cost reduction and efficiency gains
- ❖ Better quality services delivery to both businesses and customers
- ❖ Transparency, anticorruption and more accountability
- ❖ Increase the capacity of Government to respond to various needs
- ❖ Network creation and community establishment
- ❖ Improve the quality of decision making
- ❖ Promote use of ICT in other sectors in the society

Some of the Advantages of e-Governance:

- Faster communication through the use of phones and the Internet, as it decreases the time taken for communication.
- Paper-based communications require heavy expenditure. It needs a lot of stationary, printers, labor, etc. The cost has been reduced with the use of the Internet and phones. Moreover, time and environment are also safe due to their use.
- In earlier times, people faced issues due to physical constraints in reaching out to Government officials. Sometimes because of the ignorance of the officials and at other times due to long queues.

But now it has become easy. e-Government is convenient as it provides services according to the schedule and venue of the people.

- e-Governance has increased the access of information to the people.
- It also results in improved customer service. GDC (Government Data Centers) are the prominent component of ICT infrastructure for supporting e-governance initiatives.

(Q) Discuss about types of e-Governance?

e-Governance is the implementation of ICT. The ICT stands for information and communication technology in the Government department. Likewise, the central e-Governance is to make Government services efficient, accessible and convenient. The use of E-Governance is to overcome the boundaries. That is of a traditional paper-based system. It is the enhancement of current Government. And it also helps to provide better Government services to citizen. Hence, e-Governance delivers SMART Government.

- S-Simple
- M-Moral
- A-Accountable
- R-Responsive
- T-Transparent

e-Governance is not only a website on the Internet. e-Governance is providing Governmental services that are accessible through the Internet. It refers to any Government process or function that is out online in digital form.

Similarly, e-Governance is the involvement of digital democracy, online services delivery. Likewise, it is also an online citizen participation. An ordinary citizen gets the Government facility through the Internet. e-Governance is the network that includes Government, public, and business organizations.

e-G overnance is of 4 types depending on the specific types of services.

1. **Government-to-Citizens (G2C):** The Government-to-citizen refers to the Government services that are accessed by the familiar people. And most of the Government services fall under G2C. Likewise, the primary goal of Government-to-citizen is to provide facilities to citizens. It helps the ordinary people to reduce the time and cost to conduct a transaction. A citizen can have the services anytime from anywhere.

2. **Government-to-Business (G2B):** The Government to business is the exchange of services between Government and Business organizations. It is efficient for both Government and business organizations.G2B provides access to relevant forms needed to comply. The G2B also consists of many services exchanged between business sectors and Government.

3. **Government-to-Government (G2G):** The Government-to-Government refers to the interaction between different Government departments, organizations, and agencies. This increases the efficiency of Government processes. In G2G, Government agencies can share the same database using online communication. The Government departments can work together. This service can increase international diplomacy and relations.

4. **Government-to-Employee (G2E):** The Government-to-Employee is the internal part of the G2G sector. Furthermore, G2E aims to bring employees together and improvise knowledge sharing.

(Q) Discuss about Real-Time Governance (RTG)?

Real Time Governance (RTG) is a new institutional framework devised by the Government of Andhra Pradesh to bring in positive „disruptive“ changes in governance, public administration and management leveraging the tools of e-Governance, technology and electronic communication. The RTG system utilizes the tools of e-Governance to develop an institutional mechanism for developing „Good Governance“ practices and effective provisioning of public services.

The Government of Andhra Pradesh has established an institutional framework through RTGS-Parishakara Vedika to achieve transparency, accountability, and to make public service delivery efficient. RTGS is utilizing all technology applications of e-Governance for real tome grievance redressal.

The major thematic areas of operation of RTG include: Grievance management (through a call center called Parishakara Vedika), beneficiary feedback (on services delivery of social welfare benefits, pensions, public distribution system, scholarships and other Government programmes and perception analysis on flagship schemes of the Government), data mining and analytics (for independent performance measurement system at state level focusing on programme outcomes and dispensing feedback to officials at multiple administrative levels), coordination and crowdsourcing (application of big data for designing welfare projects in the state).

Andhra Pradesh has developed the people Hub e-Pragathi, the state enterprise architecture wherein all applications in the state are unified into a single platform. This includes-public welfare delivery services like food rations, social security pensions, fintech, health, transport, agriculture, etc., Forecasting and Early Warning System (to monitor weather events like rainfall to provide real time agro-advisories to farmers at village level.

Objectives of RTGS:

- People hub
- Land hub
- CFMS (Comprehensive Financial Management System)
- Cloud hub
- Spandana 1100

Components of Real-Time Governance Society:

- Good Governance
- IoT (Internet of Things) & Surveillance
- Infrastructure
- Incidents

(Q) Discuss about Real Time Governance Society (RTGS)?

Andhra Pradesh is the pioneering state in launching the new services system of Real-Time Governance society (RTGS) which measures the effectiveness of the services delivered. One of the major issues of governance in India is increasing inefficiency in the delivery of public services at the pace of rising expectations from the public.

Implementing an effective system of good governance is only the way to increase the efficiency of service delivery with regard to the opportunities in both social and economic activities which ultimately help to reduce poverty. The emphasis, therefore, comes to major factors in good governance viz, inefficient

public service delivery, corruption, delay in services, random and skewed welfare distribution due to lack of proper information.

Real-Time Governance Society (RTGS) is an e-Governance initiative of chief minister N.Chandrababu Naidu of the state of Andhra Pradesh in India. It was formed on 6th September 2017 and the Real-Time Governance department directly reports to the chief minister. The idea behind institutionalizing the system of Real-Time Governance Society (RTGS) is to use electronic communication and technology to deploy an efficient system of e-Governance in the state of Andhra Pradesh. It has 13 district centers and 1 state center for reporting. Data from Andhra Pradesh weather forecasting and early warning research center, drones, machine learning system, biometric system and other surveillance systems are collected and reported via the RTGS system in real-time.

Objectives of RTGS:

- People hub
- Land hub
- CFMS
- Cloud hub
- Spandana 1100

Components of Real-Time Governance Society:

1. Good Governance:

- **Spandana 1100 (Parishkara Vedika):** It is a kind of grievance redressal call center and communication platform. Through which citizens can register any kind of grievance by dialing 1100.

- **Spandana1902:** The spandana call center with the number 1902 is integrated to resolve grievances of availability and movement of essential commodities and other issues of Covid-19.

- **Spandana 14400 (Anti-Corruption Bureau):** The Government is aimed to eradicate corruption at all levels as a part of it the Government launched a 24*7 call center with toll-free number 14400 to enable people to lodge complaints with regard to corruption in Government departments. The complaints will be looked into within 15-30 days. The call center will forward the information to the Anti-corruption bureau of the concerned district for necessary action.

- **Spandana 14500 (Sand Reach):** The Government launched a toll-free number 14500 to handle the complaints and grievances and to crack down on mafia-related sand supplies. People can call the toll-free number to lodge complaints with regard to irregularities in sand sales. According to which hoarding, smuggling and selling of sand at a higher price is a criminal offense.

- **Social Media:** social media platforms like Twitter, Facebook; Instagram and LinkedIn are used extensively to reach people. Awareness about Government campaigns, schemes and initiatives is spread effectively. Print & Electronic Media: print and electronic media play an important role in RTGS. The alert management system constantly monitors all print, electronic and digital media for any untoward incident in AP.

2. IoT (Internet of Things) & Surveillance:

- **Drones:** drones are used for surveillance and to monitor emergency situations during natural calamities. Drones are also being used for spraying pesticides on crops and identifying land with ganja cultivation through aerial footage.

- **Sensors:** As part of RTGS, a million IoT devices and sensors are used through which massive data is collected regarding monitoring of streetlights, groundwater reports and the weather forecast.

- **Dashboard:** Real-Time Governance ecosystem aims at bringing a uniform using Real-Time dashboards on various performance indicators. Every minister"s data is recorded on the dashboard including the time taken to clear files; this is reviewed by the CM once every 15 days.

- **Geo-Tagging:** Geo-Tagging is the process of adding geographical identification by using Aadhaar authentication for land records in AP. As part of it Bhudaarand Bhuseva portal is launched, which makes land records available to people with a unique identification number just like Aadhaar number. The integration of verified and updated land records will end litigation and corruption in land records and prevent tampering.

- **Biometric:** Biometric attendance and facial recognition is used to ensure authentication. Accurate records are maintained with the help of modern technology.

3. Infrastructure:

- **AP fiber grid:** AP fiber grid provides high-speed Internet connectivity, seamless telephone and television services at normal cost to every household in AP through this project.

- **CCTV (Closed Circuit Television) Cams:** RTGS as part of the projects monitoring and surveillance project is installing CCTV (Closed Circuit Television) cams in important high-end infrastructure projects of the state like Polavaram, important projects, flyovers, street crimes etc.

- **FSOC (Wireless):** Free Space Optical Communication (FSOC) technology is used in AP to provide high-speed wireless Internet by improving fiber grid connectivity to address the challenge of the river and railway crossing to connect those areas where fiber cables cannot reach.

- **Digital Classrooms:** digital classrooms are introduced to provide effective methods of teaching through digital platforms. Students have shown better performances after lessons taken through digital teaching.

- **Aadhaar platform & applications:** the data in Aadhaar is used to ensure family level monitoring of services provided by the Government.

4. Incidents:

- **ISRO:** AP Government through RTGS has entered into collaboration with the Indian Space Research Organization (ISRO) to provide in house meteorological services to govt. of AP like weather forecasting, agro-advisories, sea-state forecasting, extreme weather events like thunderbolts, lightning, cyclones monitoring etc. RTGS-AWARE (AP weather forecasting and Early Disaster warning) use advanced ensembles for weather forecasting.

- **Sensors:** As part of RTGS, a million IoT devices and sensors are used. Through which massive data is collected regarding monitoring of streetlights, groundwater reports, and the weather forecast.

- **Weather:** accurate weather forecasting is possible with the help of sensors. Timely alerts and warnings can be sent out to citizens to ensure minimal damages and zero casualties.

- **Disaster control:** disaster preparedness to face natural calamities is ensured through Real-Time communication and exchange of data between Government departments.

- **SEOC:** A State Emergency Operations Center (SEOC) is established to tackle emergency situations in an efficient manner. It is equipped to monitor short-range, medium-range and long-range weather-related natural hazards such as thunderstorms, floods, cyclones, earthquakes etc in multiple locations.

- **Incidents &**
- **Events:** RTGS as part of its events and incident monitoring activity helps in quick resolutions of an event or an incident in any part of the state. RTGS constantly monitors all major incidents in the state and responds with institutional support in case of distress or an emergency situation.

UNIT – II
E-Governance Infrastructure

(Q) Discuss about e-Governance Infrastructure?

- Information and Communication Technology (ICT) together with Internet is making it possible to share vast amount of knowledge and information and is driving all round socio-economic changes and growth.
- e-Infrastructure will be the key enabler for the information and knowledge society.
- e-Infrastructure comprises tools, facilities and resources that are needed for advanced collaboration and includes integration of various technologies such as Internet broadband channels, computing power, bandwidth provisioning, data storage, grid based resource sharing etc.
- e-Governance Infrastructure means Developing core and support infrastructure to promote e-Governance in a holistic manner.

Major core Infrastructure Components:

- State Data Centers (SDCs)
- State Wide Area Networks (S.W.A.N)
- Common Services Centers (CSCs)

Middleware Gateways:

- National e-Governance Service Delivery Gateway (NSDG)
- State e-Governance Service Delivery Gateway (SSDG)
- Mobile e-Governance Service Delivery Gateway (MSDG)

Support Components:

- Core policies and guidelines on Security, HR, Citizen Engagement, social media
- Standards related to Metadata, Interoperability, Enterprise Architecture, Information security etc.
- New initiatives like a framework for authentication (e-Praman)
- Service Delivery Gateways GI Cloud (MeghRaj)

Examples of e-Gov Infrastructure:

- Aadhaar-Digital Biometric Identity Infrastructure
- Digital Locker
- Open Data
- Government Procurement Government e-Marketplace (Gem)
- GI Cloud (MeghRaj)
- Common Services Centers
- Service Delivery Gateway
- State Data Centre
- State Wide Area Network (SWAN)
- Open Forge Project
- E-Government Development Index (EGDI) under Global Indices
- PRAGATI 2.0 Pro-Active Governance and Timely Implementation
- MyGov 2.0
- Jeevan Pramaan
- Secure Email Service for Government of India

(Q) Discuss about Data Systems Infrastructure (DSI)?

Introduction of Data System Infrastructure:

Data Systems Infrastructure is the foundation of any organization's digital ecosystem. It is a set of interconnected hardware and software components that are used to store, process, and manage data. Here are four types of data systems infrastructure:

I. **Executive Information Systems (EIS):** EIS is a type of data system infrastructure that is designed to support executive decision-making. It provides real-time information to executives, such as financial data, sales reports, and customer information. EIS is typically used by top-level executives to monitor the performance of their organizations and make strategic decisions.

II. **Management Information Systems (MIS):** MIS is a type of data system infrastructure that is used to support middle-level managers in making decisions. It provides information on operational processes, such as inventory levels, production rates, and employee productivity. MIS is typically used by managers to track the performance of their departments and make tactical decisions.

III. **Knowledge Management Systems (KMS):** KMS is a type of data system infrastructure that is used to manage organizational knowledge. It provides tools and techniques for creating, capturing, storing, and sharing knowledge within an organization. KMS is typically used by organizations to improve collaboration, reduce duplication of effort, and increase innovation.

IV. **Transaction Processing Systems (TPS):** TPS is a type of data system infrastructure that is used to process transactions. It is used for day-to-day operations such as order processing, billing, and inventory management. TPS is typically used by operational staff to process transactions quickly and accurately.

Each of these data systems infrastructure types is critical to the success of an organization. They provide the necessary tools and information for different levels of management to make decisions and operate efficiently. By integrating these systems into an organization's digital ecosystem, organizations can optimize their operations and make better decisions.

Data infrastructure refers to the various components including hardware, software, networking, services, policies and more - that enable data consumption, storage, and sharing having the right data infrastructure strategy is critical for seeking to undertake data-driven digital organizations seeking to transformation.

Role of Data Infrastructure:

Data infrastructure provides the foundation for an organization to create, manage, use, and secure its data. One of its most critical roles is to ensure that the right data can get to the right users or systems at the right time to make effective data-driven decisions. To meet this goal, an organization must have a solid data infrastructure strategy in place to maintain data flows, protect data quality, minimize redundant data, and prevent crucial data from being isolated into silos.

Elements of Data Infrastructure:

Data infrastructure includes the physical infrastructure of the data center facility, the information infrastructure that encompasses the systems and environments that create and support data, and the business infrastructure of high-level business systems. Exactly what elements are considered part of the

data infrastructure can differ from organization to organization, and even from person to person within an organization. Some of the possibilities include:

Physical Infrastructure:

- Storage hardware
- Processing hardware
- I/O networks
- Data center facilities (including power, rack space, and network connectivity)

Information Infrastructure:

- Business application
- Data repositories (including databases, data warehouses, data lakes, data marts, and data lake houses)
- Virtualization systems
- Cloud resources and services including Software as a Services (SaaS) applications, virtual services.

Business infrastructure:

- Business Intelligence (BI) systems
- Analytics tools including Big Data, Artificial Intelligence (AI), and Machine Learning (ML) Systems

(Q) Discuss about Executive Information Systems (EIS)?

An information system designed to cater the specific needs of executives is known as Executive Information System (EIS). It is also known Executive Support System (ESS).

EIS is commonly considered as a specific form of Decision Support Systems (DSS) as it helps in the information gathering and decision-making process of senior executives in a company and meeting the strategic goals of the organization. This is ensured by easy access of internal as well as external data.

Executive Information System is an association of many top features of Management Information System (MIS) and DSS It was first developed to meet the requirement of the management for strategic information. This provided the management team with instant and easy access to information about a company's Critical Success Factors (CSF) which is important for attaining a company's strategic goals.

Advantages of Executive Information System (EIS): Importance of executive support system is explained below:

- ❖ Executive Support System or Executive Information System can be easily used by upper-level executives for decision-making, as extensive computer knowledge is not required for this.
- ❖ It has trends analysis capability. Enhances the manager's leadership skills.
- ❖ Helps in better personal thinking and decision making.
- ❖ It involves strategic control flexibility.
- ❖ Leads to healthy competition in the market place.
- ❖ Existing information can be easily accessed.
- ❖ Acts as an instrument of change.
- ❖ An executive time horizon is increased.
- ❖ Leads to a better reporting system.
- ❖ Helps executives to get a better mental model of business.

- ❖ Assists in consensus building and communication.
- ❖ Adds to the efficiency, timeliness, and accuracy of office automation.
- ❖ Considerably reduces time taken for finding and integrating information.
- ❖ Organization"s performance can be recognized early.
- ❖ Detailed scrutiny of critical success factors.
- ❖ Provides better understanding of enterprise operations.
- ❖ Increases productivity by helping time and team coordination.
- ❖ Capacity and quality of communication is increased.

Disadvantages of Executive Information System:

- ❖ Its functions are limited, as it cannot perform complex calculations
- ❖ It is difficult to quantify the advantages and justify its implementation
- ❖ Information overload is encountered by executives.
- ❖ Systems are prone to become slow, large and hard to manage.
- ❖ Keeping recent data is tough.
- ❖ Leads to less reliable and insecure data.
- ❖ Huge cost of implementation encountered by small scale organizations

IMP*******(Q) Discuss about Management Information Systems (MIS)?**

Management Information System can thus be analyzed as follows:

- **Management:** Management covers the Planning, Control, and Administration of the operations of a concern. The top management handles planning; the middle management concentrates on controlling; and the lower management is concerned with actual administration.

- **Information:** Information, in MIS, means the process data that helps the management in planning, controlling an operation. Data means all the facts arising out of the operations of the concern. Data is processed i.e., recorded summarized, compared and finally presented to the management in the form of MIS report.

- **System:** Data is processed into information with the help of a system. A system is made up of inputs, processing, output and feedback or control. Thus, MIS means a system for processing data in order to give proper information to the management for performing in functions.

Definition: Management Information System or 'MIS' is a planned system of collecting, storing, and disseminating data in the form of information needed to carry out the functions of management.

The MIS has been understood and described in a number of ways. It is also referred to as:

1. Information System
2. Information and Decision System
3. Computer based Information System

MIS can be defined in a number of ways:

- The MIS is defined as a system which provides information support for decision making in the organization.
- MIS is an integrated system of men and machines for providing the information to support the operations, the management and decision-making functions in the organization.

- MIS is defined as a system based on the database to the Organization evolved for the purpose of providing information to the people in the Organization.

Following are the basic Objectives of MIS:

The goals of an MIS are to implement the organizational structure and dynamics of the enterprise for the purpose of managing the organization in a better way and capturing the potential of the information system for competitive advantage.

- **Capturing Data:** Capturing contextual data, or operational information that will contribute in decision making from various internal and external sources of organization.

- **Processing Data:** The captured data is processed into information needed for planning, organizing, coordinating, directing and controlling functionalities at strategic, tactical and operational level. Processing data means:

    - Making calculations with the data
    - Sorting data
    - Classifying data and
    - Summarizing data

- **Information Storage:** Information or processed data need to be stored for future use.

- **Information Retrieval:** The system should be able to retrieve this information from the storage as and when required by various users.

- **Information propagation:** Information or the finished product of the MIS should be circulated to it users periodically using the organization network.

Characteristics of MIS: Following are the characteristics of an MIS.

- It should be based on a long-term planning.
- It should provide a holistic view of the dynamics and the structure of the organization.
- It should work as a complete and comprehensive system covering all interconnecting subsystems within the organization.
- It should be planned in a top-down way, as the decision makers or the management should actively take part and provide clear direction at the development stage of the MIS.
- It should be based on need of strategic, operational and tactical information of managers of an organization.
- It should also take care of exceptional situations by reporting such situations.
- It should be able to make forecasts and estimates, and generate advanced information, thus providing a competitive advantage. Decision makers can take actions on the basis of such predictions.
- It should create linkage between all sub-systems within the organization, so that the decision makers can take the right decision based on an integrated view.
- It should allow easy flow of information through various sub-systems, thus avoiding redundancy and duplicity of data. It should simplify the operations with as much practicability as possible.
- Although the MIS is an integrated, complete system, it should be made in such a flexible way that it could be easily split into smaller sub-systems as and when required.
- A central database is the backbone of a well-built MIS.

(Q) Discuss about Knowledge Management Systems (KMS)?

A Knowledge Management System (KMS) is a centralized repository that's used to organize, store and share organizational knowledge with employees and customers. Capturing information in a knowledge management system ensures that employees are able to easily access the information they need in real time even if the knowledge-holder has changed jobs or has left the organization entirely. In customer service, a knowledge management system allows marketers and customer support teams to quickly create content for customer self-service portals, FAQ web pages and chat board responses.

Knowledge Management System (KMS) software is designed to leverage an organization's pooled knowledge (knowledge base) and improve operational efficiencies. Key components of a KMS support an organization's ability to:

- Foster an institutional culture that rewards knowledge sharing and reuse.
- Encourage employees to query the KMS for Just-In-Time (JIT) learning.
- Provide answers to commonly asked questions for customer self-service initiatives.

Importance of Knowledge Management:

Knowledge provides a competitive advantage to an employee as well as the organization. The data and information which come with knowledge help organization make an informed decision.

Example: Knowledge about competitors pricing model or business strategy can help organization work towards bettering the competitor. Knowledge management is a highly iterative process which consists of six major tasks like Create, Capture, Refine, Store, Tag and Circulate.

- ❖ The first step is to create or capture data and store it at appropriate location.
- ❖ The second step is to refine the data into meaningful information.
- ❖ The third step is to transmit information to relevant stakeholders.

Knowledge Management System develops to capture, create, refine, tag and circulate information used to improve business productivity of the organization. There is three broadways of managing the knowledge system.

1. The 1st way is utilization of information technology and systems to improve business efficiency.
2. The 2nd way is utilization of organizational method to improve business efficiency.
3. The 3rd way is creating a healthy workplace to facilitate improvement of business efficiency.

Types of Knowledge Management Systems:

Based on structure and requirement of organization, there are several types of knowledge management systems. Some of them are as follows:

- **Expert Systems:** These are knowledge management systems developed to facilitate a Subject Matter Expert. This module provides knowledge of different subjects.

- **Groupware:** In the current global scenario, team members are spread across regions. However, it is important for them to collaborate on various projects. Groupware is a knowledge management system which helps in sharing calendar, project activities and instant messaging.

- **SharePoint**: It is important for team to store various documents at a single location. SharePoint enables a user to store multiple version of the same document, helps a user search through folders for document, etc.

- **Decision Support System:** Decision support system helps floor managers; Sales Manager, CEO, etc. take decisions to finalize business or operational strategy. Decision support system comprises of primary data as well as secondary data. Decision support system enables editing of data and converts it information in the desired format.

- **Database Management System:** Knowledge management systems which support active storage and retrieval of data are known as a database management system.

(Q) Discuss about Transaction Processing Systems (TPS)?

Information systems that process data generated from business transactions are known as Transaction Processing Systems (TPS). In other words, the main job of a transaction processing system is to collect data generated from the transactions, store it, and, at times, control the decisions that are taken arising out of the transactions. Such transactions can be in the form of purchases, sales, deposits, withdrawals, etc.

Example: For instance, booking an airline ticket, withdrawing money from an ATM, depositing cash in the bank, etc.

Generally, these transactions occur on a day-to-day- basis. A sale or purchase of an item triggers many other transactions like credit checks, billing, and changes in the inventory. Thus, transactions generate additional data.

Components of TPS:

1. **Inputs:** Source documents such as Customer orders, invoices, purchase orders, etc. serves as Inputs to the TPS system.

2. **Processing:** Once the inputs are provided, they are further processed to get an output.

3. **Storage:** Ledgers serves as a source of storage.

4. **Output:** Any document generated is termed as output. These were the fundamentals behind the Transaction Processing System. It is a very helpful, reliable & secured system of processing transactions at an ease.

Types of TPS:

1. **Batch processing:** Processes several transactions at the same time, with a time delay.

Example: A company may want to process its workers“ wages once every two weeks.

2. **Real-time processing:** Deals with one transaction at time and does not have a time delay.

Example: Suppose Fareed purchased a T-Shirt from Amazon, online apparel and clothing retailer. He used his credit card to pay for the item. The company“s TPS collected the credit card details, communicated with its bank, and approved the purchase based on Fareed“s account balance.

Features of TPS:

- **Rapid Response:** The response time of a transaction processing system (TPS) is important because a business cannot afford to have their customers waiting for long periods of time before making a transaction.

- **Reliability:** A good TPS must be very reliable because if it were to break down businesses could lose a huge portion of revenue because customers would not be able to purchase their products.

- **Inflexibility:** The TPS must work the same way for every transaction as long as the TPS is being used. The formality and structure should never change.

- **Controlled processing:** The TPS must be able to allow authorized employees to be able to access it at any time.

Following are the objectives of a transaction processing system:

- Carrying out the day-to-day transactions of the organization on a regular basis.
- Collecting, processing, editing, updating, storing the data, and generating the required reports or documents.
- Supplying the necessary information to the organization, this would enable proper functioning of the business
- Providing reports and documents which would help in making timely decisions.
- Supplying data to other information systems.

Advantages / Benefits of TPS:

- A TPS helps organizations save funds by minimizing their need to improve their system or utilize multiple systems to fulfill demand.
- Companies can use a TPS to process transactions accurately and quickly.
- A TPS automates a significant part of a company“s revenue management and internal resources. Because of this, employees can review transactions faster. Moreover, this gives them more time to focus on critical thinking tasks.
- It allows businesses to carry out operations in multiple segments by working remotely. This enables organizations to explore new markets that are full of opportunities.

Disadvantages / Limitations of TPS:

- A TPS does not have a standard format.
- Companies have to incur a high set-up cost initially for TPS.
- Sometimes, hardware and software have compatibility issues.
- A TPS may stop working or slow down due to many transactions.

(Q) Discuss about Legal Infrastructure Preparedness (LIP):

Introduction:

Legal infrastructure preparedness refers to the measures that a country takes to ensure that its legal framework is adequate to deal with emerging challenges in the digital age. Here are three key areas related to legal infrastructure preparedness in India:

I. IT Act 2000:

The Information Technology Act, 2000 is the primary legal framework that governs electronic transactions and digital communication in India. The Act provides legal recognition to electronic records and digital signatures and establishes penalties for cybercrimes such as hacking, phishing, and cyber stalking. The Act has been amended several times to keep pace with technological advancements and emerging cyber threats.

II. Challenges to Indian Law and Cybercrime Scenario in India:

The fast-paced growth of technology has led to new forms of cybercrime, which pose significant challenges to Indian law enforcement agencies. Some of the common cybercrimes in India include identity theft, financial frauds, cyber bullying, and cyber terrorism. These crimes have put a strain on the existing legal infrastructure, which is struggling to keep pace with the scale and complexity of cybercrimes. India is facing several challenges related to its legal framework and cybercrime scenario.

Key challenges of Indian Law and Cybercrime Scenario in India:

- **Lack of Awareness:** One of the significant challenges facing India is a lack of awareness among citizens about cybercrimes and the legal framework related to them. Many people are not familiar with their digital rights and the potential risks of using technology, which makes them more vulnerable to cybercrime.
- **Data Privacy:** The issue of data privacy is a significant concern in India, as many organizations and Government agencies collect and store personal information of citizens without adequate safeguards. This puts citizens' personal information at risk of being hacked or misused.
- **Limited Cybercrime Infrastructure:** India has a limited cybercrime infrastructure, including a lack of specialized law enforcement agencies and cyber security experts. This makes it difficult to investigate and prosecute cybercrimes effectively.
- **Jurisdictional Challenges:** Cybercrimes are often committed across international borders, making it challenging to investigate and prosecute offenders. India's legal framework is still evolving to address these jurisdictional challenges, which can make it difficult to bring cybercriminals to justice.
- **Emerging Cyber Threats:** New forms of cyber threats, such as deep fake videos, online hate speech, and social media abuse, are emerging at a rapid pace. These threats are challenging to address with the existing legal framework, and India needs to take a more proactive approach to deal with them effectively.

III. Amendments of the Indian IT Act:

The Indian IT Act, 2000 has been amended several times to keep pace with the evolving cyber threats and technological advancements. Here are some of the key amendments to the Indian IT Act:

- **Amendment in 2008:** The most significant amendment to the Indian IT Act was made in 2008. This amendment introduced several new provisions related to electronic signatures, data protection, and penalties for cyber stalking. The amendment also established a Cyber Appellate Tribunal to deal with appeals against orders passed by Adjudicating Officers.

- **Amendment in 2013:** In 2013, the Indian IT Act was amended to include new provisions related to data privacy and protection. The amendment also introduces a new section on the punishment for publishing or transmitting obscene material online.

- **Amendment in 2015:** The Indian IT Act was amended in 2015 to include new provisions relate to net neutrality. The amendment also provided legal recognition to electronic signatures based on Aadhaar, unique identification number issued to Indian residents.

- **Amendment in 2018:** In 2018, the Indian IT Act was amended to include new provisions related to the interception of electronic communications. The amendment also introduced new penalties for cyber terrorism and the circulation of child pornography.

- **Proposed Amendment in 2021:** The Indian Government is currently considering a new amendment to the Indian IT Act in 2021. The proposed amendment seeks to regulate social media platforms, OTT platforms, and other digital media. The amendment proposes new guidelines for content moderation, data protection and use privacy.

Overall, the Indian Government has taken several steps to strengthen the Indian IT Act to address emerging cyber threats and technological advancements. These amendments have helped to create a more robust legal framework for electronic transactions and digital communication in India. However, there is still a need for further improvements to keep pace with the evolving cyber threats and ensure the safety and security of citizens' digital rights.

(Q) Discuss about IT Act 2000?

In 1996, the United Nations Commission on International Trade Law (UNCITRAL) adopted the model law on electronic commerce (E-Commerce) to bring uniformity in the law in different countries. Further, the General Assembly of the United Nations recommended that all countries must consider this model law before making changes to their own laws.

India became the 12^{th} country to enable cyber law after it passed the Information Technology Act, 2000. While the first draft was created by the Ministry of Commerce, Government of India as the E-Commerce Act, 1998, it was redrafted as the 'Information Technology Bill, 1999', and passed in May 2000.

Objectives of the Act:

The Information Technology Act, 2000 provides legal recognition to the transaction done via electronic exchange of data and other electronic means of communication or electronic commerce transactions. The objectives of the Act are as follows:

1. Grant legal recognition to all transactions done via electronic exchange of data or other electronic means of communication or e-commerce, in place of the earlier paper-based method of communication.
2. Give legal recognition to digital signatures for the authentication of any information or matters requiring legal authentication.
3. Facilitate the electronic filing of documents with Government agencies and also departments
4. Facilitate the electronic storage of data.
5. Give legal sanction and also facilitate the electronic transfer of funds between banks and financial institutions
6. Grant legal recognition to bankers under the Evidence Act, 1891 and the Reserve Bank of India Act, 1934, for keeping the books of accounts in electronic form.

Features of the Information Technology Act, 2000:

- ❖ All electronic contracts made through secure electronic channels are legally valid.
- ❖ Legal recognition for digital signatures.
- ❖ Security measures for electronic records and also digital signatures are in place
- ❖ A procedure for the appointment of adjudicating officers for holding inquiries under the Act is finalized
- ❖ Provision for establishing a Cyber Regulatory Appellant Tribunal under the Act. Further, this tribunal will handle all appeals made against the order of the Controller or Adjudicating Officer.
- ❖ An appeal against the order of the Cyber Appellant Tribunal is possible only in the High Court
- ❖ Digital Signatures will use an asymmetric cryptosystem and also a hash function
- ❖ Provision for the appointment of the Controller of Certifying Authorities (CCA) to license and regulate the working of Certifying Authorities. The Controller to act as a repository of all digital signatures.
- ❖ The Act applies to offences or contraventions committed outside India.
- ❖ Senior police officers and other officers can enter any public place and search and arrest without warrant.
- ❖ Provisions for the constitution of a Cyber Regulations Advisory Committee to advise the Central Government and Controller.

(Q) Discuss about Challenges to Indian Law and Cybercrime Scenario in India?

There are many challenges in front of us to fight against the cybercrime. Some of them here are discussed below:

Key challenges to Indian Law and Cybercrime Scenario in India:

- **Lack of Awareness:** One of the significant challenges facing India is a lack of awareness among citizens about cybercrimes and the legal framework related to them. Many people are not familiar with their digital rights and the potential risks of using technology, which makes them more vulnerable to cybercrime.

- **Data Privacy:** The issue of data privacy is a significant concern in India, as many organizations and Government agencies collect and store personal information of citizens without adequate safeguards. This puts citizens' personal information at risk of being hacked or misused.

- **Limited Cybercrime Infrastructure:** India has a limited cybercrime infrastructure, including a lack of specialized law enforcement agencies and cyber security experts. This makes it difficult to investigate and prosecute cybercrimes effectively.

- **Jurisdictional Challenges:** Cybercrimes are often committed across international borders, making it challenging to investigate and prosecute offenders. India's legal framework is still evolving to address these jurisdictional challenges, which can make it difficult to bring cybercriminals to justice.

- **Emerging Cyber Threats:** New forms of cyber threats, such as deep fake videos, online hate speech, and social media abuse, are emerging at a rapid pace. These threats are challenging to address with the existing legal framework, and India needs to take a more proactive approach to deal with them effectively.

- No e-mail account policy especially for the defense forces, police and the security agency personnel.
- Cyber-attacks have come not only from terrorists but also from neighboring countries contrary to our national interests.
- The minimum necessary eligibility to join the police doesn't include any knowledge of computers sector so that they are almost illiterate to cyber-crime.
- The speed of cyber technology changes always beats the progress of govt. sector so that they are not able to identify the origin of these cyber-crimes.
- Promotion of Research & Development in ICTs is not up to the mark.
- Security forces and Law enforcement personnel are not equipped to address high-tech crimes.
- Present protocols are not self-sufficient, which identifies the investigative responsibility for crimes that stretch internationally.
- Budgets for security purpose by the Government especially for the training of law enforcement, security personnel's and investigators in ICT are less as compare to other crimes.

Way to Reduce Cyber Crime: There are so many actions available to reducing Cyber Crime and cyber offence and out of which followings are important such as.

I. **Legal Action:** as far as legal action is concerned; the following actions may be helpful to reduce Cyber Crime and important to take into:

- Electronic Communications Privacy Act of 1986.
- Federal Privacy Act of 1974
- Indian IT Act.
- Communications Act of 1934 updated 1996.
- Computer Fraud and Abuse Act of 1984.

II. **Awareness Building:** Awareness building is most important to reduce Cyber Crime and IT crime; thus, following things are essential to follow:

- Creating changes in the password of the computing devices such as computers, search and networking systems, changes of the password of other services such as email, social networking site, and other service based site registered by the applicant or user.
- Reduction in use of email in cybercafé and other places and computing devices.
- Open and communicating with the unknown computer and similar device.

III. **Technological Backup:** Use of Anti-Virus software and system in the computer system or when network or telecommunication Systems.

- Use of Internet safety tools, appropriate time and as per machine requirement.
- Use of Good firewall and sophisticated Network Designing
- Keep off the Bluetooth and other devices

(Q) Discuss about Amendments of the Indian IT (Information Technology) Act?

The Indian IT Act, 2000 has been amended several times to keep pace with the evolving cyber threats and technological advancements. Here are some of the key amendments to the Indian IT Act:

Amendment in 2008:

- The most significant amendment to the Indian IT Act was made in 2008. This amendment introduced several new provisions related to electronic signatures, data protection, and penalties for cyber stalking.
- The amendment also established a Cyber Appellate Tribunal to deal with appeals against orders passed by Adjudicating Officers.
- The amendment in 2008 brought changes to Section 66A of the Act. This was the most controversial section as it provided the punishment for sending any offensive messages through electronic mode.
- Any message or information that created hatred or hampered the integrity and security of the country was prohibited.
- Another amendment was made in Section 69A of the Act, which empowered the Government to block Internet sites for national security and integrity.
- The authorities or intermediaries could monitor or decrypt the personal information stored with them.

Amendment in 2013:

- In 2013, the Indian IT Act was amended to include new provisions related to data privacy and protection.
- The amendment also introduces a new section on the punishment for publishing or transmitting obscene material online.

Amendment in 2015:

- The Indian IT Act was amended in 2015 to include new provisions relate to net neutrality.
- The amendment also provided legal recognition to electronic signatures based on Aadhaar, unique identification number issued to Indian residents.
- The bill was initiated to make amendments to the Act for the protection of fundamental rights guaranteed by the Constitution of the country to its citizens.
- The bill made an attempt to make changes to Section 66A, which provides the punishment for sending offensive messages through electronic means. The section did not define what amounts to offensive messages and what acts would constitute the offence.

Amendment in 2018:

- In 2018, the Indian IT Act was amended to include new provisions related to the interception of electronic communications.
- The amendment also introduced new penalties for cyber terrorism and the circulation of child pornography.
- The Government in 2018 issued some guidelines for the intermediaries in order to make them accountable and regulate their activities. Some of these are:

    - ❖ The intermediaries were required to publish and their privacy policies so that citizens could be protected Amend from unethical activities like pornography, objectionable messages and images, messages spreading hatred, etc.

- ❖ They must provide the information to the Government as and when it is sought within 72 hours for national security.
- ❖ It is mandatory for every intermediary to appoint a 'nodal person of contact' for 24×7 service.
- ❖ They must have technologies that could help in reducing unlawful activities done online.
- ❖ The rules also break end-to-end encryption if needed to determine the origin of harmful messages.

Proposed Amendment in 2021:

- The Indian Government is currently considering a new amendment to the Indian IT Act in 2021. The proposed amendment seeks to regulate social media platforms, OTT platforms, and other digital media. The amendment proposes new guidelines for content moderation, data protection and use privacy.
- The Government of India in 2021 drafted certain rules to be followed by the intermediaries. The rules made it mandatory for intermediaries to work with due diligence and appoint a grievance officer.
- They were also required to form a Grievance Appellate Tribunal. All complaints from users must be acknowledged within 24 hours and resolved within 15 days.
- It also provides a "Code of Ethics" for the people publishing news and current affairs, which makes it controversial. Many believe that the rules curtail freedom of speech and expression and freedom of the press.
- The intermediaries were also required to share the information and details of a suspicious user with the Government if there was any threat to the security and integrity of the country.

Overall, the Indian Government has taken several steps to strengthen the Indian IT Act to address emerging cyber threats and technological advancements. These amendments have helped to create a more robust legal framework for electronic transactions and digital communication in India. However, there is still a need for further improvements to keep pace with the evolving cyber threats and ensure the safety and security of citizens' digital rights.

(Q) Discuss about Institutional Infrastructural Preparedness (IIP)?

The Government of India established National Informatics Centre (NIC) as an Apex institution at the national level for catalyzing and coordinating all e-Government activities and projects in any Government body at the Central, State and District levels. Similarly, many State Governments in India have established their own Information Technology Departments which are basically coordinating facilitators for e-Government projects within the State.

Access:

- **Internet:** Public network accessible to anyone with an internet connection.
- **Intranet:** Private network accessible only to internal users within an organization.
- **Extranet:** Private network that extends beyond an organization's internal network to include external parties.

Purpose:

- **Internet:** Designed to provide access to information and services available globally.
- **Intranet:** Designed to serve the internal communication and collaboration needs of an organization.
- **Extranet:** Designed to extend an organization's network to include external parties.

(I). INTERNET:

The Internet is a global network of computers and other devices that are interconnected and communicate with each other using standardized protocols. It is a vast network that connects millions of devices across the world and enables users to access and share information, communicate with each other, and engage in various online activities.

1. The Internet is a public and global communication network that provides direct connectivity to anyone over a local area network (LAN) or Internet Service Provider (ISP).
2. The Internet is a public network that is connected and routed over gateways. End users are connected to local access providers (LANs or ISPs), who are connected to the Internet access providers, to network access providers, and eventually to the Internet backbone.
3. Since access to the Internet is open to all, there is a lack of control that may result in an unruly proliferation of information.

Key features of the Internet:

- **Global Connectivity:** The Internet connects millions of devices across the world and enables users to access and share information from anywhere in the world.

- **Open Standards:** The Internet is built on open standards, which means that anyone can create and use software and applications that are compatible with the Internet.

- **Communication:** The Internet enables users to communicate with each other using a variety of tools and platforms, including email, instant messaging, social media, and video conferencing.

- **Information Sharing:** The Internet is a vast repository of information that can be accessed and shared by users around the world. This includes text, images, videos, and other types of content.

- **E-Commerce:** The Internet has transformed the way people buy and sell goods and services. E-commerce platforms enable users to buy and sell products online, and payment systems enable secure transactions.

- **Entertainment:** The Internet provides a wide range of entertainment options, including streaming videos, music, and online games.

(II). INTRANET:

An Intranet is a private computer network that is used within an organization to share information and resources among its members. It is a closed network that is accessible only to the members of the organization and is not accessible to the public.

1. An Intranet is a corporate LAN or Wide Area Network (WAN) that uses Internet technology and is secured behind company“s firewalls (security and protection).
2. The Intranet links various servers, clients, databases, and application programs like Enterprise Resource Planning (ERP). Although Intranets are developed on the same TCP/IP protocol as the Internet, they operate as a private network with limited access.
3. Only authorized employees are able to use it. Intranets are limited to information pertinent to the company and contain exclusive and often proprietary and sensitive information.

4. The firewalls protect the Intranets from unauthorized outside access; the Intranet can be used to enhance the communications and collaboration among authorized employees, customers, suppliers, and other business partners.
5. Since the Intranet allows access through the Internet, it does not require any additional implementation of leased networks. This open and flexible connectivity is a major capability and advantage of Intranet. Intranets provide able the infrastructure for many intra business commerce applications.

Key features of an Intranet:

- **Private Network:** An Intranet is a private network that is isolated from the public network. It is accessible only to authorized members of the organization who have the necessary credentials to access the network.

- **Access Control:** Access to an Intranet is controlled through user authentication and authorization mechanisms. This ensures that only authorized members can access the network and its resources.

- **Information Sharing:** An Intranet provides a platform for members of an organization to share information and collaborate with each other. It can be used to share documents, files, and other resources among members of the organization.

- **Communication:** An Intranet can be used as a communication tool within an organization. It can be used to send and receive emails, instant messages, and other types of electronic communication.

- **Collaboration:** An Intranet can be used to facilitate collaboration among members of an organization. It can be used to create virtual teams, workspaces, and forums where members can work together on projects and share ideas.

- **Centralized Management:** An Intranet can be centrally managed by the organization's IT department. This ensures that the network and its resources are secure, up-to-date, and well-maintained.

(III). EXTRANET:

An Extranet is a private network that is extended beyond an organization's internal network to include external parties such as customers, suppliers, or partners. It is a secure and controlled network that allows external parties to access certain resources and services that are relevant to their business relationship with the organization.

1. An Extranet, or "Extended Intranet", uses the TCP/IP protocol network of the Internet, to link, Intranets in different locations
2. Extranet transmission is usually conducted over the Internet, which offers little privacy or transmission security.
3. Therefore, when using an Extranet, it is necessary to improve the security of connecting portions of the Internet. This can be done by creating tunnels (paragraph on security and protection) of secured data flows, using cryptography and authorization algorithm.
4. The Internet with tunneling technology is known as Virtually Private Network (VPN).
5. Extranets provide secured connectivity between corporation's Intranets and the Intranets of its business financial services, partners, material suppliers, financial Government, and customers.

Key features of an Extranet:

- **Controlled Access:** Access to an Extranet is restricted to authorized users only, and their access is typically controlled through usernames, passwords, or other security mechanisms.

- **Secure Communication:** An Extranet provides a secure platform for communication and collaboration between an organization and its external partners. This helps to ensure that sensitive information is protected and shared only with authorized parties.

- **Resource Sharing:** An Extranet can be used to share specific resources and services with external parties, such as documents, data, or software applications. This helps to improve collaboration and streamline business processes.

- **Improved Collaboration:** An Extranet can facilitate collaboration between an organization and its external partners. It enables them to share information, communicate, and work together on projects and tasks.

- **Cost Savings:** An Extranet can help organizations to reduce costs by enabling them to share resources and services with external parties. This can include sharing software licenses, hardware resources, and other resources.

- **Centralized Management:** An Extranet can be managed centrally by the organization's IT department, which helps to ensure that the network and its resources are secure, up-to-date, and well-maintained.

(Q) Discuss about Human Infrastructural Preparedness (HIP)?

Human Infrastructure Preparedness refers to the readiness of an organization's workforce to effectively adopt and use new technology systems. It is an essential component of any successful technology implementation, as the effectiveness of the technology ultimately depends on the people using it.

Key aspects of Human Infrastructure Preparedness include:

Training: Ensuring that all employees have the necessary training to effectively use the new technology system is critical. This includes both technical training on the system itself, as well as training on how to use the system to improve workflows and processes.

Change Management: Change management is the process of preparing an organization for a significant change, such as the implementation of a new technology system. It involves communicating the benefits of the new system to employees, addressing any concerns or resistance to change, and ensuring that the change is implemented smoothly.

Leadership Support: Leadership support is critical to the success of any technology implementation. Leaders should be knowledgeable about the technology and its potential benefits, and should be committed to supporting the adoption of the new system. This includes providing the necessary resources and support, as well as creating a culture that encourages innovation and continuous improvement.

User Feedback: Collecting user feedback on the new technology system is important for identifying any issues or areas for improvement. This feedback should be actively sought out and used to improve the system and the overall user experience.

The Human Infrastructural Preparedness is categorized into three levels:

1. Top-Level Management / Administrative Level
2. Mid-Level Management / Executory Level
3. Low-Level Management / Supervisory / Operative/ First-line Managers

(I). **Top-Level Management:** Top-Level Management plays a crucial role in human infrastructure preparedness, as they are responsible for setting the overall vision and strategy for the organization. Here are some key aspects of Top-Level Management's role in human infrastructure preparedness:

- **Establishing a Culture of Innovation:** Top-Level Management should create a culture that supports innovation and continuous improvement. This can be done by providing the necessary resources and support for employees to experiment with new technology solutions, and by rewarding and recognizing employees who come up with innovative ideas.

- **Providing Resources and Support:** Top-Level Management is responsible for providing the necessary resources and support for the implementation and ongoing use of new technology systems. This includes budgetary resources, as well as support from IT and other departments.

- **Creating a Vision for the Future:** Top-Level Management should develop a clear vision for how technology will be used to achieve the organization's goals in the future. This vision should be communicated to all employees, and should serve as a guide for technology investments and decision-making.

- **Encouraging Collaboration:** Top-Level Management should encourage collaboration between departments and teams, as this can help ensure that technology investments are aligned with the overall goals of the organization. This can be done through cross- functional teams and regular communication and collaboration between departments.

(II). **Mid-Level Management:** Mid-Level Management also plays a crucial role in human infrastructure preparedness, as they are responsible for implementing the strategies and initiatives set by Top-Level Management. Here are some key aspects of Mid-Level Management's role in human infrastructure preparedness:

- **Communicating the Vision:** Mid-Level Management should communicate the vision and strategies set by Top-Level Management to their teams. This includes explaining the benefits of the new technology systems and how they will contribute to achieving the organization's goals.

- **Identifying Training needs:** Mid-Level Management should identify the training needs of their teams and ensure that their employees receive the necessary training to effectively use new technology systems. This includes technical training on the system itself, as well as training on how to use the system to improve workflows and processes.

- **Addressing Resistance to Change:** Mid-Level Management should identify and address any resistance to change among their teams. This includes addressing concerns and providing support to employees who may be struggling with the new technology systems.

- **Providing feedback:** Mid-Level Management should collect feedback from their teams on the new technology systems and provide this feedback to Top-Level Management. This feedback can help improve the system and ensure that it is meeting the needs of the organization.

(III). **Low-Level Management:** Low-Level Management, also known as front-line management, is responsible for the day-to-day implementation of the organization's strategies and initiatives. Here are some key aspects of low- level management's role in human infrastructure preparedness:

- **Ensuring user adoption:** Low-Level Management should ensure that their employees are using the new technology systems effectively. This includes providing support and training as needed, as well as monitoring usage to ensure that the systems are being used in accordance with the organization's goals.

- **Providing feedback:** Low-Level Management should collect feedback from their employees on the new technology systems and provide this feedback to Mid-Level Management. This feedback can help improve the system and ensure that it is meeting the needs of the organization.

- **Addressing issues:** Low-Level Management should address any issues that arise with the new technology systems, such as technical issues or user errors. This includes troubleshooting the issues and working with IT and other departments as needed to resolve them.

- **Supporting innovation:** Low-Level Management should encourage their employees to experiment with new technology solutions and to come up with innovative ideas for using the systems. This can help drive continuous improvement and ensure that the organization is getting the most out of its technology investments.

(Q) Discuss about Technological Infrastructural Preparedness (TIP)?

Technological Infrastructure preparedness

Technology is fast changing in ICT domain. Rapid obsolescence of hardware and software and the maintenance and support they require results in great financial demands from time to time. Government organizations encounter this situation especially as their procedures to procure hardware; software, etc. are highly inefficient and delayed.

Key areas of focus for Technological Infrastructure Preparedness:

- **Hardware and Software:** Organizations must ensure that they have the necessary hardware and software to support their operations. This includes servers, desktops, laptops, and mobile devices, as well as software applications and tools to support business processes.

- **Network Infrastructure:** The organization's network infrastructure should be able to support the volume of data and traffic that is required for its operations. This includes network bandwidth, switches, routers, firewalls, and other network equipment.

- **Data Management:** Organizations must have systems and processes in place for managing and protecting their data. This includes data backup and recovery systems, data security measures, and policies for data retention and disposal.

- **Cloud Infrastructure:** With the increasing adoption of cloud technology, organizations must ensure that their cloud infrastructure is robust and secure. This includes selecting the appropriate cloud service provider, implementing appropriate security measures, and ensuring that data is backed up and recoverable in the event of an outage or disaster.

- **Cyber Security:** With the increasing risk of cyber attacks, organizations must have strong cyber security measures in place. This includes firewalls, intrusion detection and prevention systems, and other security measures to protect against data breaches and other cyber threats.

(I). Information and Communication Technology (ICT):

- ❖ Technological infrastructure preparedness is an important aspect of a well-functioning organization. It refers to the use of information and communications technology (ICT) to support business operations, communication, and collaboration.
- ❖ A strong technological infrastructure includes a reliable communications infrastructure, enterprise software applications, and support for mobile devices, strong cyber security measures, and tools and technologies for managing and analyzing big data.
- ❖ By focusing on these key areas, organizations can ensure that their ICT infrastructure is reliable, secure, and able to support their operations now and in the future.
- ❖ A well-prepared technological infrastructure enables organizations to stay competitive, improve productivity, and better serve their customers.
- ❖ Information technology (IT) infrastructure represents the shared technology resources that provide the platform for the firm's specific information system applications.
- ❖ IT infrastructure includes investment in hardware, software, and services such as consulting, education, and training that are shared across the entire firm or across entire business units in the firm.
- ❖ A firm's IT infrastructure provides the foundation for serving customers, working with vendors, and managing internal firm business processes.
- ❖ IT infrastructure consists of a set of physical devices and software applications that are required to operate the entire enterprise.
- ❖ But IT infrastructure is also a set of firm wide services budgeted by management and comprising both human and technical capabilities.

(II). Data Warehousing:

A Data Warehousing (DW) is process for collecting and managing data from varied sources to provide meaningful business insights. A Data Warehouse is typically used to connect and analyze business data from heterogeneous sources. The data warehouse is the core of the Business Intelligence (BI) system which is built for data analysis and reporting.

- ❖ Data Warehouse (DWH) is also known as an Enterprise Data Warehouse (EDW).
- ❖ A Data Warehouse is defined as a central repository where information is coming from one or more data sources.
- ❖ Three main types of Data Warehouses are Enterprise Data Warehouse (EDW), Operational Data Store, and Data Mart
- ❖ General state of a Data Warehouse is Offline Operational Database, Offline Data Warehouse, Real time Data Warehouse and Integrated Data Warehouse.
- ❖ Four main components of Data Warehouse are Load manager, Warehouse Manager, Query Manager, End user access tools.
- ❖ Data Warehouse is used in diverse industries like Airline, Banking, Healthcare, Insurance, Retail etc.
- ❖ Data Warehouse allows business users to quickly access critical data from some sources all in one place.

(III). Cloud Computing:

Cloud Computing is defined as storing and accessing of data and computing services over the internet. It doesn't store any data on your personal computer. It is the on-demand availability of computer services like servers, data storage, networking, databases, etc. The main purpose of cloud computing is to give access to data centers to many users. Users can also access data from a remote server. Examples of Cloud Computing Services: AWS, Azure, Google.

- Cloud Computing is defined as storing and accessing data and computing services over the Internet.
- The term "Cloud" came from a network design used by network engineers to represent the location of various network devices and their interconnection.
- Today many large and small-scale businesses thrive on their data & they spend a huge amount of money to maintain this data.
- Cloud computing architecture helps organizations to lower their IT infrastructure and computer costs per user.
- Four Types of Cloud are 1) Private, 2) Community, 3) Public, and 4) Hybrid.
- Important Cloud Computing Services are 1) Software as a Service (SaaS), 2) Platform as a Service (PaaS), and 3) Infrastructure as a Service (Laas).
- Grid Computing is a middleware to coordinate disparate IT resources across a network, allowing them to function as a whole.
- Utility computing is the process of providing service through an on-demand, pay-per-use billing method.
- Privacy is a strong barrier for users to adapt Cloud Computing systems.

UNIT – III
E-Governance: Country Experience

(Q) Discuss about E-Governance in India?

e-Governance in India is a recently developed concept The launch of National Satellite-Based Computer Network (NICENET) in 1987 and subsequent launch of the District Information System of the National Informatics Centre (DISNIC) programme to computerize all district offices in the country for which free hardware and software was offered to the State Governments provided the requisite impetus for e governance.

e-Governance thereafter developed with the growth of technology. Today, there are a large number of e-Governance initiatives, both at the Union and State levels. In 2006, the National e-Governance Plan (NeGP) was formulated by the Department of Electronics and Information Technology and Department of Administrative Reforms and Public Grievances that aims at making all Government services accessible to the common man, ensure efficiency, transparency and reliability of such services at affordable costs to realize the basic needs of the common man.

The NeGP has enabled many e-governance initiatives like:

- **Digital India:** Digital India was launched in 2015 to empower the country digitally. Its main components are:
  - Developing a secure and stable digital infrastructure
  - Delivering Government services
  - Achieving universal digital literacy

- **Aadhaar:** Aadhaar is a unique identification number issued by UIDAI (Unique Identification Authority of India) that serves as proof of identity and address on the basis of biometric data. It is being used to provide many benefits to the members of the society. One cans e-sign documents using Aadhaar.

- **myGov.in:** myGov.in is a national citizen engagement platform where people can share ideas and be involved with matters of policy and governance.

- **UMANG:** The UMANG (Unified Mobile Application for New-age Governance) which provides access to central and state Government services including Aadhaar, Digital Locker, PAN (Permanent Account Number), Employee Provident Fund services, etc.

- **Digital Locker:** Digital Locker helps citizens digitally store important documents like mark sheets, PAN, Aadhaar, and degree certificates. This reduces the need for physical documents and facilitates easy sharing of documents.

- **PayGov:** The PayGov facilitates online payments to all public and private banks.

- **Mobile Seva:** Mobile Seva aims at providing Government services through mobile phones and tablets. The m-App store has over 200 live applications which can be used to access various Government services.

- Computerization of Land Records ensures that landowners get digital and updated copies of documents relating to their property.

In addition to the above, State level e-Governance initiatives include:

- **E-Seva** (Andhra Pradesh) facilitates payment of utility bills, issuance of certificates, licenses and permits.
- **Khajane** Project (Karnataka) digitalized the treasury system of the state.
- **FRIENDS** (Fast Reliable Instant Efficient Network for Disbursement of Services) (Kerala) is a single-window facility to pay taxes and other financial dues to the State Government.
- **LokVani** Project (Uttar Pradesh) is a single-window solution relating to the handling of grievances; land record maintenance and providing a mixture of essential services.

e-Governance Portal of India:

The Indian e-governance portal is https://nceg.gov.in. On this portal, one can get comprehensive information regarding the National Conference on e-Governance and reports on earlier conferences. Additionally, the portal provides links to the following important pages.

- Digital India
- **National Portal of India:** It is developed to provide access to information and services being provided by the Government
- **PM India Website:** Provides information relating to the Prime Minister's Office.
- United Nations e-governance website.

(Q) Discuss about Types of E-Governance in India and Its Objectives?

e-Governance can take place in four major types" interactions, apart from the processes and interactions in the back-office, within the Government framework.

1. **Government to Government (G2G):** Information is exchanged within the Government i.e., either, between the central Government, state Government and local Governments or between different branches of the same Government.

2. **Government to Citizen (G2C):** The citizens have a platform, through which they can interact with the Government and get access to the variety of public services offered by the Government,

3. **Government to Businesses (G2B):** The businesses are able to interact with the Government seamlessly with respect to the services of the Government offered to businesses

4. **Government to Employees (G2E):** The interaction between the Government and its employees occurs in an efficient and speedy manner.

Objectives of e-Governance: The objectives of e-governance can be listed down as given below:

- To support and simplify governance for Government, citizens, and businesses.
- To make Government administration more transparent and accountable while addressing the society's needs and expectations through efficient public services and effective interaction between the people, businesses, and Government.
- To reduce corruption in the Government
- To ensure speedy administration of services and information.
- To reduce difficulties for business, provide immediate information and enable digital communication by e-Business.

(Q) Discuss about e-Governance: Major issues in India?

Countries like India people are poor and infrastructure is not up to the mark. Under such condition it becomes very difficult to provide Government services to the people. There are number of reasons for that:

1. **Poverty:** Internet access is too expensive for the poor in developing countries like India. Installing the necessary telephone lines needed for internet or email access is equally unaffordable in most poor countries.

2. **Technical Illiteracy:** There is general lack of technical literacy as well as literacy in countries like India, the correlation between education level and use of electronic means or Internet and other ICT means are quite significant.

3. **Language Dominance:** The dominance of English on the internet constrains the access of non-English- speaking population. It is found that of all the web pages in the world, about 84 percent are in English followed by 4.5 percent in German, 3.1 percent in Japanese, 1.8 percent in French, 12 percent in Spanish, 1 and less than 1 percent in all other languages. In the case of India, 95 percent of the population does not speak English.

4. **Unawareness:** There is general lack of awareness regarding benefits of e-Governance as well as the process involved in implementing successful G2C, G2G and G2B projects. The administrative structure is not geared for maintaining, storing and retrieving the governance information electronically.

5. **Inequality:** Inequality in gaining access to public sector services between various sections of citizens, especially between urban and rural communities, between the educated and illiterate, and between the rich and poor.

6. **Infrastructure:** Lack of necessary infrastructure like electricity, internet, technology and ways of communications as in table will affect the speed which delays the implementation.

7. **Impediments for the Re-Engineering Process:** Implements of restructuring in administrative processes, redefining of administrative procedures and formats which find the resistance in almost all the departments at all the levels.

8. **Operational Unwillingness:** The psychology of Government servants is quite different from that of private sectors. Traditionally the Government servants have derived their sustenance from the fact that they are important repositories of Government data. Thus any effort to implement Documents Management and workflow technologies or bringing out the change in the system is met with resistance from the Government servants of e-governance projects requires.

(Q) Discuss about e-Governance in United States (US)?

e-Governance in the United States describes the systems by which information and communication technology are used to allow citizens, businesses and other Government agencies to access state and federal Government services online. Since the increased use of the Internet in the 1990s, people in the United States can now access many Government programs online, including electronic voting, health care and tax returns. They can also access Governmental data that were not previously available.

Three models of interaction in e-Government of US:

According to Andrew Chadwick and Christopher May, in their article Interaction between States and Citizens in the Age of the Internet: "e-Government" in the United States, Britain, and the European Union, there are three major models of interaction associated with e-Government, the managerial, the consultative and the participatory.

- **Managerial Model:** The Managerial Model stresses a vertical flow of information from the Government to its citizens. This model is concerned with efficiency, especially with the increase in speed when delivering information and services, as well as a reduction of the costs. This model establishes a client type relationship between the Government and its citizens.

- **Consultative Model:** The Consultative Model also stresses vertical information flow but is more concerned with responding to needs of societal interest as expressed electronically by the citizens. This includes online elections, and other input from voters and requires an enormous amount of citizen involvement.

- **Participatory Model:** The Participatory Model is the most interactive of the three major models of involvement between Government and citizens. Unlike the other two, the participatory model strives for horizontal and multi directional flow of information that creates a cyber society that can be more effective for the general public. This model becomes relevant when universal access and widespread usage of the technology have become part of the norm in terms of Government-citizen interaction

Although at any given time these models of interaction can stand alone as the ideal form of involvement between the parties, often they overlap and provide multiple forms of interaction. These three models show potential ways for citizen and Government interact there are advantages and disadvantages to the implementation of e-Government and how it can affect people involved in the political process in the United States.

(Q) Discuss about Citizen Involvement of e-Governance in US?

Understanding the involvement and interaction between Government and its citizens through the use of information and communication technologies (ICTs) is crucial when discussing e-Governance in the United States. Holden defines e-Government as “the delivery of Government services and information electronically 24 hours per day, seven days per week”.

There are many benefits associated with e-Governance in the United States and the involvement of citizens in the process. Due to e-Governance, relevant information is more readily available to the public, while Governmental programs become less expensive and more efficient. This allows most citizens to become part of the political process without leaving the comfort of their home. This increases the number of people willing to be involved in democracy and voice their opinions due to the instant access to the Government.

Another benefit in citizen involvement in e-Government is building trust between the citizens and the state. Over the past decades there has been a decline in citizens overall trust in the Government. With such easy access to information, Government programs and officials, e-Government provides the perfect platform to start building the trust between these two parties.

There are also a few potential issues with citizen involvement associated with e-Government. Citizen involvement stems from problems with the actual technology used for e-Governance and the potential that it will not always function as it is supposed to. A good example of this was the problems with the

healthcare. The Government website that was established to help citizens with healthcare information and enrollment during the Obama Administration. Since the technology initially did not consistently work, this limited the initial effectiveness of the program and ultimately made it more difficult instead of more efficient. The website has since been modified in the attempt to continue providing this healthcare e-Governance service.

(Q) Discuss about Prospective Future of e-Governance in US?

The focus of technological implementation during each generation has faced new and difficult sets of challenges. Previously, size and cost and function caused there to be a small focused use of computers. As computers became cost efficient and versatile there was difficulty dealing with the management of the new technology. Increasingly, privacy and security are becoming important issues. Since technology permeates our society and all of our lives are within the digital spectrum a whole new dimension of vulnerabilities now needs to be addressed.

Currently the focus majority of the Government application has been the increase in efficiency and information and communication technologies. In the future this trend will continue. Recently increased emphasis has been placed in democratic engagement.

As new technology is developed new rules and policies have to be crafted, and old policies adapted, each time adding another layer of complexity to integration and potentially mitigating benefits from embracing new technology. Many Government agencies have struggled to adjust to the adoption of digital data. Other agencies struggle to control the flow of information such as security and police organizations not sharing information, and the controversial gathering of too much information.

- If e-Governance in the United States is to advance the demand more sophisticated technological solutions for encryption, information sharing, and interactive communication will need to be addressed.

- The Federal Government of the United States has a broad framework of G2C technology to enhance citizen access to Government information and services. benefits.gov is an official US Government website that informs citizens of benefits they are eligible for and provides information on how to apply for assistance.

- US State Governments also engage in G2C interaction through the Department of Transportation, Department of Public Safety, United States Department of Health and Human Services, United States Department of Education, and others. As with e-governance on the global level, G2C services vary from state to state.

- The Digital States Survey ranks states on social measures, digital democracy, e-Commerce, taxation, and revenue. The 2012 report shows Michigan and Utah in the lead and Florida and Idaho with the lowest scores.

- Municipal Governments in the United States also use Government-to-Customer technology to complete transactions and inform the public. Much like states, cities are awarded for innovative technology.

(Q) Discuss about e-Governance in UK? (England, Scotland, Wales and Northern Ireland)

Since 2012, the United Kingdom Governments have implemented different strategies to make substantial progress in the creation of online services, and some of their solutions have been listed below to promote e-Governance in their country.

United Kingdom departments and agencies worked radically to improve the user experience of government senders by building digital Sandee which meets the Digital Sandee Standard. The Government Digital Sandee (GDS) will guide three major work areas to help departments meet this Parliament's priorities.

Firstly, to speed up the pace and scale of transformation by avoiding duplicated solution development, developing new digitally native business processes and focusing on the specific challenges of legacy contract exit and transformation.

Second, to build on the Government as a Platform concept, ensuring to make greater reuse of platforms and components across government. The UK also continues to shift towards mainstream technology, ensuring that using generic hardware or cloud-based software is appropriate, rather than creating something that is needlessly unique to government. Common components and platforms will cover both sendees oriented towards citizens and the technology of the internal public sector.

And thirdly, UK is striving to provide a range of reusable components to make digital sendees fast, cheap and easy to assemble. It will be a combination of government-built products, both from departments and the Digital Sendee Agency as well as specific components that agency can purchase on the basis of open standards.

Digital Civil Services provided by UK:

Much more digital, data, and technology specialists have been recruited across government since 2012, significantly improving the technical capacity of government. The challenge now is to continue attracting; recruiting and retaining specialists in a very competitive marketplace and the following strategies were adopted to overcome them:

- Embedding digital skills across government, including taking advantage of Microsoft commitment to training 30,000 public seen-ants in digital skills.
- Make sure the government knows technical experts.
- Making sure other professional civil servants understand digital.
- Strengthening the skills of our leaders in agile project management and program me.
- Developing new ways to develop strategies and offer tandem programs-using rapid replication in an agile approach.

(Q) Discuss about e-Governance in Australia?

In the Australian federal government the broad whole-of- government framework for managing the provision of government services online has been guided since 2002 by the government's Better Services Better Government Strategy. Under this broad umbrella a number of dependent strategies have been developed to facilitate and regulate the practical implementations that government agencies have had to put in place. These include the Technical Interoperability Framework4 that prescribes standards for Government-to-Government interoperability, and the e-Permanence suite of standards and guidelines issued by the National Archives of Australia3 since 2000, that provides guidance to agencies on meeting their legal responsibilities, managing risks, and adding value to their processes through good recordkeeping

practices. These frameworks, although initiated in the 1990s, are being continually updated and made more practically implementable for agencies, by providing tools and best practice guides.

The Demand and Value Assessment methodology developed in 2004 by the Australian Government Information Management Office to assist agencies with the evaluation of proposals for the provision of e-government services includes specific guidance on addressing the e-governance issues that are presented by online services.

The methodology defines governance issues to include:

- Increased Community participation in democratic processes
- Increased Transparency of government processes; and
- Increased Accountability.

Obviously not all of these relate to every service of Government. In most life-events it is the second two - transparency of processes and accountability that matter most to most users of the services. They raise many complex issues at an implementation level these using some online examples from our Australian government sites before inviting your discussion of the issues raised.

At the end of the day, e-Governance legislative frameworks and policies have little impact if they are not practically supported by the appropriate technical and administrative infrastructure. In particular this means appropriate arrangements to ensure the creation, capture and management of records of transactions. Only on this foundation can the essential requirement of e-Government - trust - be assured. Systems and arrangements that are not trusted by their users and other stakeholders will simply fail.

(Q) Discuss about e-Governance in Dubai?

e-Government is a new approach followed by nations in providing better services to people and businesses. It increases the efficiency of departments, reduces the cost, streamlines the processes and thus provides several benefits to all stakeholders involved. The various e-Government initiatives undertaken by Dubai Government have been described using the four components, namely Information Content, ICT Infrastructure, e-Government info structure, and e-Government Promotion.

The Stages of e-Government in Dubai:

- **Emerging:** An official government online presence is established.
- **Enhanced:** Government sites increase; information becomes more dynamic.
- **Interactive:** Users can download forms, e-mail officials and interact through the web.
- **Transactional:** Users can actually pay for services other transactions online.
- **Seamless:** Full integration of administrative boundaries.

Dubai e-Government Strategies:

I. Operational Strategy:

- Adopt a consistent centric design and development
- Offer an evolutionary multi-access and delivery channel system
- Carry out a comprehensive customer focused services re- design for Excellency in service provisioning for each prioritized service to be e-enabled
- Conduct an extensive community outreach program to achieve a high rate of adoption for e-enabled services

II. Organizational Strategy:

- Create a value-based and customer centric Dubai e- Government Organization
- Develop "Strategic Performance Management" approach in order to link performance and reward management of employees to the overall vision and strategic goals of Dubai e-Government

III. Financial Strategy:

- Dubai e-Government initiative should aim a positive not present value
- Dubai e-Government should consider Government funding sources as well as external funding sources

IV. Information Technology Strategy:

- Utilize leading e-Technology as the key enabler for improving the delivery of Government services online to citizens, residents, visitors, businesses and Government(s)
- Provide trusted IT systems over a common infrastructure for e-Government services

V. Legal Strategy:

- From a legal taskforce to enact legislation for ensuring legal validity of e-enabled services and trust for customers.

(Q) Discuss about Synergistic Tools of e-Government in Dubai?

Synergistic Tools in Dubai e-Government:

- **e-Pay:** Centralized payment gateway to enable payments of government departments' services. It includes multiple payment types such as credit cards and e-Dirham.

- **e-Host:** Content Management System and hosting services provided to all the government departments to host and publish content for their portals in the shared infrastructure of Dubai e-government.

- **e-Library:** Centralized library database With a Unified web portal. It enables users to share available books and other information material provided by all libraries connected to this service.

- **rn-Dubai:** An innovative channel for communication between customers and government departments via SMS. Includes push and pull messaging services provided over single platform for all government entities.

- **ask-Dubai:** Unified contact center to all government departments in Dubai. It includes multiple channels for customer interaction such as call center, email, fax and online chat.

- **e-Job:** Unified recruitment service to all government departments in Dubai. It automates the process of recruiting national/non-national job seekers in a centralized database.

(Q) Discuss about e4all Initiative in Dubai? (e4all: Energy for All / One for All and All for One)

e- **Citizen:** e-Citizen was established by Dubai e-Government in association with seven local training centers to provide 16 hours of classroom training to citizens and residents of Dubai. Consisting of 4 modules, citizens receive training on basic computer and internet skills along with training on both individual and business-oriented Government services provided by various Government departments. Upon successful completion of training, citizens receive and e-Citizen certificate from Dubai e-Government.

1. **e-Employee:** Employee was launched specifically raise the IT competency level of Government employees and provided 40-hour training program using both online and classroom training in collaboration with several training institutes. Consisting of 4 modules, employees received training on core computer skills in English and Arabic. Upon successful completion of training, employees receive an employee certificate from the Dubai e-Government and an ICDL START certification.

2. **e-Learn:** To further boost the IT competency of individuals and government employees, Dubai e-Government developed more than 3000 bilingual on-line courses for various disciplines including e-Business, e-Commerce, and Information Technology. Developed in a multimedia format, these courses can be taken at a customized pace depending on an individual needs.

3. **e-Manager:** Launched in 2007, this initiative aimed at managers and supervisors to enhance their project management and leadership skill through three online modules and certificate levels.

4. **e4all Magazine:** This monthly publication from Dubai-Government was designed to raise public awareness of the availability of e-Services. Covering various aspects of e-Governance, it familiarizes readers with the core concepts of eservices, private sector's participation in e-Services, hardware & software systems, and e-Learning.

UNIT – IV
E-Governance in India

(Q) Discuss about e-Governance Andhra Pradesh?

Andhra Pradesh is the new state which is having 26 districts and having population of 56 million in that 67.02 percentages are literate. 70 percentage people are lives on agriculture basis. Even after the Government of Andhra Pradesh has a comprehensive view of ICT as a vehicle for transforming Andhra Pradesh into a knowledge-based, economically vibrant, democratic and inclusive society. By the term inclusive, the Government means that the benefits of the socioeconomic transformation possible through ICT should reach every single citizen of the State. State has a vision of empowering with the latest technology, in all sections like High Quality Education, e-Governance, Healthcare, Institute of Excellence, Infrastructure etc.

e-Governance Vision of Andhra Pradesh:

The Government of Andhra Pradesh is committed to build a people-centered, inclusive and development-oriented Information Society, where everyone can create, access, utilize and share information and knowledge, enabling individuals, communities and people to achieve their full potential in promoting sustained development and improving their quality of life.

e-Governance Projects under taken by Government of Andhra Pradesh:

Andhra Pradesh is the state that harnessing the power of project management in e-Governance and stands front line is India to use the information technology in Government on functionaries for providing better services to citizens with less expenditure.

Mee-Seva:

- It is a good Governance initiative that corporate the vision of National Plan "Public Services-Closet to Home" and facilitates single entry portal for entire range of G2C& G2B services.
- The objective of Mee-Seva is to provide bas smart, citizen centric, ethical, efficient and effective the Governance facilitated by technology.
- The initiative involves delivery Government universal and non-discriminatory delivery services to citizens & Businessmen of all strata and improved ser and accountability for the ma efficiency, transparency and Government.
- The initiative features transformed Government- citizen interface levels of administration along with a shared Governance model.

Mee-Bhoomi:

- The Government of Andhra Pradesh has in come up with a public portal which can help the farmers/ general public and revenue officials to check the land records very conveniently.
- The portal meebhoomi.ap.gov.in can be used to check village map for personal and official purposes.
- The state Government has introduced an online program 'Mee all Bhoomi' for checking the land records quickly and easily.
- The computerized technique is really helpful for the residents“ officials and also the farmers as they can effortlessly check the rep land records, village maps, land status details.
- AP Mee-Bhoomi is available on http://meebhoomi.ap.gov.in and for more convenience of the state citizens

Mee-Kosam:

- Mee-Kosam a portal for people to report grievances, problems and give Suggestions, was launched by Andhra Pradesh Chief Minister N. Chandrababu Naidu.
- The portal www.meekosam.ap.gov. in will record grievance based on Aadhaar number.
- The person who posted grievance or suggestion could also track the progress of his/her application.
- An acknowledgement will be received via SMS/ e-mail once a grievance is registered. Mee-Kosam also provides an option to classify complaints.

E-Pragati:

- E-Pragati is a new paradigm in Governance based on a Whole-of-Government framework, transcending the departmental boundaries.
- It adopts a Mission-centric approach in its design and implementation and seeks to realize the Vision of Sunrise AP 2022, by delivering citizen-centric services in a coordinated, integrated efficient and equitable manner.

E-POS (Electronic Point of Sale):

- E-Pos in the public distribution system white ration cards are stream lined, the quantity of supply is making transparent and also increased the accountability of the dealer in the distribution.
- APTS (Andhra Pradesh Technology Services) on behalf of Civil Supplies Department, Government of Andhra Pradesh invites bids from eligible service providers for implementing Aadhaar Enabled Public Distribution System (ACPDS) for Consumer affairs.

E-Office:

- E-Office will be introduced on a pilot basis in all 26 districts in June followed by a full-scale launch in July.
- The project aims to improve productivity, quality, resource management, turnaround time and increase transparency by replacing the old manual process with an electronic file system.
- The new e-Office system is an integrated file and records management system that allows employees to manage content, search for data internally and collaborate.
- The file system also enables the electronic movement and the tracking of files, and the archival and retrieval of data.
- The system is planned to be secure and confidential, automating routine tasks, capable of handling the required workload, with the facility of monitoring work and auto escalation when there are delays.

Online booking for Sand Purchase:

- Consumers are Andhra Pradesh can get sand at their doorsteps using the state Government's online booking system.
- As per the system, online through consumers could either go to the nearest 'Mee-Seva' citizen services center or order sand www.sandbyshg.ap.gov.in website.
- An SMS would be sent to the consumers about delivery of sand and a receipt would also be issued to them.
- Consumers would be able to find out the status of sand delivery online by using a transaction ID. Consumers could register complaints, if any, to a toll-free number '18001212020".

Online MPHS (Multi Purpose House Hold Survey):

- Citizens in Andhra Pradesh can get Birth certificate, Caste Certificates, Nativity Certificates from online Indian Public Health Standards (IPHS) services

Online Citizen Friendly Services of Transport department:

- The online service provides to citizens Issue of learner licenses, Issue of driving licenses, Renewal of driving licenses, Issue of duplicate driving licenses, International Driving Permit, Registration of vehicles, Issue of Duplicate Registration Certificate, Effecting Transfer of ownership.
- Endorsement of Hire, purchase agreement/ termination Effecting Change of residence / place of business, Issue of tax tokens, Issue of Fitness Certificates.

Online Compliant Registration:

- Available services in the online services are complaint/issue are sent through online to district official and Track status for complaint/issue to the Government of Andhra Pradesh provide link a http://www.aponline.gov.in/apportal/ for more information about online complaint registration.

(Q) Discuss about Challenges for e-Governance in Andhra Pradesh?
Poor people and poor infrastructure are major challenges Andhra Pradesh. It poses a major challenge in reaping the full benefits of service provision under e-Governance. The various barriers can be enumerated as follows:

Poverty:

- Accessing Internet is a costly affair for the poor who struggle for their livelihood in developing countries like India.
- Required infrastructure in the form of installing the necessary telephone lines needed for internet or email access is equally unaffordable in most poor countries.

Technical Knowledge:

- The e-Governance process is mainly through internet therefore it is mandatory to learn how to use internet both for employees and to the citizens.
- The citizens who are not having knowledge about the Internet are not in a position to use the e-Governance and there will be a chance to cheat them easily because of dependency.
- The process of e-Governance is through the computer and its accessories for that reason learning about the computers is mandatory.
  Present the Government of A.P distributed tablet PC"s (Personal Computers) to all the department employees for doing the process. But the employees do not know how to operate the tablet PC"s.

Language Dominance:

- The dominance of English on the internet constrains the access of non-English speaking population.
- In the case of India, 95 percent of the population does not speak English.
- Due to such overwhelming dominance of English over these communication channels, computers and the internet are quite useless in Indian villages.

Infrastructure:

- E-Governance depends on the internet, computers, printers, tablet PCs, furniture, without these it is not possible to implement the e-Governance.
- The network problem is the major issue in the e-Governance at level and mandal level.
- The employees who are working at village and mandal level are facing the connectivity problem at the time of updating.
- The internet speed also very slow which it is not possible for the employees to complete the task in the given time.
- The building and furniture to place all the computers and its accessories is major problem, these facilities are not available at village and mandal level.
- Therefore, before implementing of e-Governance providing the infrastructure facility will get good result.

Finance:

- Government of A.P is the new state which was started its journey from deficit budget.
- The facilities that are mandatory in implementing the e-Governance involve lot of financial support.
- Designing of Software to the applications of e-Governance requires huge amount.
- Providing the financial support to implement e-Governance successfully is also a challenging aspect for the Government.

Implements for the Re-Engineering Process:

- Implementation of e-Governance projects requires lots of restructuring in administrative processes, redefining of administrative procedures and formats which finds the resistance in almost all the departments at all the levels.

(Q) Discuss about e-Governance in Karnataka?

Karnataka state is attempting to rejuvenate their public management and make it more proactive, efficient and transparent and especially more service oriented. In this context, the appropriate use of ICT plays a crucial role in advancing the goals of the public sector and in contributing towards an environment of social and economic growth.

e-Governance can shore up considerably the process of transformation of the Government towards a leaner, more cost-effective Government. It can facilitate communication and improve the coordination of authorities at different layers of Government, within organizations and even at the departmental level. Further, e-Government can enhance the speed and efficiency of operations by streamlining processes, lowering costs, improving research capabilities and improving documentation and record-keeping.

Objectives: The main objectives of the study are as follows

- ❖ To appreciate the concept e-Governance.
- ❖ To understand the initiatives and Implementation of e-Governance Programmes in Karnataka.
- ❖ To know the challenges of implementation of e-Governance Programmes in the state.

e-Governance Programmes of Karnataka:

The Government of India and several State Governments have taken several steps to adopt e-Governance in many areas of Public Administration such as Public Services. Agriculture, Commercial, Rural

services, Social services, Public Information, Revenue and Police Administration, and Municipal Services, etc. The IT initiative of Karnataka aims to provide direct citizen interface, perk up human capital and connectivity and improve the efficiency of Government officials. As IT has been applied in the following areas.

Secretariat Local Area Network (SLAN):

- Programme envisages computerization of all secretariat departments.
- It enables citizens to know the status of their file and the number of days they took to be cleared at various stages.
- It is a significant step in delivering good Governance to the masses.

Khajane:

- Khajane is software designed and developed by the CMS, a company belonging to TATA.
- The treasury department deals with managing accounts and on the remittances submitted to the Government.
- They also consider the payments made on behalf of the Karnataka Government.
- The application deals with payments, receipts, stamps, pensions, deposits etc.
- The major benefit of the project is the instantaneous reconciliation of Government accounts.
- In addition, the system displays the money spent on all Government schemes in every village.
- This enhances transparency and improves quality.

Kaveri (Karnataka Valuation and e-Registration Project):

- It is the state's first public Private e-Governance initiative.
- Its aim is to computerize and more than 200 sub-registries in the state online, enabling property registration within 30 minutes of document submission from the present 45 days time period.
- In October 2002, it received the gold medal for the approach paper at the 6th National Conference on e-Governance.

Bhoomi:

- Bhoomi is the state's computerized land records project. It aims to cover all farmers in 175 taluks.
- To digitize the paper land records and create a software mechanism to control changes to the land registry in Karnataka.
- The project was designed to eliminate the long-standing problem of inefficiency and corruption in the maintenance of land records at dispersed and poorly supervised and audited block-level officers.
- The project development and implementation was done by National Informatics Centre (NIC) .

Nemmadi Kendras:

- Bhoomi Project despite significantly improving the delivery of land records to the citizens.
- In the earlier, the citizens could get the land records at Village, but after implementation Bhoomi Project they had to travel to the taluk headquarters to get records.
- Therefore, the state Government understood this problem and implement Nemmadi Kendras for delivering land records and other e-Governance services.

Yava.com:

- This programme envisages 225 training centers all over the state run by prestigious firms like APTECH, NIIT, SSI etc.
- The fees in the center are already reduced. The Government gives subsidy of Rs.1500 for a three-month course.
- A maximum subsidy of Rs.4500 is offered for a six-month course.
- The programme aims to train over 1,00,000 rural youths in a year.
- Over 100 centers are operational at present.

Mukhya Vahini:

- This is the Chief Ministers decision support system. Presently it tracks the C.M"S. instructions, the projects sanctioned under the Global Investor meet, the constituency management system, summarized data on major projects in health, housing, and other social sector schemes. Many modules are already in use.

Common Entrance Test:

- Karnataka has numerous institutions of higher education and attracts students from other Indian states and countries.
- Every year the state conducts the common entrance test. Over 2,50,000 students take the exams and around 50 percent are from outside the state.
- The entire admission process is absolutely transparent.
- The fact that students from outside the state participate in large number shows their confidence in the local administration.
- Before computerization, the process attracted many questions from elected representatives and a lot of litigation. Now the system is so transparent that it has rid itself of both.

Smart School Project:

- In 2002 the Government decided to set up within a year "Smart School Project" in five divisions of the state in collaboration with the Microsoft Company.
- It will provide software solutions, teacher training and IT curriculum.
- The Karnataka Government received accolades from Bill Gates, the chairman of the Microsoft Company for its performance in-Governance.

Bangalore One:

- The State Government has signed two agreements in November 2002 with the Microsoft Company for setting up "Bangalore One" an online portal where bill for Government utilities such as water supply and power distribution could be paid.
- Citizens can access the portal to check status, pay bills, and get information. Taking technology, to the doors of Bangalore citizens is the aim of this project.

Online Text Books:

- A downloadable format for text book of class 1 to 12 published by department of school education, Government of Karnataka.

Sahakara Darpana:

- This programme is focusing on the computerization of directorate of co-operative audit.
- This gateway exhibits the financial position of nearly 30,000 cooperative institutions, showing their strengths, grading of cooperative societies and validating the irregularities in financial, administrative, and maintenance of records.

Other Initiatives:

- The Commercial Tax Department tracks goods using check post entries.
- Information about the movement of goods is automatically put in the dealer"s assessment file.
- In terms of tax collection per Gross Domestic Product (GDP), the state is one of the best in India.
- The Insurance Department uses computers to track all the Government vehicle insurance details.
- Police salary bills are computerized.
- The irrigation department has a major project on e-Tendering and e-Procurement.
- Silk trading exchange in Karnataka has been computerized since 1985.

(Q) Discuss about Challenges in the Implementation of e-Governance in Karnataka?

There are a huge number of problems in implementation of Governance programmes in Karnataka. Those problems are explained below.

- **Low Literacy in IT:** in Karnataka people According the2011 Census around 25% of people are illiterate and those who are literate, they do not have knowledge about Information Technology (IT). Most of the rural population in Karnataka is not aware regarding the usage of Information Technology. With a low level of IT literacy, the e-Governance projects cannot be implemented successfully.

- **Network Problem in the rural areas:** In many areas so far proper network is not available this was the major impediment implementation of e-Governance projects.

- **Electricity Problem:** Karnataka is facing huge problems of Electricity especially in the summer season load shedding was very high, hence in rural service was not possible to provide efficiently.

- **Different Languages:** In Karnataka we have people speaking various languages such Kannada, Hindi, Telugu, Konkani, Tulu, Tamil, Marathi. The people speak different languages in this context of language is a huge challenge for implementing e-Governance projects.

- **Huge Cost:** Implementation of e-Governance projects requires huge amount capital investment, expertise and time.

(Q) Discuss about e-Governance in Kerala?

The Government of Kerala has a comprehensive view of Information and Communication Technologies as the engine for transforming the state into a knowledge-based, economically vibrant, democratic state where the benefits of information should reach every single citizen of the rural and urban Kerala.

In order to realize these objectives, the State Government has initiated a number of measures and projects. As a part of these initiatives first IT policy of the state was announced in the year 1998. The Department of Information Technology was established in the year 1998 and a separate Kerala State IT Mission (KSITM) was constituted as an executive wing under the Department and was entrusted with the implementation of various IT initiatives and the promotion of the state as a preferred destination of IT investments.

Majority of the Government services have been transformed into the mode by this time. It is the Kerala State IT Mission, and autonomous nodal IT implementation agency which provides managerial support to various e- Governance initiatives of the Department of Information Technology of the Government of Kerala.

Information Kerala Mission:

Information Kerala Mission (IKM) was set up with the mandate to strengthen local self-Governance through ICT applications as early as in June 1999. It is the largest and most comprehensive local body computerization project in the country, which envisages computerizing and networking the 1,209 local self-Government institutions in Kerala. It addresses the entire issues concerning local body Governance, decentralized planning, and local economic development.

Name	Purpose
Sakarma	Handling of council / committee agenda, minutes etc.
Samoohya	Citizen Database.
Samvedhitha	Local Self Government Department (LSGD) web portal for all local Government and the department.
Sanchaya	Revenue and License System.
Sanchitha	Repository of acts and rules relating to local bodies.
Sanketham	Ensures transparency in granting building permits.
Saphalya	Human Resource Package.
Sevana	Registration of Births, Marriages and Deaths. Pension Disbursement of social welfare pensions, with electronic money order (e-MO) integration.
Saankhya	Double entry accrual based accounting for all local Government.
Sachithra	Map suite Geographical Information System (GIS) and asset register for local Government
Soochika	Work flow application that allows status monitoring over the web, and e-SMS integration.
Sthapana	Payroll, Provident Fund (PF) accounting Municipal and Panchayat employees.
Subhadra	Financial Management System.
Sugama	Cost estimation tool for public works.
Sulekha	Plan monitoring for de-centralized planning at the local level.

Janasevanakendram:

- The Janasevanakendram is a modem computerized front office designed for local self-Government institutions by the Information Kerala Mission (IKM) for improved service delivery.

- The intention of Janasevanakendram is to replace the swarming and non-user-friendly counters in most Municipalities

Digital Document File System:

- Digital Document File System is a web-based file tracking & management system.
- An idea emerged from the vision of "Less-paper Office" Data Domain File System (DDFS) was introduced by Department of IT, Government of Kerala.
- DDFS covers the whole details of a document, beginning with the creation of a Tapal and ending with the closure of the File.
- DDFS has been implemented in the following Government departments/ organizations:

  - ❖ Department of Information Technology
  - ❖ Directorate of Technical Education
  - ❖ Kerala State IT Mission (KSITM)
  - ❖ Kerala Sustainable Urban Development Project (KSUDP)
  - ❖ Kerala State IT Infrastructure Limited (KSITIL)
  - ❖ Agency for Non-Conventional Energy & Rural Technology (ANERT) Akshaya
  - ❖ Citizen Call Centre
  - ❖ State e-Mission Team

Information and Data Exchange Advanced System:

- Information and Data Exchange Advanced System or IDEAS is a web based online File, Petition and Government Order tracking system implemented by Kerala State IT Mission with technical support of National Information Centre (NIC).
- The system facilitates tracking and monitoring of Government documents, serves as a mechanism for reminding the Government departments about the pending status of files and also provides a real-time status of Government files/ petitions. It is developed using open-source technology.

(Q) Discuss about Service and Payroll Administrative Repository for Kerala (SPARK) in Kerala?

Service and Payroll Administrative Repository for Kerala (SPARK) is a web based G2E integrated solution for Service and Payroll Management. SPARK is an attempt to bring the payroll and finance related activities of Kerala State employees within a single application. The system has been developed with a view to cater to the Administration, Payroll and other Accounts activities of Government Establishments. Each employee is allotted with a unique Permanent Employee Number (PEN) through the system.

Main features of SPARK:

- ❖ Government-to-Employee (G2E) web-based Personnel Administration and Accounts software
- ❖ for Government Establishments Addresses all requirements in Service and Salary matters.
- ❖ Entire Service Book of each employee is digitized
- ❖ Centralized database helps in quick decision making and applying rules and regulations
- ❖ uniformly to all employees Salary Processing of NGOs
- ❖ All reports in PDF format
- ❖ Provision to generate Identity Cards
- ❖ Interface for individual employees to view their salary, loan, leave, GPF, accounts and
- ❖ personnel details Provision for filing Annual Property Returns for Government Employees and All India
- ❖ Service(AIS) officers Processing of Self Drawing Officer's Salary (SDO's)

- ❖ Increment Sanctioning
- ❖ Leave salary and arrear bills preparation
- ❖ Management of recoveries, advances, loans etc., of employees Online Transfer processing
- ❖ LPC Generation
- ❖ Transfer Management module

Common Mail Service:

- The e-Mail Server project envisages one another medium of communication to Kerala Government Employees, e-Mail.
- Email provides a better speedy communication with multi-platform support solution and it can also be implemented in a short span.

Kerala State Wide Area Network (KSWAN):

- Kerala State Wide Area Network (KSWAN) is being setup as a backbone of the State Information Infrastructure (SII), connecting Thiruvananthapuram, Kochi and Kozhikode, extending to 14 districts and 152 Blocks of the State.
- The network will also connect 1500 offices of Government Departments through Wireless and a larger number through Leased Lines and LAN.

State Data Centre Under:

- National e-Governance Plan (NeGP), State Data Centre (SDC) has been branded as one of the core infrastructure components to consolidate services, applications and infrastructure to provide proficient electronic delivery of G2G, G2C and G2B services.

  Function of State Data Centre:

  - ❖ Central Repository of the databases for the State
  - ❖ Secure Data Storage Online Delivery of Services
  - ❖ Citizen Information/Services Portal
  - ❖ State Intranet Portal
  - ❖ Remote Management
  - ❖ Service Integration

Akshaya:

- ❖ India's first step in taking ICT to the masses has been rolled-out in Kerala, named as Akshaya the state's first district-wide e-Literacy project, one of the largest known Internet Protocol (IP) based wireless networks in the world.
- ❖ As a part of Akshaya, at least one person in each of the 65 lakh families in the State will be made IT-literate.
- ❖ This project, piloted in Malappuram district has evolved into one of the most dynamic interventions in public-private-partnerships in the State.
- ❖ Akshaya was conceived as a landmark ICT project by the Kerala State Information Technology Mission to bring the benefits of this technology to the entire population of the State.
- ❖ Akshaya is acting as an instrument in rural empowerment and economic development.

FRIENDS:

- FRIENDS (Fast Reliable Instant Efficient Network for Disbursement of Services) is a single window 'no queue' integrated remittance center, where the citizens have the opportunity to pay all taxes and other dues to the Government, under one roof at no extra cost.
- An ongoing project of Kerala State Information Technology Mission (KSITM), FRIENDS is now operational in all 14 districts of Kerala.
- The recently launched enterprise enabled 'any-where any-payment system' titled 'FRIENDS Re-engineered and Enterprise Enabled Software' (FREES) developed by National Informatics Centre, Kerala is centralized web enabled system that help the citizens to pay utility bills at any FRIENDS Centre.

Mobile Service Gate Way M-Governance:

- Mobile Governance involves the utilization of all kinds of wireless and mobile technology services, applications and devices for Governance.
- M-Governance, initiated by Kerala State Government, has started with the aim to utilize the strengths of Mobile penetration in the State using the concept of "always.on" connection for the delivery of Government services to common people.

e- District:

- E-District is a State Mission Mode Project under the National e-Governance Plan.
- e-District as a concept proposes integrated, seamless, and online delivery of citizen services at the district level through automation of work flow, backend digitization, integration and process redesign.
- The project aims to target aggregate services delivered at the district level and to undertake back-end computerization for enabling the delivery of citizen services through Akshaya Center"s.

Integrated Call Centre Citizen (ICCC):

- Integrated Call Centre Citizen (ICCC) is a single window IT enabled facility of Government that act as an intermediate between citizens and Government to interact effectively through telephone.
- Envisaged as a Government-to-Citizen (G2C) interface, the Call Centre enables the quick delivery of critical information, which is otherwise either inaccessible or difficult for the citizens to trace.

(Q) Discuss about e-Governance in Uttar Pradesh?

- Government of Uttar Pradesh is using Information Technology to make the administration quick, responsive, transparent, hassle-free and accessible.
- Automated 200+ G2C services notified under Janhit Guarantee Act, UP.
- 254 G2C services of 34 departments are available on e-District Portal.

Available Services of e-Governance Initiatives in the state of Uttar Pradesh:

1. e-Scholarship
2. Bhulekh, UP
3. Koshwani
4. Court case Information System
5. Online Transport Services
6. GIS based Planning Atlas
7. LokVani

1. e-Scholarship Services:

- Electronic transfer of scholarships to OBC & SC/ST candidate's bank accounts
- Application form for scholarship
- List of nodal officers of Banks for Scholarship Project
- List of nodal officers for Scholarship Project to OBC & SC/ST

2. Bhulekh Services:

- Duplicate of Kata
- District wise village list
- Description of all villages Details about types of soil

3. Koshwani Services:

- Monthly compiled payment and receipt data of all treasuries
- Finance authorities can get expenditure and budget allotment position from grant level up to object and even voucher level too
- Finance Department and HOD can get DDO wise expenditure details of their respective grants up to voucher level
- Expenditure details of Kanyadhan Yojana can be viewed Details of contingency payments can also be viewed

4. **Court Case Information System Services**:

- Court judgment and orders Queries solution
- Cause list and case status

5. Online Transport Services Services:

- Application form related to driving license and vehicle registration
- Fee and tax structure for driving license and vehicle registration
- Guidelines for filling the form and FAQs
- Driving tips for safer road use

6. GIS based Planning Atlas Services:

- Atlas has been prepared for the planning department that consists of about 100 bi-lingual maps map based on development/socio-economic indicators.
- The complete atlas is available online and an online dynamic map query based on 4000 indicators of sankhyakipartake is also possible.
- The application has helped the planning department to drastically cut down on the time required for preparation of Planning Atlas manually,

7. LokVani Services:

- LokVani project has been launched in the year of 2004 with the objective to help citizens make their grievances related to Government services in an easy manner and also get their grievances redressed within 15 days of filling complaint through kiosk centers.
- It gives citizens an opportunity to interact with the Government without actually visiting any Government office.

- Some of the services offered include online submission, monitoring and disposal of public grievances or complaints, online land records, information about various Government schemes, application forms, developmental works / schemes / expenditures / beneficiaries etc., information about local employment opportunities in the district etc.
- The land records have been computerized and available on line at LokVani website. Also, services like Online Registration of Death / Births, Certificates for SC/STS, Domicile etc, being offered through Single Window service.
- More than 50 other districts of UP have been now using LokVani based citizen services.

The additional services offered by LokVani are:

- ❖ Availability of land records (khatun"s) on the internet
- ❖ Online registration, disposal and monitoring of public grievances
- ❖ Information of various Government schemes
- ❖ Online availability of prescribed Government forms
- ❖ Online status of Arms License applications
- ❖ GPF Account details of Basic Education teachers
- ❖ details of work done under MPLAD/Vidhayak Nidhi
- ❖ Details of allotment of funds to Gram Sabhas under different development schemes
- ❖ Details of allotment of food grains to Kotedars (fair price shops)
- ❖ Other useful information of public interest

(Q) Discuss about e-Governance in Madhya Pradesh?

Government of Madhya Pradesh constituted a state Task Force on Information Technology under the Chairmanship of T Prof. Yashpal. The focus of the policy was to change the Government functioning from both inside and outside and would create seamless society with global opportunity. The Department of information Technology has been setup in the state of Madhya Pradesh to execute information technology culture for better implementation of e-Governance. The e-Governance initiatives of the state focus on citizen-centric Governance to deliver efficient and cost-effective Government services.

The main e-Governance initiatives of Madhya Pradesh state are as followings:

State Wide Area Network (SWAN):

- Madhya Pradesh Government established the state wide area network (SWAN) for data, voice and video communications throughout the state.
- It enables access to the applications of entire state Government and its departments through interconnectivity.
- It also provides the reliable and secure connectivity within the state administration to make the Government more productive reduced communication cost.

The salient features of this project are as follows:

- ❖ Madhya Pradesh situated in the central India having an area of around 308000 Sq. Km.
- ❖ The state's administration operates through 48 districts, 272 tehsils and313 Blocks.
- ❖ In order to avail financial and social benefits of Information Technology, the establishment of State Wide Area Network (SWAN) has been envisaged.
- ❖ The SWAN will provide primary backbone for communication of voice, data and video though out the state and will be an effective tool for implementation of e-Governance Projects.

Common Service Centers (CSC):

- An Initiative of Government of India & Government of Madhya Pradesh being established in the State for delivery of citizen centric services, an assisted project by the Department of Information Technology, Government of India.
- A Common Services Center, or CSC in short, is envisaged as a medium to improve the living standard of common man in the rural parts of India, by enabling electronic delivery of information, knowledge, skills and services which they need the most.
- It is an initiative of Department of Information Technology, Govt. of India.

Property Registration Information System Module (PRISM):

- This project automats all major activities of Sub-registrar office through single window system.
- It ad includes deeds of sale, Mortgage, valuation of property, on the spot registration, WILL, lease etc. and capturing and printing of photographs on stamp paper.
- It will be soon implemented in Sub-Registrar offices in the state of Madhya Pradesh.

Web based counseling for department of Technical Education:

- It is Web-based online off-campus counseling for the admission in the entire engineering, pharmacy and medical courses.
- This provides the convenience to students as they are not required to visit at counseling venue. It saves the time and cost.

Online admissions:

- Online Admissions in Government and private colleges of the state from the academic session 2011-12 higher education department started online choice filling and admission process in all the colleges of the state. It saves the time and cost.

Integrated Treasuries Information system:

- Madhya Pradesh It is an online system for automation of District treasuries in the state of Madhya Pradesh.
- The purpose of this project is to being more transparency and time bound functioning of treasuries.
- It includes the verification of DD through photograph and signature, online payment receipt module and pension module.
- This project is implemented at Sub Division Treasuries for District treasuries and Sub Division improvement in operations and management of state funds.

e-Registration of Vehicles and e-Driving License:

- There are two application software used for computerization of transport department.
- Vehicle registration system software is used for registration of commercial and private vehicles.
- It includes addition and removal of hypothecation, transfer of ownership, NOC and renewal of registration certificate.
- The other software is used for issuing driving license. It includes the renewal and issuance of duplicate license.

e-Land Records:

- It is an online system for automation of Land records in the state of Madhya Pradesh.
- The purpose of this project is to being more transparency and time bound functioning of revenue department.
- It includes the online khasra and khatoni. This project is implemented at collectorate for improvement in operations and management of land records.

e-Unemployment Registration:

- The employment exchange started online registration system for unemployed youths of the state.
- It saves time and money of the unemployed youths of interior parts of the state.

e-Scholarship Program:

- From the academic session 2013-14 state Government started centralized online application system for all type scholarship programs of the state Government.
- School education department appointed nodal agency for this project. It saves the time of the students of the state.

Samadhan Online:

- It is used to facilitate citizens by capturing the inputs at a single point, defining a specified data according to the type of service then accept the cash at the counter itself and deliver the required service on the same counter.
- It is a single window system to provide effective interface between the Government and Public.
- It also provides the facility for the citizens to check the status of their applications through the project website.

(Q) Discuss about E-Governance in West Bengal?

The Government of West Bengal is trying to roll out all Government schemes through e-Governance service and match international standards in terms of service delivery quality. It has successfully implemented a number of e-Governance projects to establish quick, error free and real time connection across all Gram Panchayats, Municipalities, Blocks, District Department Head offices, Collectorate Headquarters, Department Directorate Headquarters and the State Secretariat.

The target is to convert the entire network of State Secretariat, Directorates and Regional offices into complete e-Offices and ensure all the citizen-centric services under a single window portal within 2021.

The primary objective of e-Governance initiative by the Government of West Bengal is to transform itself into acknowledge driven welfare society from the archaic bureaucratic structure with extensive use of IT and its in Governance and positively affect the daily lives of the citizens of the State.

The Government is sincerely committed to develop an inclusive, citizen friendly and information-based society in order to make the public services readily available to a section of the people in the State in an efficient and transparent manner, through E-Governance, with the use of Information and Communication Technology (ICT).

Major e-Governance initiatives:

West Bengal State Data Centre (WBSDC):

- The primary objective of WBSC is to provide essential e-Services to the State Government, Line Departments and Public Sector Units.
- It hosts many critical mission projects related to Crime and Criminal Tracking Network & Systems (CCTNS), Land Records, Commercial Tax, Stamp Registration, Excise, Integrated Financial Management System (IFMS), etc.
- The Data Centre also facilitates the hosting and management of various software applications online with the use of a common centralized system.

West Bengal State Wide Area Network (WBSWAN):

- It offers a dedicated, secure, closed user group with data encryption capabilities and has been created to provide a minimum 2 Mbps bandwidth up to the Block level.
- With 346 points of presence, the WBSWAN connects more than 500 offices of various departments in the State level up to the Blocks.

West Bengal e-District Mission:

- It is a project with the objective of making the State's services available to the citizens through an online system.
- The services may be availed through internet personally, by visiting the nearest CSP (Customer Service Point) or a nearby Kiosk.
- There is no necessity to visit the Government office for submitting the application, knowing the status or receiving the certificate.

State Portal & Service Delivery Gateway (SSDG):

- This Online Single Window Portal provides á single window service under the applicable Acts, Rules, Policies and Schemes.
- It also provides all facilitations and handholding supports to the investors intending to start or operate a business in the State.

Crime & Criminal Tracking & Network System (CCTNS):

- CCTNS is a Mission Mode Project conceptualized and sponsored by the Ministry of Home Affairs (MHA) aimed at enhancing the efficiency and effectiveness of police departments across the country.
- It will create a comprehensive and integrated system for enhancing the effectiveness and efficiency of policing at all levels and especially at the Police Station level through adoption of principles of Governances on real time basis.
- It includes virtual connectivity of police units (linking police units at various levels within the State - police stations, district police offices, state headquarters, SCRB and other police formations) as well as horizontal connectivity (linking police functions at state and Central level to external entities).

Centralized e-Office:

- The State Government has created several employee related portals such as IFMS (Integrated Financial Management System), HRMS (Human Resource Management System), e-Pension and

Workflow based File Tracking System (WFTS) which has created an open and transparent environment for the employees.

- The State Secretariat, Government Departments and Directorates and almost all the district magistrate offices in West Bengal have a centralized e-Office system which is developed on the basis of the Central Secretariat Manual of e-Office procedures of Department of Administrative Reforms & Public Grievances (DAR & PG).
- It provides a role-based access mechanism, electronic file processing system, central repository of documents with managed access, single employee directory and a centralized Management Information System.

e-Municipality:

- The Urban Development & Municipal Affairs Department has provided a portal for the citizens to pay municipal taxes, apply for various licenses and complete the entire mutation process online.
- The same portal has a separate login facility for the Municipal employees from where they could access their Integrated Financial Management System (IFMS) and Human Resource Management System (HRMS) related issues.

e-Panchayat:

- Under the Institutional Strengthening of Gram Panchayats Scheme (ISGPS), almost all the Gram Panchayats in West Bengal have been connected through internet facility and most of the functions are now carried out through the e-Governance portal.
- Individual entrepreneurs are motivated to open Tathya Mitra Kendra (CSP) in the remote villages from where the ordinary villagers could apply online for various schemes at nominal costs. Such CSPs frequently double as Computer Training Centre"s providing much needed computer skills training to the rural youth at subsidized costs.

e-Land & Land Records:

- West Bengal is perhaps the first State, if not the only one, to completely digitize the entire Land Records, Land Registration and Land Mutation process with the help of the National Informatics Centre (NIC), West Bengal.
- The Government had initiated digitization of 68386 map sheets in 2008. Initially the activity was slow but picked up in the last three years with the support of the State Government.
- NIC has completed 62000 map sheets. The digitization is made in layers such as area, line and point which are termed as "GIS ready digitization".
- All the 3 objectives were fulfilled with the software "BHUCHITRA" custom developed by NIC and implemented at all the 341 Block land offices of the State.
- The State has also implemented the 'On Registration Mutation Service', under the Centre's 'e-Dharti" scheme.
- All the 247 Registration Offices distributed across the State has implemented Registration Process Automation System called "CORD".

e-Procurement:

- This system enables the eligible bidders with proper credentials to download the tender schedule free of cost and then submit the bids online through the same portal (wbtenders.gov.in).
- These results in transparency and ease of participation and the entire tender process could be tracked online. All the stakeholders have to login using their own Digital Signature Certificates (DSC) which negates the chance of impersonation.

Smart Card:

- The West Bengal Transport Department has developed a Smart Card (Automatic Fare Collection System) for daily commuters of Government buses which functions similar to the ones used in Metro Railways.
- On Bus Intelligent Transport System (OBITS) and Path-a-Disha Mobile Application are the other innovative commuter friendly schemes for booking seats and tracking the movement of buses respectively.

Computerization of Court Cases (CONFONET):

- The CONFONET project was implemented in the backdrop of the Consumer Protection Act, 1986.
- It provides online information on Consumer Rights and Protection, Online Cause Lists, Online Judgments, Online Case Status and Case History and Statistical Reports (for State Commissions and Forums only).
- This project caters to a wide range of beneficiaries such as consumers, advocates, consumer activists, Bar Councils, members of Consumer Courts and law students.

(Q) Discuss about e-Governance in Gujarat?

Online Ticket Booking for Bus (GSRTC):

- GSRTC Stands for Gujarat State Road Transport Corporation.
- GSRTC provides to and from buses from different locations in Gujarat As per the latest survey that around 24 lakh passengers travels in a day out of them some are using weekly or monthly pass while some are using daily tickets.
- GSRTC has launched website for online ticket booking of the bus.
- People of the Gujarat are not much aware of the functionality so awareness should be created for the same.

Food, Civil Supplies & Consumer Affairs Dept (FCSCA):

- FCSCA department of Gujarat Government provide list of functionalities for their citizens.
- It includes rules and regulation related to sales and purchasing products related to foods and other. Which rules is going to apply for suppliers and consumers if they are selling inside Gujarat.
- Website related to FCSCA is providing all this information.
- By using this website of FCSCA you can post complain related to Ration Card, Ration Shop, LPG, PNG, Patrol Pump, Gas Pump, and Customer Protection.
- After a successful registration you will get a complaint number to trace your complaint status

Official Gujarat State Portal:

- This portal provides information related to Gujarat state. It contains more than 100 links to reach to important information.
- Another important feature provided on the Gujarat state portal is that take appointment of the PM.
- You can invite PM for your special occasion or you can write to PM directly.
- So Gujarat state portal is also very much important website for the citizen of the Gujarat.

Gujrat Vij Company Limited:

- In Gujarat electricity is provided by the Gujarat vij company limited. For the sake of the easy understanding, they have divided into four zone.
    - ❖ MGVCL-Madhya Gujarat Vij Company Ltd.
    - ❖ Paschim Gujarat Vij Co. Ltd.
    - ❖ Uttar GujaratViji company Ltd.
    - ❖ Dakshin Gujarat Vij Company .Ltd. Using their website citizen can pay the electricity bill online.

e- City:

- Established in the year 1950, the Amdavad Municipal Corporation (AMC) grew from an area of 52.49 Sq.Km. (in 1950) to 190.84 Sq.Km. (in 1991) over 43 wards.
- The urban agglomeration is spread over 259.63 Sq.Km.
- In 2001, the population of Amdavad Urban Agglomeration was 4.51 million while the AMC area was 3.51 million. The average decadal growth rate of population in the AMC area since 1901 has been 37.55% against a national average of 25% approximately.
- The population in AMC area is expected to double by 2011.
- The average density of population in AMC area is 18420 persons/Sq. Km. The densities range from the highest of 85,120 persons/Sq. Km. in Dariapur ward, to 3,709 persons/Sq. Km. in Vatva ward.

Health Management Information System (HMIS):

- HMIS is to build trust and confidence for the general hospitals in the hearts of the citizen of the state by providing efficient and quality health services through IT application.
- They streamline the operations with improved Patient care and effective Administration and Control.
- HMIS project was conceptualized by the department of health & family welfare to ensure the quality health care by IT application to provide standard clinical & diagnostic tools, hospital management tools and integration of management information at the state level so as to ensure online review & monitoring.
- The Project is undertaken by Department of Health and Family welfare.

SICN (Sachivalya Integrated Communication Network):

- The main objective of SICN Project is to providing Safe Voice Communication Services in the Capital of Gujarat Gandhinagar connecting almost all the Govt. offices and Boards & Corporations Offices. Consists of 1 Core Exchange and 11 Remote Units interconnected through OFC.

e-Procurement:

- e-Procurement system introduced for all the purchases and procurements in all the Government departments, Nigam"s and Societies under the administrative control of the State Government and which are funded by Government.
- Roll out of e-Procurement carried out in a phase manner starting from few works" items for limited Departments to multiple items for many departments.

e-D hara:

- After digitizing all land records, e-Dhara Kendras (e-DK) have been setup at Taluka Mamlatdar offices to take up day to day activities of land records such as mutations and issue of Record of Rights (RoR). Workflow based software (BhuLekh Soft) has been implemented since 2004-2005.

e-Gram Vishwa Gram:

- By Integrating BhuLekh Soft with the e Gram Vishwa Gram (eGVG) project, that provides broadband connectivity through VSAT to village Panchayats, farmers can get RoR copies from the Village Panchayat itself.
- While Talati / Village Computer Entrepreneur (VCE) posts the request on the Record of Rights (RoR) portal, Deputy Mamlatdar, (e-DK) would process the RoR and upload it on to the Central server so that the print out is taken at the village.
- With the introduction of modern office tools and connectivity at the lowest rural administrative unit in the State i.e. Village Panchayat, e-GRAM project has enabled computerized record keeping of accounts and maintenance of register of various types of taxes at the village level.

SWAGAT Online (State Wide Attention on Grievances through Application of Technology):

- On the 4th Thursday of every month applicants arrive at the Chief Minister's Office in the morning.
- Grievances are scrutinized, registered and instantly transmitted online to the concerned authorities at the Secretariat level, District level and Sub- District level, whereupon the authorities input their replies by afternoon on the same day.
- From 3.00 pm on the same day, the Chief Minister personally listens to the applicants one-by-one.
- The grievances as well as the replies of the concerned authorities are available through the system on a screen.
- The concerned secretaries are present along with the Chief Minister, for direct interaction with the aggrieved citizen, and district authorities are connected through video-conferencing.

Gujarat VAT Information System (VATIS):

- Gujarat VAT Information System (VATIS) project is logically divided into various business services, shared services, MIS and Housekeeping.
- Business services (e.g., Registration, Returns, and Assessments etc.) are self-contained while shared services (e.g. Tax Calculation).

UNIT – V
Latest Applications in Real Time Governance

(Q) Discuss About E-Governance For Agriculture?

- ICTs or Information and Communication Technologies are important tool for the development of rural and agriculture sector.
- Agriculture is a main sector with the majority of the rural population in developing countries depending on it.
- This sector faces large major challenges of enhancing production in a situation of dwindling natural resources necessary for production.
- The large increasing demand for agricultural products, however, also offers some opportunities for producers to sustain and uplifting their living style.
- Information and Communication Technologies (ICT) play an important role in solving these challenges and improve the livelihoods of the rural poor people.

e-A griculture:

- e-Agriculture is improving agriculture development opportunities, and aiding the practice of agri-business.
- The increased use of e-Agriculture technologies has empowered farmers and translated into a higher standard of living for farming communities worldwide.
- e-Agriculture is a rapidly emerging field which involves increasing access to internet-based farming and crop growing information related to local natural resources, market information, business opportunities, emerging farming technologies, and new farming techniques, credit and financial services, monitoring of resources, accounting, weather forecasts, and pest alerts.
- Agriculture has really changed; people are using satellite photos to determine needs for water, fertilizer and pesticides, and then connecting wirelessly to the application rates change.
- A variety of sensing equipment can feed into the network. The idea is to apply exactly the right material to exactly the right spot at exactly the right using networked equipment.
- e-Agriculture community is made up of farmers, policy makers, development practitioners, individual stakeholders such as information and communication specialists, students, researchers, business people and others.
- Farmers can get the desired information at any time from any part of world and they can also get the desired information by without moving anywhere.
- e-Agriculture is a relatively new term in the area of agriculture and rural development.
- In short e-Agriculture will connect all related persons starting from farmers to researchers together.
- e-Agriculture conveys the information related agriculture details to farmers in SMS via SMS gateway.
- The details such as seasonal alert and other additional details can be sent to farmers. The seasonal or daily alert can be sent to all farmers in the database.

(Q) Discuss about need of Information and Communication Technologies (ICT) in Agriculture?

e-Agriculture helps in dissemination of gathered information to the farmers, mostly lived in rural areas, to use in their routine work. These services are provided through the internet and related technologies. This ensures the effective and efficient use of information and communication technologies for designing, implementing, and analyzing innovative and existing applications to help the agricultural sector. The information disseminated by e-Agriculture can be services of e-Agriculture, These are:

- Weather Information
- Price Information
- Health and Education Information
- Production Techniques
- Non-Government and Government facilities
- Current stock and Demands Information

There are several models of ICTs may be used in agriculture of India, which have made a significant many difference operation. The main technologies involved in formers call centers are:

- Desktop and laptop computer system with Internet connectivity
- Teleconferencing and telephones with headphones
- High bandwidth telephone line

The main purpose is to deliver the extension services to the farming community in the local languages. The farmer dials the help line, a toll free number, 1551 (symbolic), and the agricultural graduates provide the initial important enquiry. The information cost to the farmers is almost zero, and they also get the response in then-own local languages. If needed extra knowledge and information then some time, the agricultural scientists also visit the field to resolve any further queries.

(Q) Discuss about Advantages of ICT in e-Agriculture?

Advantages of ICT in e-Agriculture are following:

1. Improve productivity and profitability of farmers through ICT and e-Agricultural facility.
2. Efficient utilization and management of resources.
3. Rain and other important information timely available into the farmer.
4. It can support policy and decision-making information and evaluation on optimal farm production, agro-environmental resources management etc. using tools such as GIS.
5. It can also provide new agricultural and rural business such as, rural tourism, real estate business for satellite offices, e-commerce and virtual corporation small-scale farms.
6. It can provide more comfortable and safe rural life with equivalent services to those in the urban location, such as provision of telemedicine, distance education, remote and public services. remote entertainment, etc.
7. Development of Decision support. Knowledge Management and Advisory systems to strengthen Extension services and also used for farmers Redressed system.
8. It can improve farm management and farming technologies by efficient farms management, risk management, knowledge transfer or effective information etc. realizing competitive and supportable farming with safe products. In this help farmer has to make critical decisions such as what to plant? When to plant? How to manage blighter?, while considering off-farm factors such as market access, environmental impacts, and industry standards. Information Technology-based decision support system can surely help their decisions.

9. It can provide system and tools to secure food reliability and traceability that has been an emerging issue concerning farm products since serious contamination such as chicken flu was detected.

(Q) Discuss about ICT and its Challenges in Agriculture?

- It is very important that the application of ICT in agriculture is increasing.
- e-Agriculture helps in dissemination of gathered information to the farmers, mostly lived in rural place, to use in their routine work.
- Any system applied for getting knowledge and information for making decisions in any industry should deliver complete, accurate, concise information in time or no time.
- These services are provided and enhanced through the internet and related technologies. The information provided by the system must be in easy to access, cost-effective, user-friendly from and well protected from unauthorized accesses.
- This ensures the effective and efficient use of information and communication technologies for analyzing, implementing existing and designing and innovative applications to help the agricultural sector.
- Those who are involved with agricultural industry also need information and knowledge to manage their occupation efficiently.
- An important role could be played by ICT in maintaining the above mentioned properties of information An authentic agricultural database based on climate condition and soil, crop cultivation history, demand of raw materials, farmers interest, pest and disease management technologies, marketing system, storage facilities, etc. have to be developed with the help of ICT and Geographic Information system.

The major challenges to "Agriculture sector in India" are following:

1. Insufficient use of ICT for agricultural purposes, etc.,
2. Lack of "Common Platforms" for the farmers in India,
3. Agriculture content up-gradation and its development.
4. Infrastructure agriculture support facilities and infrastructure.
5. Ownership issues of the public and government data
6. Inadequate use of public- private partnership in India,
7. Shortage of awareness regarding suitable agricultural methods among the farmers
8. Absence of an "Agricultural Think-Tank" in India.
9. Insufficient institutional capacity to delivery farmer"s specific services.

(Q) Discuss about e-Governance for Rural Development?

India is nation of village with 72% of the population residing in 638,387 villages as per the censes 2011 data. In rural areas, people are often deprived of getting benefits from the integrated development programmes. The use of e-Governance initiatives in rural areas needs selections of appropriate technologies which are dependable, maintainable and cost effective.

Rural e-Governance Initiatives:

1. **Computerized Rural Information System Project (CRISP):** It helps District Rural Development Agency (DRDA) to monitor the poverty alleviation programmes through computer-based information system.

2. **State Wide Network Area Project (SWAN):** It provides high speed connectivity connecting offices at block level for faster access to Government services.

3. **e-Choupal:** It is an e-Government initiative formulated by the International Business Division of Indian Tobacco company (ITC-IBD) to sell agricultural products, home application and consumer goods. It protects farmers from the abuse of the agents.

4. **LokMitra:** It was developed by the National Informatics Center (NIC) in Himachal Pradesh to provide easy access to remote places to redness complaints.

5. **N-Logue:** N-Logue communication Pvt. Ltd., is providing telecomm and internet services in small towns and rural areas of India.

6. **Kisan Call Centers:** These respond to the queries raised by the farmers instantly in the local language. It was launched by the Department of Agriculture & Cooperation, Ministry of Agriculture in 2002.

7. **Gyandoot:** It is community-owned information Kiosks established in the poverty-stricken, tribal domination rural areas of Madhya Pradesh.

8. **Akashganga:** It makes use of ICT to facilitate rural milk producers by integrating all operations of the cooperative society right from milk procurement to accounting.

(Q) Discuss about e-Governance for Health Care?

Health or Digital Health:

Information & Communication Technology (ICT) can improve the delivery of healthcare services and management of the public health system. MOHFW is therefore promoting e-health or Digital Health use of information & communicating Technology in the direction of "reaching services to citizens" and "citizens empowerment through information dissemination" to bring about significant improvements in the public healthcare delivery. To improve efficiency in health care delivery, extend health care to rural areas and provide better quality at low cost certain e-health initiatives using ICT were under taken by MOHFW across the country.

The purpose of Health or Digital Health Initiatives is to:

- Ensure availability of services on wider scale,
- To provide health care services in remote & inaccessible areas through telemedicine,
- To address the health human resource gap by efficient & optimum utilization of the existing human resource,
- To improve patient safety by access to medical records& reducing healthcare cost,
- To monitor geographically dispersed tasks & effective MIS for meaningful field level interactions,
- To help in evidence-based planning & decision making,
- To improve efficiency in imparting training & capacity building

The broad program/activities covered under e-Health are as below:

(I). Interoperable Electronic Health Records:

Ministry of Health and Family Welfare (MoHFW) has envisaged establishing a system for interoperable Electronic Health Records (EHRS) of citizens to be created, made available and accessible online to facilitate continuity of care, better affordability and better health outcome and better decision support system. Following initiatives have been undertaken:

1. **EHR Standards:** The EHR Standards include standards for Disease Classification, Medicine and Clinical terminology, Laboratory Data exchange, Digital Imaging and Communication etc. for semantic interoperability.

2. **Metadata & Data Standards (MDDS):** To enable semantic interoperability among healthcare applications MDDS standards were developed following the guidelines of Ministry of Electronics and Information Technology (MeitY) and open standards policies of GOI. The MDDS standards have more than 1000 data elements to be used in healthcare applications and are aligned with the global health IT standards. The approved MDDS standards have been notified by Ministry of Electronics and Information Technology (MeitY) in August, 2018.

3. **National Identification Number (NIN):** To Health Facilities in India a unique identification number, which a key requirement for achieving inter-operability and creation of EHRS, is being assigned to all health facilities (both public & private) to facilitate inter-operability among health IT systems deployed. So far approximately 99% of public health facilities have been allocated NIN. The process for setting up mechanism for allocating NIN to private facilities is underway.

4. **Hospital Information System (HIS):** HIS is being implemented for computerized registration and capturing EHR/ EMR of patients in Public Health facilities up to PHC level. This will also facilitate workflow management leading to better delivery of services to patients and improvement in efficiency of processes in these facilities.

5. **My Health Record:** Provides a single online personal medical record storage platform to citizens of India to enable them to manage their own medical records in a centralized way, which greatly facilitates the storage, accessibility and sharing of personal health data. It helps the physician to understand patient's past medical history which is important to the treatment to be given and will have following benefits:

    - It helps in recovering medical records which might be lost in physical form.
    - The data stored in a standardized format can be used for data analytics to understand disease trend, etc.
    - Reduces medical error and improves patient compliance
    - Helps patient in taking second opinion and provides emergency medical records for unconscious/unattended patients.

(II). National Resource Centre for EHR Standards (NRCeS):

Ministry of Health and Family Welfare (MoHFW) has established a Centre of Excellence for EHR standards i.e., National Resource Centre for EHR Standards (NRCeS) at C-DAC, Pune to accelerate and promote adoption of EHR standards in India. NRCES is a single point of contact for assistance in developing, implementing and using EHR standards in India. NRCS provides the knowledge base for EHR Standards and associated resources and facilitates acceptance of and adherence to EHR standards.

(Q) Discuss about National Digital Health Blueprint?

The Government of India recently approved the Health Data Management Policy of the National Digital Health Mission. It sets out minimum standard for data privacy protection to be followed to ensure compliance with applicable laws and regulations. The policy is to act as a guidance document across the National Digital Health Ecosystem.

National Digital Health Mission (NDHM):

- In response to the National Health Policy's goals to adopt digital technologies, the Ministry of Health and Family Welfare constituted a committee headed by J.Satyanarayana to develop a framework for the National Health Stack.
- This committee produced the National Digital Health Blueprint (NDHB), with the action plan to holistically implement digital health.
- NDHB further evolved into National Digital Health Mission. Prime Minister Narendra Modi announced the establishment of the National Digital Health Mission (NDHM) on Independence Day 2020.
- The mission aims to create a national digital health ecosystem that supports universal health coverage, collaborating with other government programmes, including the Aadhaar identification programme and the Ayushman Bharat Yojana.
- NDHM includes Health ID, Digi-Doctor, Telemedicine, e-Pharmacy and healthcare registry.

Key Features: The mission is implemented by the National Health Authority under the Ministry of Health and Family Welfare. The mission aims to achieve the following:

- ❖ To establish Digital Health System. This System will manage infrastructure requirements and core digital health data.
- ❖ To create registries. The registries will hold all credible data of healthcare professionals, clinical establishments, healthcare professionals, drugs and pharmacies.
- ❖ To establish standardized personal health records
- ❖ To achieve health related Sustainable Development Goals
- ❖ To make health care services portable nationally
- ❖ The four major components of National Digital Health
- ❖ Mission are National Health Electronic Registries, National Health Analytics Platform, Federal Personal Health Records Framework and other horizontal components (such as payment gateways, unique digital health ID, health data dictionaries, etc.).

(Q) Discuss about Benefits of e-Governance for Education?

Education is one of the most important factors in achieving the development goals of the country. It is the key to the national development. In India Education has seen massive growth in recent years on one hand, this growth promises to produce more skilled individuals to fulfill needs of ever-growing Indian economy and on the other hand it poses a huge challenge for the governing bodies like University Grants Commission (UGC), All India Council Technical Education (AICTE) and others to maintain or improve the quality of education.

An integrated Higher Education Service System (HESS) at a national level can be one of the key Information and Communication Technology initiatives to help India become a provider of world-class education.

e-Governance helps in improving transparency providing speedy information, dissemination, improving administrative efficiency and public services in all the aspects of education educational institutions may have various requirements that include computerization and management of processes such as registration, admission, student information, classes, time table, transport, attendance, library, salary and expenses, examinations, performance, grades, hostels, security and reports.

Benefits of e-Governance:

In an education sector the benefits of e-governance in an educational sector are improved efficiency, increase in transparency and accountability of educational administrative activities convenient and faster access to services, and lower costs for administrative services. The multi-faceted benefits of e-Governance can be described as

- Increase the efficiency of the various departments and reduces duplication.
- Preparation of reports becomes easy and quicker.
- Harassment of the students is reduced.
- Easy online information and submission of forms and payment also becomes almost immediate.
- The management, faculty members, students and administrative staff get connected to the each other more easily leading to enhanced efficiency in delivering service by the way of faster dissemination of information that on a very low cost.
- Equal opportunity to access to information is provided regardless of one's physical location and physical disability thus removing distance barriers.
- Leads to significant reduction of transaction costs, time, space, and manpower

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(Q) Discuss about Government initiatives for e-Governance Education?

Government Initiatives for e-Governance Education:

The communication technology is advancing very swiftly form single channel transmission in 1962 to 120 channels in 2005 and even more now. In education also, beginning with the use of Satellite Instructional Television Experiments (SITE) in 1974-75, it has advanced to several stages such as Country Wide Classroom (CWCR) for Higher Education in 1984, Gyan Darashan in 2000 and it has reached to now 24-hours Vyas Higher Education channel and Eklavya Technology channel in 2004. Technology has also advanced to enable 24 hours Worldwide Internet communication.

I. Digitalization and Electronic Books Management:

We can convert the physical data in form of papers, thesis, research papers, magazines, books, records, forms, mark sheet, survey data and others into the digital format which is readable by all computers and is easily processed by users.

- Use of scanner and other software tools to scan a page/file in to the computer and converting the scanned data in to readable/editable characters. Software includes Optical Character Recognition (OCR) software. OCR stands for Optical Character Reader; they can read the data from image files.
- Use of computer typists/data entry operators as they are called to punch in the data on to a desired file format. (MS Word, Excel, Access etc.) Both or either can be used for successful digitization works.

II. The Developing Library Network (DELNET):

The Developing Library Network (DELNET), promoted by the National Informatics Centre, Department of Information Technology, Ministry of Communications and Information Technology of the Indian government, is an example of e-Governance in the field of library and information science.

The aims and objectives of DELNET are:

- To collect, store, and disseminate information from member libraries;
- To coordinate efforts for suitable collection development and reduce unnecessary duplication;
- To promote resource sharing among the member libraries through the development of a network;
- To create new systems in the field of library and information science; and to apply the results of research, offering technical guidance to member libraries, facilitating and promoting delivery of documents manually or mechanically, etc.

III. Wireless Campus (Wi-Cam):

In present scenario, campuses and educational institutes require connectivity for an expanded array of wireless computing devices and student services. Our Wireless campus (Wi-Cam).

Benefits of Wi-Cam:

- ❖ Greater Campus Safety.
- ❖ Improved Campus Communication.
- ❖ Anywhere Access to Academic Tools and Resources.
- ❖ Fully Hosted System.
- ❖ Students and Staff Access the Features Through the Web.

IV. e-Learning:

e-Learning is the use of technology to enable people to learn anytime and anywhere. e-Learning can include training, the delivery of just-in-time information and guidance from experts. e-learning covers a wide set of applications and processes including computer-based learning, web-based learning, virtual classrooms and digital collaboration.

Benefits of e-Learning:

- ❖ e-Learning has become popular amongst educationists because of its strengths and advantages provide the better access to educational resources from outside the institution on a global and instant basis.
- ❖ Increased and flexible interaction with student through e-mail and discussion forums.
- ❖ It is an opportunity for international, cross-cultural and collaborative learning. Communication capabilities allow students and faculty to discuss issues online, to schedule collaborative sessions and to form groups that enable teamwork across geographic boundaries and extend learning beyond the classroom.

V. Distance Education System:

- The use of ICT has extended the scope of offering educational programs at a distance.
- The off-campus delivery was an option for students who were unable to attend the classes regularly.
- Today many students are able to make this choice through technology-facilitated learning setting.
- This helps in time and cost saving and extending courses of choice to students of different backgrounds, cultures and perspectives.
- Eminent teachers form different parts of the country and abroad cab be utilized for teaching at their convenience through mobile technologies and seamless communication technologies that support 24*7 teaching and learning like NPTEL (National Programme on Technology Enhanced Learning), India 2007, EKLAVYA Technology Channel, India 2007, etc.

VI. Radio Frequency Identification (RFID):

The RFID is wireless technology that uses Radio Frequency (RF) electromagnetic energy to carry information between an RFID tag and an RFID reader.

Benefits of RFID:

- ❖ RFID tags replace both the bar code and Enterprise Application Software (EAS) device allowing for much faster conversion of library materials in new branches. In existing libraries, RFID tags can co-exist with existing EAS anti-theft systems.
- ❖ Book returns can be automated with check-in.
- ❖ Fast on-the-shelf inventory allows for much better accuracy in collection management.

VII. Mobile phone Technology:

- Wireless technology can be used anytime anywhere for the teaching and learning process.
- 3G Mobile Learning is a great innovation in education offered by mobile technologies which decreases limitations of learning with faster access to the web.
- International Mobile Telecommunications-2000 is better known as 3G or 3rd generation communication system; it increases efficiency and effectiveness of teaching and learning process. Using ICTs into learning, teaching, and into the administration and management of educational institutions is becoming the need of the time.
- ICT offers a range of new possibilities for the administrators, teachers and students.

(Q) Discuss about e-Governance for Tourism?

e-Tourism is the analysis, design, implementation and application of IT and ecommerce solutions in the travel and tourism industry; as well as the analysis of the respective market structures and customer economic processes and market relationship management.

The travel marketplace is a global arena where millions of buyers (travel agents and the public) and sellers (hotels, airlines, car rental companies, etc.) work together to exchange travel services. Among the "shelves" on which buyers explore for travel-related services are world's Global Distribution Systems (GDS) and the Internet distribution systems (IDS). These systems have become Internet supermarkets connecting buyers to the service providers and allowing reservations to be made at less time and with less effort. Ever since the appearance of the electronic and Internet the tourism and travel industry has started sprouting around the electronic media and are becoming more and more customer friendly.

The Internet has become the most appropriate channel for selling travel as it brings a wider network of suppliers and widely disseminated customer groups together into a centralized market place.

e-Tourism in India:

- ❖ The revolution of the Internet and information and communication technologies (ICTs) in India has had already insightful repercussions for the tourism industry.
- ❖ A whole system of Communication Technologies and the Internet has been rapidly diffused throughout Indian tourism sectors.
- ❖ Subsequently, online travel bookings and associated travel services are accepted as one of the most thriving e-commerce implementations.
- ❖ During the last decade of 20th century, India saw the emergence of e-Tourism, its innovation and growth.
- ❖ It is because of the online revolution and its utility where the tourists are more interested to get information on destinations, facilities, availabilities, prices, geography & climate and present status of friendly relation.
- ❖ This led to the development of e-commerce strategies in tourism industry and more services in the form of online hotel booking, flight booking, car booking, bus booking came into forefront as online

services provided by the big online travel companies such as Travelchacha.com, Makemytrip.com,Yatra.com, Cleartrip.com, Ezeego1.com, Arzoo.com, Travelguru.com, Travel. Indiatimes.com, ixigo.com, travelocity.co.in etc. On these sites, the travelers have wide option of exploring details of hotels, flights, cars, buses and other allied services.

(Q) Discuss about e-Governance for Commerce and Trade?

I. e-Commerce:

- e-Commerce is the process of exchanging goods or services through many electronic networks such as the Internet.
- Commerce is an important part of a business. In simple words, commerce is nothing but buying and selling of goods. That means when we buy a product or service from others or sell a product or service to others then it is called as commerce.
- One of the most popular activities on the Web is shopping. e-Commerce became possible in 1991 when the Internet was opened to commercial use.
- Since that date thousands of businesses have taken up residence at websites.
- History of e-Commerce is a history of a new, virtual world which is evolving according to the customer advantage

Definition of e-Commerce:

"e-Commerce can be broadly defined as the process of buying and selling of goods or services using an electronic medium such as Internet".

e-Commerce is also referred as a paperless exchange of business information using Electronic Data Interchange (EDI), e-Mail, Electronic fund transfer etc.

- e-Commerce trading activities are online via the internet and can be considered automatic
- e-Commerce is 24X7; it can be done anytime day and night.
- e-Commerce can be termed as screen to face interaction
- e-Commerce is global and has no physical Limitation
- In e-Commerce modes of payments are bank transfer, credit card, e-wallet, mobile payment and many more
- In e-Commerce delivery of goods or services takes some time.
- e-Commerce's scope is global.

Advantages of e-Commerce:

- Global scope
- Electronic transaction
- Cost saving
- Anytime shopping
- No intermediaries
- Public services

Global Scope: e-Commerce provides the sellers with a global reach. Now sellers and buyers can meet in the virtual world, without barrier of place (geography).

Electronic Transaction: e-Commerce reduces the paper work and significantly lower the transaction cost. e-Commerce enables the use of credit cards, debit cards, smart cards, electronic fund transfer via bank's website and other modes of electronic payment.

Cost Saving: e-Commerce application provides users with more options to compare and select the cheaper and better option. It helps in reducing the cost of searching a product. e- Commerce has enabled rural areas to access services and products, which are otherwise not available to them.

Anytime Shopping: One other great advantage is the convenience. A customer can shop 24×7. The website is functional at all times; it does not have working hours like a shop.

No Intermediaries: Electronic commerce also allows the customer and the business to be in touch directly, without any intermediaries point this allows for quick communication and transactions.

Public Services: E-commerce helps the government to deliver public services such as healthcare, education, and social services at a reduced cost and in an improved manner.

Disadvantages of e-Commerce:

- Setup cost
- Physical presence
- Security
- Goods delivery

Setup Cost: The setup of the hardware and the software, the training cost of employees, the constant maintenance and upkeep are all quite expensive.

Physical Presence: This lack of a personal touch can be a disadvantage for many types of services and products like interior designing or the jewellery business.

Security: Security is another area of concern. Credit card theft, identity theft etc. remain big concerns with the customers.

Goods Delivery: There may arrive some problem with fulfillment of order. Even after the order is placed there can be problems with shipping, deliver. This leaves the customers unhappy and dissatisfied

II. e-Commerce Trade Cycle:

A trade cycle is the series of exchanges, between a customer and supplier that take place when a commercial exchange is executed. A general trade cycle consists of following phases:

Pre-Sales: It consists of two steps like Search and Negotiate. Customer search for required website for product to be purchased. In Negotiate step customer find a supplier who offers good quality product at cheaper price and then customer agrees the terms forwarded by supplier.

Execution: This phase consist of Order and Delivery. Customer sends an order for the selected product and after processing the order, customer receives delivery of the product.

Settlement: This phase consist of Invoice (if any) and Payment. Invoice means customer will receive a bill for purchased product and after confirmation of received product. customer will pay for the same.

After-Sales: This phase consists of warranty and After Sale Services. In warranty period, customer will get all maintenance services for free or at minimum cost. After sale services means customer will do complaints (if any) about the performance of product and get maintenance service from the supplier.

Modes of Payment:

Credit Cards: Credit cards are the most common way for customers to pay online. Merchants can reach out to an international market with credit cards, by integrating a payment gate- way into their business.

Mobile Payments: Mobile payments offer a quick solution for customers to purchase on e-commerce websites. Mobile payments are also commonly used on donation portals, browser games and social media networks such as dating sites where customer can pay by scanning a barcode on an app on mobile.

Examples: Apps like BHIM, UPI, Paytm, Google Pay, etc.

Bank Transfers: Bank transfer is used when money is sent from one bank account to another. Transferring money from bank account is usually fast and safer than withdrawing and paying in cash because every transaction will be authenticated by checking customer's banking credentials.

Example: NEFT, IMPS etc.

e-Wallets: e-Wallet is a type of electronic card which is used for transactions made online through a computer or a Smartphone. e-Wallet is a type of pre-paid account in which a user can store money for any future online transaction. An e-Wallet is protected with a password.

Examples: State Bank Buddy, Paytm Wallets.