

11 TRENDS AND ISSUES IN ICT

1. ICT stands for

Information and Communication Technology

2. What is mean by Mobile Computing?

Mobile computing is a technology that has computing capacity and can transmit/receive data while in move. It requires portable computing devices like laptops, tablets, smart phones etc, wireless communication networks and connectivity to the internet.

3. Explain Generations of mobile communication?

a). **First generation Networks** :1G Mobiles were based on analog system and designed for basic voice facility only.

b). **Second Generation Networks**:-2G Mobiles use digital communication. So the quality of voice is greatly improved and the phone conversation was digitally encrypted. These network provide greater phone coverage. Data service like Picture Message and MMS (Multi Media Message) were introduced. The types of 2G systems are GSM (Global System for Mobiles) and CDMA (Code Division Multiple Access).

1. GSM:It is a globally accepted standard for digital communication. The frequency band for GSM varies from 900MHz to 1800MHz. The network is identified using a SIM (Subscriber Identity Module). Users can select a handset of their choices. Features to GSM are **GPRS (General Packet Radio Services)** and **EDGE (Enhanced Data rates for GSM Evolution)**.

GPRS :GPRS is packet oriented data service. It also helps to improve voice quality. GPRS benefits from short access time and higher data rate. GPRS billing is based on volume of data transferred.

EDGE : is a digital technology and is a super set of GPRS. EDGE can function on any network where GPRS deployed. It's data rate is 3 times faster than GPRS. In order to use EDGE our phone and network should support it.

2.CDMA:-Using CDMA several transmitters can send information simultaneously over a single communication channel. CDMA provides better coverage, better voice quality, high security than GSM. It also provide better signal reception even in low signal strength.

c).Third Generation network: 3G wireless network offers high data rate than 2G. 3G is also called wireless broad band. It can send voice, data,



multimedia information using portable devices like mobile phones. 3G use **WCDMA (wide Band Code Division Multiple Access)** technology.

d).Fourth Generation Network (4G):4G network is also called **L.T.E (Long Term Evolution)**. 4G network provides high speed and good quality images and videos. 4G use **OFDMA(Orthogonal Frequency Division Multiplexing)**. One requirement for 4G is wireless IP based access system.

e).Fifth Generation Network (5G): 5G provide facility to unlimited access to information and sharing of data anywhere any time. It will offer faster, more energy efficient and cost effective data communication.

4. **Explain different mobile communication services.**

1. SMS(Short Message Services):It is a text messaging service used in mobile devices to exchange short messages.GSM system allows to send 160 characters. When a message is sent it reaches a **SMSC(Short Message Service Center)** which stores and forward messages to recipients. If recipients is not reachable SMSC waits and then retries later. Some SMSC provide a forward and forget option where the message send only once and if it fails the message is not send again. **SMS uses SS7 protocol (Signaling System No.7).**

2. MMS(Multimedia Messaging Service): MMS allows user to exchange multimedia contents over mobile devices. It does not limit the maximum no. of characters that can send. An MMS server is responsible for storing and handling the incoming and outgoing MMS.

3.GPS (Global Positioning System): GPS is a satellite based navigation system that is used to locate a geographical position anywhere on earth using longitude and latitude. It is designed by US Dept Of Defense. It consists of satellites, control and monitoring stations and receivers. It also used in vehicles, airplanes, farming etc..

4.Smart Cards: A smart card is a plastic card embedded with a computer chip/memory to stores and transacts data. The advantage of using smart card is that it is secure, intelligent and convenient.
eg. RSBY card, mobile phones SIM, credit cards, ATM cards etc.

5. **What is mobile Operating system? What are different mobile operating systems?**

A mobile operating system is the one which is used in mobile devices. The popular mobile OS are Android from Google, iOS (iPhone Operating System) from Apple, Black Berry OS from Black Berry, Windows Phone from Microsoft etc..

6. What are the advantages of Android Operating System?

It was developed by Android Inc. by Andy Rubin. Now it is a subsidiary of Google.

The user interface of Android is based on touch inputs like dragging, swapping, tapping, pinching etc. It allows the user to customize the home screens with short cuts, applications and widgets. Android uses Linux kernel as it has a powerful memory management and process management system.

An Application Development Kit is available for the developers to develop applications called 'apps'.

Apps are developed using Java programming language. The android OS may further developed to be included in electronic devices like TV, Washing machine, watches etc.

7. What is mean by Big Data Analysis?

It is the process of examining large data set containing a variety of data type to uncover hidden patterns, market trends, customer preferences and other useful information. Ata may be collected from social media etc.

8. What is Business Logistics?

Business Logistics is the management of the flow of goods/resources (items like food, products, animals etc) in a business between the point of origin and to the point of consumption. **The objectives of business logistics is to ensure the availability of the right product, in the right quantity ant the right place and time for right customer at right cost.** Business logistics include,

1. Purchase of material from a supplier
2. Transportation of those materials to the company's production facilities
3. movement of finished goods through warehouse and transportation channels to customers..

9. What is RFID?

RFID(radio Frequency Identification) technology can be used to identify, track or detect a wide variety of objects in logistics. **RFID Hardware consists of tag and reader.** The tag contain a microchip for storing data and an antenna for sending and receiving data. These tags can be inserted or pasted on product containers or products. Each RFID tag contains identifiable information about a product. The advantage of RFID is that the tag need not be in a straight line with the reader. Also

the reader can read the contents of a tag from several meters. **Tag may be either active(Powered by battery) or passive(Powered by the reader).** RFID tags are popularly used in supermarkets, tollbooths etc as an alternative to barcodes. It is also used in the census of animals like Tigers, Lions etc.

10. What I mean by Intellectual Property?

The outcome of creative works like music, literary work, artistic work, discoveries, Inventions, Designs and Software development etc are called Intellectual Property.

11. What is Intellectual Property Right(IPR)? What are different types of IPR?

The outcome of creative works are called Intellectual Property which demand a lot of time and effort from the creator. So the creator must get it's benefit. WIPO(world Intellectual Property Organization) has created for this purpose.

IPR is divide into 2 categories: **Industrial Property** and **Copy Right**.

1. Industrial property: Industrial Property Right applies to industry, commerce and agricultural products. **It protects Patents to inventions, trademarks, industrial designs and geographical indications.**

2. Copy Right: It is a legal right given to the creators for their intellectual works. Under Indian copy right act a work is automatically protected by copy right when it is created. The copyright lasts for 60 years after the death of it's author.

11. Explain following terms?

a). Patents b)Trade Mark c). Industrial Design d). Geographical Indications

a).Patents: It is the exclusive rights granted for an invention. With Patent Protection, the invention cannot be commercially made, used or sold without the patent owners consent. The owner can sell the right to the invention to someone. The term for every patent in India is 20 yrs. After this period the invention can be used by public freely.

b)Trade Mark: It is a distinctive sign (logo, symbol, name etc)to identify certain goods or products or services provided by an individual or a company. A trade mark must be registered an is limited to that country. The initial term for registration is 10years there after it can be renewed.

c). **Industrial Design:** An industrial design refers to the ornamental or aesthetic aspects of an article. A design may consists of 3D features like shape, surface or 2D features like patterns, lines or colour.

d). **Geographical Indications:** Geographical indications are signs used on goods having a specific geographic origin and posses qualities due to that place of origin. Place of origin may be a village, town or a country.
Eg. Palakkadan Matta Rice, Aranmula Kannadi



12. What is Intellectual Property Infringement?

Unauthorized use of intellectual property right such as patents, trademark, copyrights etc are called Intellectual Property Infringement. It may be a violation of civil or criminal law according to the law of the country.

Patent Infringement is caused by selling a patented invention without permission from the patent holder.

Trademark infringement occurs when one party uses a trademark that is identical to a trademark owned by other party.

Copyright infringement is the reproducing, displaying or broadcasting a work without permission from the copyright holder. It is also called Piracy.

Eg: Software Piracy , video piracy etc

13. What is mean by cyber space? Explain.

It is a virtual environment created by computers systems connected to internet. Internet is often referred to as cyber space.

The social media sites are also influencing people a great extend.

Another important area is the e-commerce. People can buy products through e-commerce websites. Payments can also be made through net banking/ debit/ credit cards.

14. What is cyber crime? Explain different types of cyber crimes?

Cyber crime is defines as a criminal activity in which computers or computer networks are used as a tool, target or a place of criminal activity. The victims of cyber crime lose money, reputation, and face mental trauma. Various types of cyber crimes include phishing, hacking, denial of service etc. Cyber Crimes are basically divided into 3 categories,

1. **Cyber crimes against individuals**
2. **Cyber crime against property**
3. **Cyber crime against Government.**

1. Cyber Crime against Individuals : It is defined as an act in cyberspace against a person which cause physical or mental trouble to the person. Cyber crime against individuals are classified into

a). **Identity Theft**: Here a person uses another person's identifying information like their name, user id, credit card no etc without their permission to commit fraud activities. It is form of stealing personal identity to pretend someone is someone else.

b). **Harassment**: Posting indecent/vulgar comments focusing on gender, race, religion, nationality at specific individuals in chat rooms, social media, email etc is Harassment. The use of internet to harass someone is **called cyber stalking**. It can destroy friendships, careers, self image and confidence.

c). **Impersonation and Cheating**: Impersonation is the act of pretending to be another persons for the purpose of harming the victim.

Eg. Sending fake e-mails seeking help for transferring huge amount of money from a distant.

d). **Violation of Privacy**: It is the intrusion into the personal life of another without a valid reason.

It consists of distributing private information like personal data, photographs, workplace monitoring videos etc in social media sites.

e). **Dissemination of Obscene Material**: This may include displaying prohibited material on websites, use of computers for producing obscene materials, downloading obscene materials etc.

2. Cyber Crimes against Property: Cyber Crime against property includes all forms of property like credit cards, intellectual property etc. These crimes include hacking, piracy, intrusion, possession of others information etc. Some classifications of cyber crime are,

a). **Credit card fraud**: It involves unauthorized usage of another person's credit card information for the purpose of payments for purchases, or transferring funds etc.

b). **Intellectual Property Theft**: Intellectual property theft include violation of copyright, patent, trademark etc.

Copying of another person's language, thoughts, ideas and presenting them as one's own original work is called **Plagiarism**.

c). **Internet Time Theft**: The usage of the internet time by persons without the permission of the owner is called internet time theft.

3. Cyber Crime against Government: This include the cyber attacks against Govt. Sites/ computer networks in govt. organization. The different types of cyber attacks includes,

a). **Cyber Terrorism:** It is a Cyber attack against sensitive computer networks like nuclear power plants, air traffic controls, gas line controls, telecom etc.

b). **Website Defacement:** Defacement of websites include hacking of govt. websites and posting offensive comments about govt. in those websites.

c). **Attacks Against e-governance Website:** This types of attacks include Denial of Service and DDoS (Distributed Denial of Service) attacks

15. What is cyber law? Write short note on Indian IT act.

Cyber law refers is the law governing the use of computers and internet.

India's **Information Technology Act 2000 (Amended in 2008)**

regulating the use

of computer, servers, computer networks, data and information in electronic

format. It give legal acceptance for electronic communication. Violations are

treated as serious crimes and offenders are liable to penal actions.

16. What is mean by cyber ethics? Suggest some safety measures taken for using internet ?

Cyber Ethics: While engage in Cyber Space we should ensure that our actions do not harm others. For this we should follow some ethics.

- a). Use antivirus, firewall and spam blocking s/w on your PC
- b). Ensure secure websites for financial transactions.(Https:,lock symbol)
- c). Do not respond or act on email sent from unknown sources.
- d). Use complex passwords and change it frequently.
- e). Do not select check boxes or click Ok buttons before reading the contents of any agreement
- f). Do not hide your identity to fool others.
- g). Do not use bad languages in social media sites and e mails.
- h). Do not down load from unsecure/unknown sites.
- i). Do not force the sites to remember your passwords.

17. What is mean by cyber forensics?

Cyber forensics is defined as the discipline that combines element of law and

computer science to collect data from computer systems , networks, communication systems and storage devices to effectively use as evidence in court.

18. What is mean by infomania?

It is the addiction of people to social media and internet based communication for acquiring knowledge. Because of this they may ignore more important things in life. Now it is considered as a psychological problem which leads to loss of concentration, sleep etc..

19. Criminal activity using computer, mobile phone, and internet is termed as

Cyber Crime

20. Cyber Terrorism is a type of cyber crime against

Sensitive computer network like nuclear power plant , air traffic control etc..

21. Stealing of one's information such as username , password etc is

Identity theft

22. Explain the exclusive right given to the owner by IPR.

IPR give the exclusive right to a person over the creation of his/her mind for a period of time. IPR enables people to earn recognition and financial benefit from what they invent or create.

Previous Questions



- 1..... is a packet oriented mobile data service on GSM.
- 2
Raju sends a short message to his friend.Explain how the text message is exchanged.
3.
What is Industrial Property Right ?Write a short note on any two Industria
l
Property Right.
4. **SIM stands for**

(a) Subscriber Information Module. (b)Subscriber Identity Module

(c)Subscriber Identity Machine. (d)Subscriber Information Memory
5. **What is Cyber Crime ?**
Write a short note on any two cyber crimes against individuals.
6. **GPS is useful for tracking vehicles by transport company.**
How is it possible ?
7. **In system several transmitters can send information simult
Aneously over a single communication channel.**
8. **Write short note on Android operating system.**
9. **A 4G mobile network uses**
a). CDMA B). WCDMA C). OFDMA D). None of these
10. **What is copyright ? How does it differ from patent.**
11. **Pick the odd one out**
a). Kit Kat b). Jelly Bean c). Icecream Sandwich d). iOS
12. **Write Short note on IPR infringement**

13. Differentiate GPRS and EDGE.

14.....is a mobile OS developed by Google based on Linux Kernel

a). Android b). iOS c). Blackberry d). go



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