

ICT: Information and Communication Technology

Fastrack REVISION

► Information and Communications Technology (ICT):

The term ICT is an abbreviation of the term Information and Communications Technology. As the name suggests, ICT focusses on and covers three major aspects, i.e., Information, Communications and Technology. The term ICT incorporates the process of generating, manipulating, storing, sending and receiving the information in digital form. Thus, it covers all the devices and technologies that deal with storing and transmitting information in digital format.

For example, personal computers, digital television, smart phones, radio, e-mail, robots, communications technologies/networks, computer networks all come under ICT.

The term ICT can be expanded as follows.

- **I (Information):** The Information, i.e., text, numeric, images data in digital form.
- **C (Communications):** Transmission or transfer of the information.
- **T (Technology):** Different communication and computer network technologies responsible for transferring the information from one place to another.
- **Cloud computing,** also known as on-the-line computing is an emerging ICT technology. It is a kind of Internet-based computing service that provides access to data and shares processing resources, on demand. It uses the Internet and central remote servers to maintain data and application.
- The term **ICT** differs from Computer Science as Computer Science incorporates the study of computer hardware and software whereas ICT involves the networking and telecommunications technologies, applications and devices, too.
- **Role and Importance of ICT:** The development in the field of Information and Communications Technology has influenced our everyday life, to a great extent. The invention of WWW and Internet has been considered as one of the greatest inventions and has brought a revolutionary change in the field of Information and Communications Technology.
- There is no doubt in saying that ICT has completely changed and revolutionised our world. ICT has become an integral part of everyday life for almost all of us. It has a major impact on almost every aspect of our lives—from working to socialising, learning to playing, etc.

- ICT literacy means learning how to use the various ICT enabled devices and ICT services has become a mandatory requirement to stay connected and to survive in this modern digital world.

► ICT in Daily Life:

- Use of ICT enabled course materials, such as e-books and online training materials, enhances the process of learning.
- Interesting visual teaching techniques encourage the students to learn.
- ICT facilitates the acquisition of basic skills.
- ICT enhances teacher training through online resources and sharing of teaching resources among teachers.
- ICT enables learning with computers and the Internet, in which the technology facilitates learning across the curriculum.
- ICT promotes greater efficiency throughout the school as it provides a communication channel among the teachers, other staff and students. The course and the teaching material could be shared using the ICT mediums such as e-mail, discussion groups and chat rooms.
- Regular use of ICT across different curriculum subjects can have a beneficial motivational influence on students' learning.

► Benefits of ICT in the Field of Healthcare and Medicine:

ICT has led to the invention of wearable gadgets such as FITBITS that assist us in maintaining our fitness and health regime. Now-a-days, we can get our medical reports online, or even go for an online checkup and consultation. Some more benefits of ICT in the field of healthcare and medicine are as follows:

- ICT provides assistance to medical surgeons during the operations.
- ICT has led to the advent of Telemedicine in the healthcare field. Telemedicine can be defined as the use of electronic communications technology to access patient's information and provision of healthcare services to remote locations, across regions and even nations.

- When ICT is applied to medical education, it is possible to give high-quality education to medical students.
- With the help of ICT, the management of medical colleges and district hospitals can be strengthened significantly, using a centralised Hospital Management System.
- ICT enables management of Electronic Medical Records (EMR), in a very efficient manner.
- Using ICT, patient files are kept in the database that can be accessed from anywhere with facility. This also reduces the time required to process data and manage the paperwork efficiently.

► **Benefits of ICT in the Field of Governance:** We are aware about the campaign Digital India launched by our Prime Minister which emphasises more on using ICT services for doing our routine-based tasks. Thus, government has also started utilising the potential of ICT. Different government departments are providing online services using ICT. Online railway bookings, bus bookings, UIDAI Aadhar card generation and online police complaint cell, are few examples where ICT-enabled services are being used.

Some more benefits of ICT in the field of governance are as follows:

- Advent of ICT has also led to e-governance, which is defined as the use of Information and Communications Technology by government sectors to enhance the range, quality of services and information provided to the citizens, in a cost effective manner.
- Using the Internet, government can interact and provide services to people in far-flung rural areas also.
- There is no need to stand in long queues for availing basic services, such as LPG gas booking, paying electricity bills, etc., as these can be done sitting with comfort in our homes, using online services provided by the government.

► **Benefits of ICT in the Field of Business:** E-commerce is a very familiar term, now-a-days. This has become possible by incorporating ICT into business. New start-ups and online shopping portals have gained a lot of benefit by setting-up their businesses using the ICT platform. ICT has benefitted not only the online or e-businesses, but overall business organisations by accommodating ICT into their businesses.

Some more benefits of ICT in the field of business are as follows:

- In business, people look for ways to do more work in a short-time. ICT services can improve a company's efficiency by automating the routine processes.
- ICT systems enable organisations to store, process, analyse and share a vast amount of data. The

information available from corporate data enables managers and employees to make decisions quickly and accurately.

- By automating business processes and providing the employees with ICT tools, organisations can improve individual and overall productivity. Use of automation in manufacturing systems, helps in manufacturing quality products in shorter duration.
- Business organisations use ICT solutions to provide faster response and higher standards of service to customers as the customer service is an important aspect for any business.

► **In Education:** Some ICT applications in the field of education are as follows:

- Use of Smartboard or IWB (Interactive Work Board)
- Online teaching training courses
- E-learning material such as e-books
- Online learning apps, for example, Byju's

► **In Finance and Banking:** Some ICT examples in the finance and banking sector are as follows:

- ATM (Automated Teller Machine)
- Online transactions such as electronic funds transfer
- Phone banking
- Pay by phone using apps such as Paypal, Paytm, etc.

► **In Industry and Business:** Some ICT examples in the industry and business sector are as follows:

- Planning and control management systems
- Supply chain management
- E-commerce
- Communication
- Human resource management
- Research purpose
- Preparing and giving presentations

► **ICT Tools:** The following table lists some examples of different ICT tools along with their use in the process of ICT, i.e., information processing, storing and communicating.

Process related to the Information	ICT tools used for the process
Creation of information	Personal computer. Laptop. Tablet. Notebook computer. Digital camera. Scanner. Smartphone. etc.
Processing of Information	Calculator, PC, Smartphone
Storage of Information	Hard disk. CD, DVD, Pen drive. Microchip. Cloud storage
Display of information	PC. TV. Projector. Smartphone. Printer
Transmission of Information	Internet. Teleconference. Videoconferencing. Mobile technology. Radio
Exchange of information	E-mail. Cellphone

Practice Exercise

? Multiple

Choice Questions

- Q 1. ICT stands for**
a. Information and Communication Technology.
b. Information and Communication Telephonic.
c. Information and Communication Telecast
d. Internal Communication and Technology
- Q 2. ICT includes**
a. computer
b. Internet
c. broadcasting technologies (radio and television)
d. All of the above
- Q 3. In analog technology, information is translated into**
a. bits (0 and 1) b. electric Pulses
c. mechanical Pulses d. digits (0 to 9)
- Q 4. In digital technology, information is translated into**
a. bits (0 and 1) b. electric Pulses
c. mechanical pulses d. digits (0 to 9)
- Q 5. People use technology every day at**
a. home b. workplace
c. hospital d. All of these
- Q 6. Which of the following is not an ICT tool?**
a. Computer b. Mobile
c. Internet d. Hacking
- Q 7. Which of the following is an ICT tool?**
a. computer b. smartphone
c. Tablet d. All of these
- Q 8. ICT skills help us to**
a. communicate with others
b. boost our business
c. stay connected with friends
d. All of the above
- Q 9. Which of the following way is used to store/record information?**
a. It can be hand written on paper.
b. It can be typed using typewriter
c. It can be typed using computer
d. All of the above
- Q 10. Which of the following is not an ICT device?**
a. Tablet b. Smartphone
c. E-mail d. Laptop
- Q 11. ICT is used in workplace for**
a. making documents b. doing calculation
c. making tables d. All of these
- Q 12. ICT is used at home to**
a. stay connected with family and friends through social media networks, such as Facebook, Instagram etc.
b. talk with friends or family
c. play games
d. All of the above
- Q 13. Which of the following is not the basic ICT skills?**
a. Knowing how to operate computers.
b. Knowing how to browse the Internet
c. Knowing how to write program in Python
d. Knowing how to send or receive email
- Q 14. Which of the following task can be done through simple mobile phone?**
a. Make phone calls and receive calls only
b. Sending email
c. Airline ticket reservation
d. use social media like Facebook, Instagram etc.
- Q 15. Which of the following is operating systems for smartphones?**
a. Android b. Apple IOS
c. Windows d. All of these
- Q 16. Radio is used to broadcast**
a. audio b. video
c. image d. All of these
- Q 17. Which of the following is used to watch movies, live matches etc.?**
a. Radio b. TV
c. Both a. and b. d. None of these
- Q 18. Radio is used to**
a. hear news
b. hear songs
c. hear cricket commentary
d. All of the above
- Q 19. In which of the following, we can use/install play store apps?**
a. Radio b. Simple Mobile
c. Smartphone d. None of these
- Q 20. On the screen of a Smartphone or Tablet, we see a lot of small pictures called**
a. images b. icons
c. iconic d. pictures

? Fill in the Blanks

Type Questions

- Q 21. The term ICT incorporates the process of generating, manipulating, storing, sending, receiving the information in form.**
- Q 22. The blackboards are completely replaced by the modern**
- Q 23. Learning literacy skills, improves confidence and enthusiasm.**
- Q 24. The term ICT ideally covers any device that will store, retrieve, manipulate, transmit or receive information form.**
- Q 25. WWW stands for**

? Assertion and Reason

Type Questions

Directions (Q. Nos. 26-30): In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).
- b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation of Assertion (A).
- c. Assertion (A) is true, but Reason (R) is false.
- d. Assertion (A) is false, but Reason (R) is true.

Q 26. Assertion (A): With the help of ICT, the management of medical colleges and district hospitals can be strengthened significantly, using a centralised Hospital Management System.

Reason (R): ICT enables management of Electronic Medical Records (EMR), in a very efficient manner.

Q 27. Assertion (A): ICT systems enable organisations to store, process, analyse and share a vast amount of data.
Reason (R): In business, people look for ways to do more work in a long time. ICT services can improve a company's efficiency by automating the routine processes.

Q 28. Assertion (A): The IT department can enable employees to stay connected with the help of e-mail, videoconferencing equipment and internal chat rooms, so that they always have an efficient way to conduct business and communication.

Reason (R): ICT tools are the different digital and communication devices such as computers, smartphones, tablets, TV, radio, newspapers, etc.

Q 29. Assertion (A): A smartwatch is the best example of ICT tool, as it is a computerised wristwatch that works beyond the basic time-keeping task.

Reason (R): Some smartwatches function as portable media players, with FM radio and playback of digital audio and video files via a Bluetooth or a USB headset.

Q 30. Assertion (A): Virtual school is the term used to explain the scenario where teaching-learning process happens online without using the Internet and communications technology.

Reason (R): The term ICT incorporates the process of generating, manipulating, storing, sending and receiving the information in digital form.

Answers

- | | | | | |
|---------------------------------|--------------------|---------|---------|---------|
| 1. (a) | 2. (d) | 3. (b) | 4. (a) | 5. (d) |
| 6. (d) | 7. (d) | 8. (d) | 9. (d) | 10. (c) |
| 11. (d) | 12. (d) | 13. (c) | 14. (a) | 15. (d) |
| 16. (a) | 17. (b) | 18. (d) | 19. (c) | 20. (b) |
| 21. digital | 22. IWB | 23. ICT | | |
| 24. electronically in a digital | 25. World Wide Web | | | |
| 26. (b) | 27. (c) | 28. (b) | 29. (b) | 30. (d) |

? Case Study Based

Questions

Case Study 1

Information and Communication Technologies (ICTs) is a broader term for Information Technology (IT), which refers to all communication technologies, including the internet, wireless networks, cell phones, computers, software, middleware, video-conferencing, social networking, and other media applications and services enabling users to access, retrieve, store, transmit, and manipulate information in a digital form.

ICTs are also used to refer to the convergence of media technology such as audio-visual and telephone networks with computer networks, by means of a unified system of cabling (including signal distribution and management) or link system. However, there is no universally accepted definition of ICTs considering that the concepts, methods and tools involved in ICTs are steadily evolving on an almost daily basis.

Q 1. Which of the following is the correct full form of USB?

- a. Uniform Serial Band
- b. Universal Serial Bus
- c. Unified Serial Bus
- d. Universal Serial Bandwidth

Q 2. Flipkart and Quikr are examples of which of the following type of websites?

- a. E-commerce
- b. Search engine
- c. Social networking
- d. None of these

Q 3. What is the correct full form of WWW?

- a. World Wide Web
- b. World Web Wide
- c. Wide Web World
- d. None of these

Q 4. Which of the following is the correct full form of FM?

- a. Frequency Modulator
- b. Frequent Modulator
- c. Frequency Modulation
- d. Frequency Modulating

Answers

1. (c) 2. (a) 3. (a) 4. (c)

Case Study 2

Information and Communications Technology (ICT) is an extensional term for Information Technology (IT) that stresses the role of unified communications and the integration of telecommunications (telephone lines and wireless signals) and computers, as well as necessary enterprise software, middleware, storage and audio-visual, that enable users to access, store, transmit, understand and manipulate information.

ICT is also used to refer to the convergence of audio-visual and telephone networks with computer networks through a single cabling or link system. There are large economic incentives to merge the telephone network with the computer network system using a single unified system of cabling, signal distribution, and management. ICT is an umbrella term that includes any communication device, encompassing radio, television, cell phones, computer and network hardware, satellite systems and so on, as well as the various services and appliances with them such as video conferencing and distance learning. ICT also includes analog technology, such as paper communication, and any mode that transmits communication.

Q 1. Describe the TV as an ICT tool.

Q 2. Describe the mobile phone as an ICT tool.

Q 3. Give some features for using ICT in daily life.

Q 4. Describe what kind of machine a tab is.

Answers

1. TV or modern televisions are also a type of ICT tool because we get a wide amount of information about mass communication through the various news channels on the TV.
2. A mobile phone is an ICT tool because as the meaning of ICT, the mobile phone is a technology used for information and communication. People use this to make and receive voice calls and text messages.
3. **Some features for using ICT in daily life are as follows:**
 - (i) Paying your credit card bills online.
 - (ii) Book train and flight tickets online.
 - (iii) Book tickets to a concert by artists.
4. A tab is a short form for a computer tablet. It is almost always bigger than a mobile phone. It typically has all features of a computer. It has many applications. It would be stifling to not have communications services like Google Hangouts or Whatsapp on a tablet.

? Very Short Answer

Type Questions

Q 1. What is ICT?

Ans. The term ICT is an abbreviation of the term Information and Communications Technology. The term ICT incorporates the process of generating, manipulating, storing, sending and receiving the information in digital form.

Q 2. Write some example that come under ICT.

Ans. Personal computers, digital television, smartphones, radio, e-mail, robots, communications technologies/networks, computer networks all come under ICT.

Q 3. What do you understand by 'Cloud Computing'?

Ans. Cloud computing, also known as on-the-line computing is an emerging ICT technology. It is a kind of Internet-based computing service that provides access to data and shares processing resources, on demand. It uses the Internet and central remote servers to maintain data and application.

Q 4. How ICT is differ from Computer Science?

Ans. The term ICT differs from Computer Science as Computer Science incorporates the study of computer hardware and software whereas ICT involves the networking and telecommunications technologies, applications and devices, too.

Q 5. What is a Virtual school?

Ans. Virtual School. Online school or Cyber School is the term used to explain the scenario where teaching-learning process happens online, using the Internet and communications technology.

Q 6. Give a few examples of ICT usage in your daily life.

Ans. Online chatting, videoconferencing, watching online videos, TV channels, reading e-newspaper, e-books are some examples of the ICT services that we use in our daily life, regularly.

Q 7. What are ICT tools? Explain.

Ans. ICT tools are the different digital and communication devices such as computers, smartphones, tablets, TV, radio, newspapers, etc. Also, different computer networks, communication applications such as application used for videoconferencing, cell phone towers are considered as ICT tools.

Q 8. Write some example of ICT in Finance and Banking.

Ans. Some ICT examples in the finance and banking sector are as follows:

- (i) ATM (Automated Teller Machine)
- (ii) Online transactions such as electronic funds transfer
- (iii) Phone banking
- (iv) Pay by phone using apps such as Paypal, Paytm, etc.

? Short Answer

Type Questions

Q 1. Give a few examples of ICT in education field.

Ans. Some ICT examples in the field of education are as follows:

- (i) Use of smartboard or IWB (Interactive Work Board)
- (ii) Online teaching training courses
- (iii) E-learning material such as e-books
- (iv) Online learning apps, for example, Byju's

Q 2. Why are hybrid cars considered an example of ICT device?

Ans. The hybrid cars are also an example of an ICT device as these can either run on electricity or solar energy but apart from this difference, some of these cars are built with ICT technology that is able to sense a collision or turn the engine off when stopped. Efficiency and many other creative ideas have come from the ICT technologies.

Q 3. Give few examples of ICT tools in industry and business.

Ans. Some ICT examples in industry and business sector are as follows:

- (i) Planning and control management systems
- (ii) Supply chain management
- (iii) E-commerce
- (iv) Communication
- (v) Human Resource Management
- (vi) Research purpose
- (vii) Preparing and giving presentations
- (viii) Inventory control systems
- (ix) Attendance management systems
- (x) Billing software

Q 4. Write some benefits of ICT in the field of governance.

Ans. Some more benefits of ICT in the field of governance are as follows:

- (i) Advent of ICT has also led to e-governance, which is defined as the use of Information and Communications Technology by government sectors to enhance the range, quality of services and information provided to the citizens, in a cost effective manner.
- (ii) Using the Internet, government can interact and provide services to people in far-flung rural areas also.
- (iii) There is no need to stand in long queues for availing basic services, such as LPG gas booking, paying electricity bills, etc., as these can be done sitting with comfort in our homes, using online services provided by the government.

CHAPTER TEST

Multiple Choice Questions

Q 1. Which of the following are default apps installed on smartphones and simple mobile phones?

- a. Phone
- b. Clock
- c. Calendar
- d. All of these

Q 2. GPS stands for

- a. Global Performance System
- b. Global Positioning System
- c. Global Parallel System
- d. None of the above

Q 3. Ananya wants to go to "ABC" Mall, but she doesn't know the way. Which of the following apps help her to find the Mall?

- a. Play Store
- b. Clock
- c. Maps
- d. Web Browser

Q 4. Screen size of phone is

- a. Bigger than tablet
- b. Smaller than tablet
- c. equal to tablet
- d. None of these

Q 5. Which of the following app help to explore different website?

- a. Play Store
- b. Messages
- c. Web Browser
- d. Photos

Fill in the Blanks

Q 6. We can search online using search engines.

Q 7. uses the Internet and central remote servers to maintain data and application.

Q 8. ICT has also enabled teachers to create classes.

Assertion-Reason Type Questions

Directions (Q. Nos. 9-10): In the questions given below, there are two statements marked as Assertion (A) and Reason (R). Read the statements and choose the correct option.

- a. Both Assertion (A) and Reason (R) are true and Reason (R) is the correct explanation of Assertion (A).

b. Both Assertion (A) and Reason (R) are true, but Reason (R) is not correct explanation of Assertion (A).

c. Assertion (A) is true, but Reason (R) is false.

d. Assertion (A) is false, but Reason (R) is true.

Q 9. Assertion (A): ICT enables learning with computers and the Internet, in which the technology facilitates learning across the curriculum.

Reason (R): ICT provides easier planning and preparation of lessons and designing materials.

Q 10. Assertion (A): ICT promotes greater efficiency throughout the school as it provides a communication channel among the teachers, other staff and students.
Reason (R): Interesting visual teaching techniques does not encourage the students to learn.

Case Study Based Questions

Q 11. A smartphone is a cellular telephone with an integrated computer and other features not originally associated with telephones such as an operating system, web browsing, and the ability to run software applications. Smartphones can be used by individuals in both a consumer and a business context, and are now almost integral to everyday modern life.

A smartphone is a cell phone that allows you to do more than make phone calls and send text messages. Smartphones can browse the Internet and run software programs like a computer. Smartphones use a touch screen to allow users to interact with them. There are thousands of smartphone apps including games, personal-use, and business-use programs that all run on the phone. The picture is an example of the Apple iPhone, one of the most popular smartphones available today.

(i) How a smartphone perform so many functions?

- a. It does so, because it has a touch screen
- b. It does so, because it has a battery
- c. It does so with the help of software applications (Apps)
- d. None of the above

(ii) Those apps which are already present on the phone or tablet are called

- a. basic apps b. phone apps
- c. default apps d. common apps

(iii) Which of the following are online app store?

- a. Google Play Store b. Apple App Store
- c. Both a. and b. d. None of these

(iv) Which of the following are online app store for android?

- a. Google Play Store
- b. Apple App Store
- c. Windows App Store
- d. None of these

Q 12. Information and Communications Technology (ICT) is technology that is used to handle communications processes such as telecommunications, broadcast media, intelligent building management systems, audio-visual processing and transmission systems, and network-based control and monitoring functions.

Although ICT is often considered an extended synonym for Information Technology (IT), its scope is, in some ways, more broad. ICT

is often used to describe the convergence of several technologies, and the use of common transmission lines carrying very diverse data and communication types and formats. In some cases, ICT is also associated with delivering telecommunication services to undeserved areas, or promoting more vibrant telecommunications and IT networks and services to facilitate career development.

(i) Write benefits of ICT system at home.

(ii) Write one disadvantage of using ICT.

(iii) What is cyber bullying?

(iv) What do you mean by the term ICT literacy?

Very Short Answer Type Questions

Q 13. Write examples of ICT in the field of industry and Business.

Q 14. Discuss the role and importance of ICT.

Q 15. Write some ICT benefits in our daily life.

Short Answer Type Questions

Q 16. Write benefits of ICT in the field of Healthcare and Medicine.