

Dear Students!!

In this e-book of [12th class](#), study material of computer science is being sent to you as per new syllabus (2025-26). You can easily prepare your test / papers by reading these notes and watching the video lectures given below. Following are the links of the video lectures in blue colour. Watch these video lectures by clicking on the relevant link of chapter to have better understanding of various concepts.

**12th Class - Monthly distribution of Computer Science Syllabus & Video Lecture Links (Pbi)**

Month	Chaper & Its Name	Link of Video Lecture
April	Chapter-1 Office Automation & Typing (Explanation)	https://youtu.be/HEJpX01lwpM
	Chapter-1 Office Automation & Typing (Solution)	https://youtu.be/LwOpv8j92bo
May	Chapter -2 Control Statements (Explanation)	https://youtu.be/T6zvUn61x-k
	Chapter -2 Control Statements (Solution)	https://youtu.be/JXe2kGAJ7WY
July	Chapter -3 Computer Networks	https://youtu.be/6YULI1naDZI
Aug	Chapter -4 Current Trends in Information Technology	https://youtu.be/YHtjpOWi-ZY
Oct	Chapter -5 Artificial Intelligence & Expert System	https://youtu.be/rvn2FpS1PKQ
Nov	Chapter -6 Digitalization	https://youtu.be/galuEBdTkul
Dec	Chapter -7 E Governance (Part-2)	
Jan	Chapter -8 Image Editing & File Conversion Tools	
Feb	Chapter -9 Audio & Video Editing	

Practical Video Lectures for Chapter -2 (Control Statements)

C Language Practical -1	https://youtu.be/8hg3BJAyBqE
C Language Practical -2	https://youtu.be/v_lw8wmfIP4
C Language Practical -3	https://youtu.be/RBq--darc0I

Following is the Link of Playlist for detailed Lectures on C Programming

<https://youtube.com/playlist?list=PLja3EaJFAjmYjeAcDs0ZQdVmx7liCtg5P>

PLEASE DO NOT FORGET TO LIKE, SHARE AND SUBSCRIBE OUR YOUTUBE CHANNEL

 **YouTube** <http://youtube.com/c/computersciencepunjab>

Prepared By:

Vikas Kansal and Sukhwinder Singh

Computer Faculties, S.U.S. Govt. (G) Sen. Sec. School, Sunam Udham Singh Wala (Sangrur)

Please use the following link to download the study material/e-books/e-contents for 6th to 12th classes:

<http://cspunjab.nirmancampus.co.in/study.php>

Que:1 Multiple Choice Questions:

- _____ is word processor software.
 - MS Window
 - MS Excel
 - MS PowerPoint
 - MS Word
- To check spelling and grammar _____ key is used.
 - Ctrl+F7
 - Alt+F7
 - F7
 - Shift F7
- _____ option in Word changes the structure and layout of pages.
 - Format
 - Print and Print Preview
 - Page Setup
 - Proofing
- _____ is an electronic spread sheet software used for automated calculations.
 - MS Window
 - MS Excel
 - MS PowerPoint
 - MS Word
- _____ refers to changing the font style, size, color, bold, italic, underline and other related parameters.
 - Formatting
 - Alignment
 - Proofing
 - Filtering

Que:2 Fill in the Blanks:

- _____ and _____ Functions used to find the minimum and maximum value in a range.
- Filter option is available in _____ tab of Excel.
- If the cursor is placed at the end of the file, then _____ button is pressed to delete the text.
- Two options of orientations for page setup are _____ And _____
- _____ Symbol is used to start any formula (function) in excel calculations.

Ans: 1. MIN, MAX 2. Data 3. Backspace 4. Portrait, Landscape 5. = (Equals to)

Que:3 Write Shortcut Keys

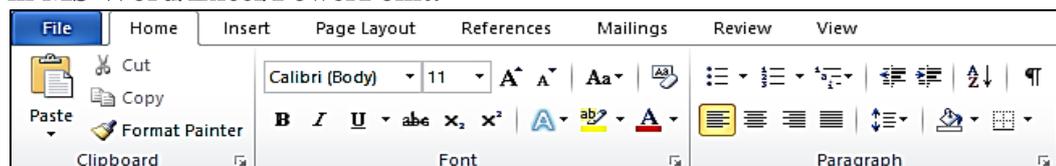
- | | |
|-----------------------------------|--------------|
| I. For copying contents | Ctrl+C |
| II. For Paste | Ctrl+V |
| III. For Bold | Ctrl+B |
| IV. For Underline | Ctrl+U |
| V. For Center Alignment | Ctrl+E |
| VI. For Justify Alignment | Ctrl+J |
| VII. For Double Line Spacing | Ctrl+Shift+D |
| VIII. For Replace | Ctrl+H |
| IX. For Printing | Ctrl+P |
| X. For Spelling and Grammer Check | F7 |

Que:4 Short Answer Type Questions.**Q:1 What is Excel?**

Ans: Microsoft Excel is a powerful electronic spread sheet program. Usually, we can use it to automate accounting work, organizing data, and for performing a wide variety of tasks. We can use it to prepare results, doing mathematical calculations and representing data in pictorial form with the help of charts.

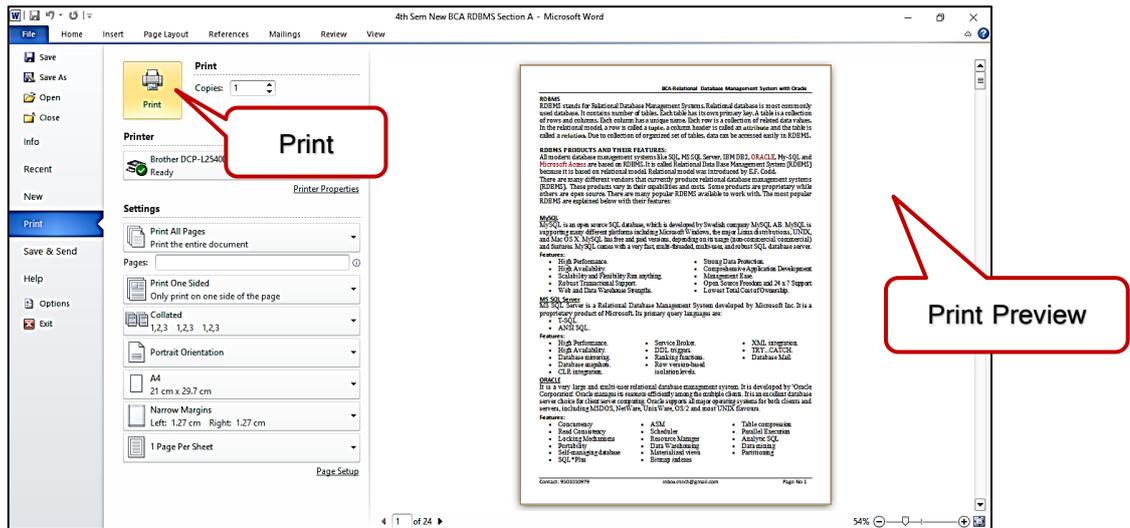
Q:2 Explain formatting in details?

Ans: Formatting refers to changing the font style, for example: increasing or decreasing the font size, performing bold, italic and underline operation on text. We can change the appearance of text and graphics with the help of formatting options. Text Formatting options are available on the Home tab in MS Word/Excel/PowerPoint.

**Q:3 Explain Print & Print Preview options.**

Ans: Print preview is a feature that displays on the screen what a hard copy would look like when printed. When we click the Print option in File menu, it automatically will show the preview of our document. It means Print Preview option is used to preview our document on the screen before

getting its hard copy while Print command is used to get the hardcopy of our document by printing it on the paper.



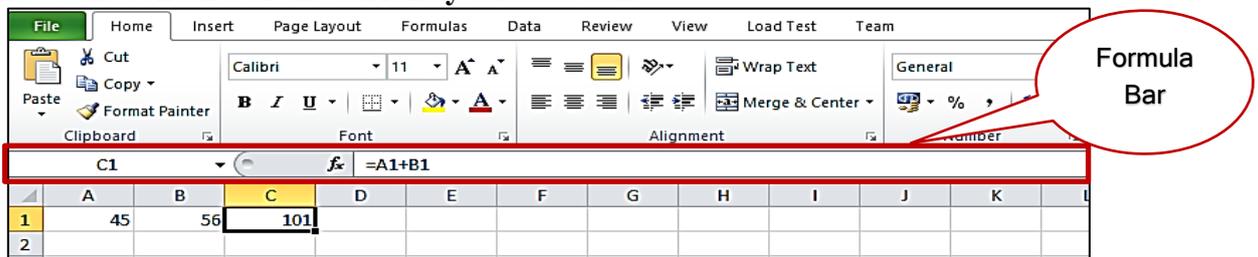
Q:4 What are formulas in MS Excel?

Ans: In MS Excel, Formulas are used to perform different types of calculations. Formulas can be used to perform different types of calculation for preparing results and fee related data. In Excel, a formula always begins with equals to (=) symbol. Usually, we use cell references in formulas along with the operators to perform calculations. Some of the examples of formulas are:

=D15+D18+D21
 =(B16+C16)*1.07

Q:5 What do you know about the formula bar in Excel?

Ans: Formula Bar is one of the most important components of MS Excel. The Formula Bar is available at the top of the Excel window, just below the ribbon area. The Formula Bar has two parts: left and right side. Left side is Name Box which shows the name or address of current selection while right side shows the contents of the currently selected cell.



Q:6 What are Margins?

Ans: A margin is the space between the contents and the edge of our document. We can set the margins at all the sides (Top, Bottom, Left, Right) of the page. By default, a new document's margins are set to Normal, which means it has a one-inch space between the contents and each edge. Word allows us to change the margin size in our document as per our requirement.

Que:5 Long Answer Type Questions.

Q:1 What are Word Processors? Explain their uses.

Ans: A word processor is an application software that is used to prepare different types of documents. MS Word and WordPad are the common examples of word processors. Common uses of Word Processors are explained below:

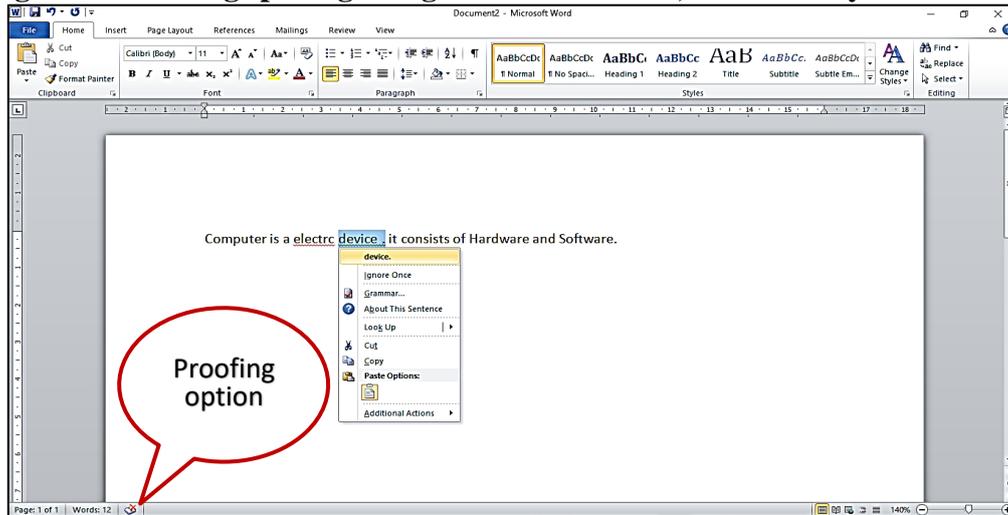
- To prepare documents, letters etc.
- To format the documents.
- To prepare letterheads for personal and business purpose.
- To design different types of documents such as resumes or invitation cards etc.



Q:2 Describe the Proofing options in MS Word?

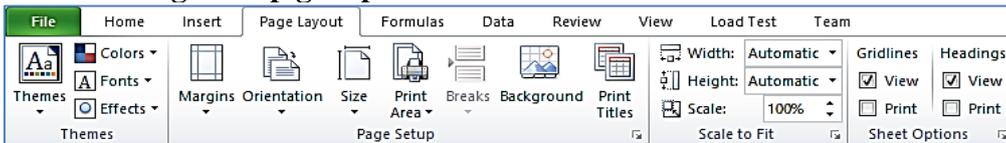
Ans: Word can also proofread our document to highlight other possible mistakes. For example: misplaced commas or correctly spelled words that may be used incorrectly etc can be highlighted using Proofing option. To make word proofread our document, Click the Proofing icon at the bottom of the document window. Following are the options that can be used for proofing:

- **Auto Correct:** This option helps us to replace a misspelled word with the correct one automatically during typing text.
- **Spelling and Grammer:** MS Word also helps us to find and correct grammer and spelling errors in our document. Word displays a **red wavy line** under the misspelt word while **green wavy line** is used to show the gramatical error in the document. A new **blue wavy line** has also been added in the new versions of word which represents the formatting inconsistency. For checking and correcting spelling and grammer mistakes, function key F7 can be used.

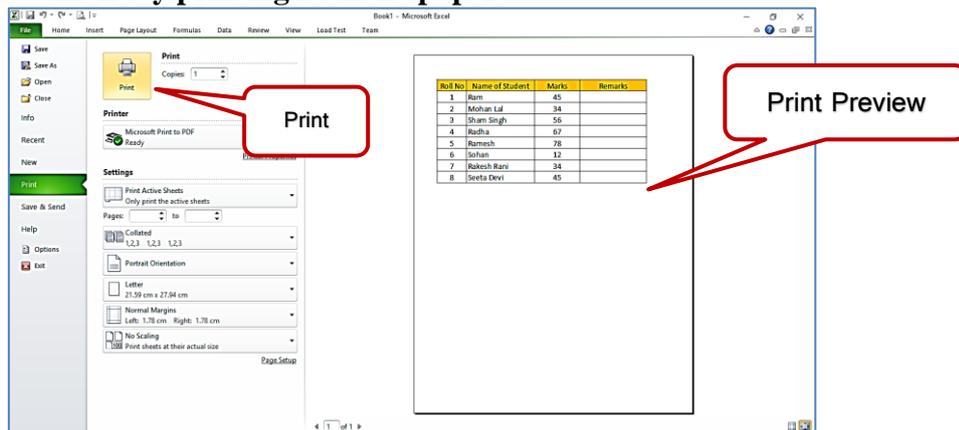


Q:3 Explain the Page Setup and Printing Options available in Excel.

Ans: **Page Setup** allows us to change the structure and layout of pages in a document. The “Page Setup” group on the “Page Layout” tab contains buttons that allow us to make changes in the page setup of document. Using these options, we can change the margins, page orientation (portrait or landscape), paper size (A4, Legal, Letter) etc. We can do these operations using the Page Setup dialog box. This dialog box can be opened by clicking on the dialog launcher icon present at the bottom-right corner of Page Setup group.



Printing options include Print Preview and Print commands. Print preview is a feature that displays on the screen what a hard copy would look like when printed. When we click on Print option in File menu, it automatically shows the preview of our document. It means Print Preview option is used to preview our document on the screen before getting its hard copy while Print command is used to get the hardcopy of our document by printing it on the paper.



Q:4 What are functions in Excel? Explain any two functions with example.

Ans: A function is a predefined formula that performs calculations using specific values in a particular order. Excel includes many common functions that can be used to quickly perform calculations, for example: SUM, AVERAGE, COUNT, MAX and MIN etc. Following is the explanation of two functions:

- **MAX:** This function is used to find the largest numeric value from a range of values. It ignores empty cells, the logical values TRUE and FALSE, and text values. Example: =MAX(A1:C1)
- **MIN:** This function is used to find the smallest numeric value from a range of values. It ignores empty cells, the logical values TRUE and FALSE, and text values. Example: =MIN(A1:C1)

Q:5 Explain the various methods of Typing?

Ans: Typing is the process of writing or inputting text by pressing keys on a typewriter, computer keyboard, cell phone, or calculator. Text can be in the form of letters, numbers and other symbols. For typing on computer system, we can use the following techniques:

- **Touch Typing:** Touch typing is a technique by which we can learn typing with all fingers, step by step, without having to look down at the keyboard. It helps us to increase our typing speed. Any typing-tutor software can be used for learning this technique.
- **Voice Typing:** In this type of typing technique, speech recognition programs are used for typing that converts spoken words into text. Voice-to-text technique was originally developed as an assistive technology for the visually impaired or handicapped persons. For typing in punjabi language, we usually use Lipikar punjabi app in mobiles.

Chapter 2nd

Control Statements

Q:1 Objective Type Multiple Choice Questions:

1. Which of the following statements is also called as conditional statement?

- a. for b. break c. if d. while

2. switch-case is similar to _____ statement

- a. if else b. if else if c. break d. goto

3. Which statement can be used to terminate a case in the switch statement?

- a. continue b. goto c. if d. break

4. Which of the following is an example of Post Test loop?

- a. for b. while c. do while d. continue

5. Which of the following is not a jumping statement?

- a. while b. continue c. goto d. break

Q:2 Fill in the Blanks:

- In _____ loops, the control conditions are tested before the body of loop
- In _____ loops, the control conditions are tested after the body of loop
- _____ statement is used to skip some statements inside the loop
- _____ is a multi-way conditional control statement
- The break statement can be used to terminate a case in the _____ statement.

Ans: 1. **Pre-Test** 2. **Post-Test** 3. **continue** 4. **Switch case** 5. **switch**

Q:3 Write True or False

- Writing if statement with-in another if is called Nested Loop.
- Control statements in C programming are used for altering the normal flow of a program.
- continue statement is sometimes desirable to skip some statements inside the loop?
- Looping statements provide a way to repeat commands?

Ans: I. **False** II. **True** III. **True** IV. **True**

Q:4 Short Answer Type Questions:

Q:1 Define Branching? Name its different control statements?

Ans: Those control statements which are used for decision making purpose or for making multi-way selection in the program are called Branching Statements. These statements choose to follow one

branch or another during execution in the program. Branching statements are of the following two types:

- Conditional Control Statements (if else)
- Multiway Conditional Control Statement (switch case)

Q:2 What is looping? Name three different types of looping statements?

Ans: Those control statements which are used to repeat a set of statements in the program are called looping statements. Looping statements are also called Iterative Statements. Following three looping statements are used in the C programming:

- for loop
- while loop
- do while loop

Q:3 What is nested if statement? Write its syntax?

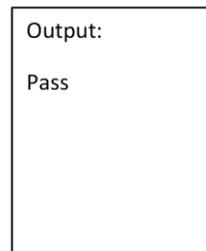
Ans: When one if statement is used within another if statement, it is known as nested if statement. Syntax of nested if statement is shown in the figure.

```
if (test_condition_1)
{
    if (test_condition_2)
    {
        statements;
    }
}
```

Q:4 What is if-else statement? Write a program of if-else statement?

Ans: if else statement is a branching statement. It is used for decision making purpose in the C programs. Following program shows the usage of if else statement:

```
#include<stdio.h>
void main()
{
    int marks=45;
    if(marks>=35)
        printf("Pass");
    else
        printf("Fail");
}
```



Q:5 What is while statement? Write its syntax?

Ans: while statement is a looping statement. It is used for repeating set of statements in the program. It is a type of pre-test loop in which test condition is tested before the execution of body of the loop. The syntax of the while statement is shown in the given figure.

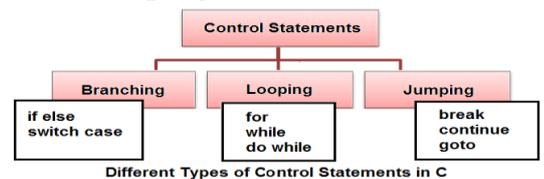
```
while (test_condition)
{
    statements;
}
```

Q:5 Long Answer Type Questions:

Q:1 What are Control Statements? Explain their types.

Ans: When a program executes line by line in the given sequence, it is called Sequential Execution of the program. We can control this execution flow in the program as per our requirements. Those statements that control the flow of execution of statements in the program are called Control Statements. These statements can be classified into following three categories:

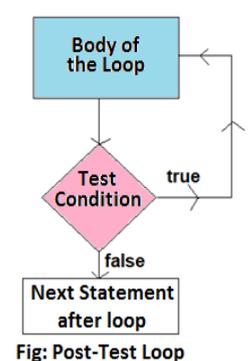
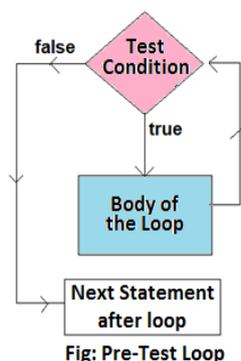
- Branching Statements (if else and switch case)
- Looping Statements (for, while and do while)
- Jumping Statements (goto, break and continue)



Q:2 What is for loop? What are the two different categories of loops?

Ans: Looping statements are also called Iterative Statements. Sometimes we face situations that require repeated execution of statements in the program. In such situations, loops help us to repeat statements in the program. Loops can be categorized into following two types:

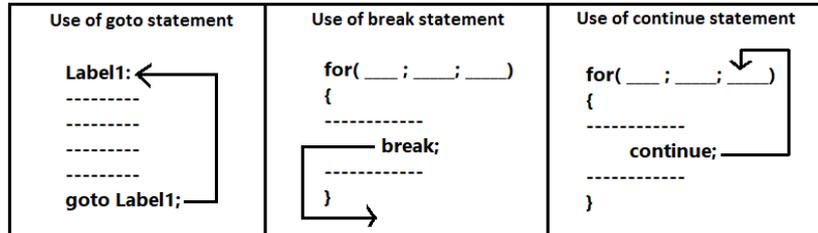
- **Pre-Test Loops:** Pre-Test loops are also called Entry-Controlled loops. In these loops, test condition is tested before the body of the loop. ‘for’ and ‘while’ loops are the examples of pre-test loops.
- **Post-Test Loops:** Post-Test loops are also called Exit-Controlled loops. In these loops, test condition is tested after the body of the loop. ‘do while’ loop is an example of post-test loop.



Q:3 What is jumping statement? Explain its types?

Ans: Jumping statements in the C programming are used to change the normal execution flow of the program. We can transfer the execution flow from one location to some other location in the program. Following jumping statements are used in the C programming:

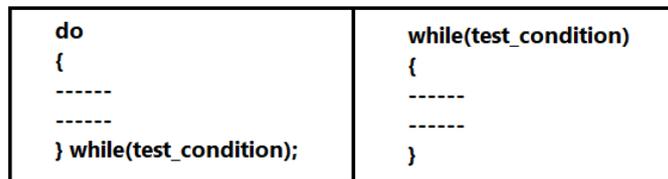
- **goto statement:** For using these statements, we have to use labels in the program. This statement transfers the execution control at the label specified after the goto statement.
- **break statement:** This statement is used to terminate the execution of a loop or switch statement and transfer the execution control immediately after the loop or switch statement.
- **continue statement:** Sometimes it is beneficial to skip statements in the loop. continue statement is used in such situations.



Q:4 What is do while loop? How it differs from while loop?

Ans: ‘do while’ loop is a post test loop. The ‘do while’ loop is the only loop which is known as the post-test loop in C programming. In ‘do while’ loop, test-condition is tested after the execution of body of the loop. In this loop, minimum number of executions for the body of the loop will be one. It is so because whenever this loop is executed for the first time, its body gets executed without executing the test-condition of the loop.

‘do while’ loop is different from the ‘while’ loop. ‘while’ loop is a pre-test loop in which test condition is tested before the execution of body of loop. The minimum number of executions for the body of the loop will be zero. It is so because whenever this loop is executed, its body can not be executed without executing the test-condition even once.



Chapter 3rd
Computer Networks

Que:1 Multiple Choice Questions:

1. A computer _____ is a set of computers that are connected together.

a. <u>Network</u>	b. System	c. Protocol	d. Internet
-------------------	-----------	-------------	-------------
2. A _____ is basically a multiport repeater.

a. <u>Hub</u>	b. Switch	c. Router	d. Bridge
---------------	-----------	-----------	-----------
3. A _____ is a 2-port device.

a. Hub	b. Switch	c. Router	d. <u>Bridge</u>
--------	-----------	-----------	------------------
4. Wi-Fi stands for _____.

a. Wireless Field	b. <u>Wireless Fidelity</u>	c. Wire Fire	d. Wire Fidelity
-------------------	-----------------------------	--------------	------------------
5. A _____ is a combination of a Bridge and a Router.

a. Switch	b. Bridge	c. Hub	d. <u>Router</u>
-----------	-----------	--------	------------------

Que:2 Write Full Forms

1. **UTP** Unshielded Twisted Pair
2. **FTP** File Transfer Protocol
3. **SMTP** Simple Mail Transfer Protocol
4. **POP** Post Office Protocol
5. **HTTP** HyperText Transfer Protocol
6. **MAC** Media Access Control

Que:3 Fill in the blanks:

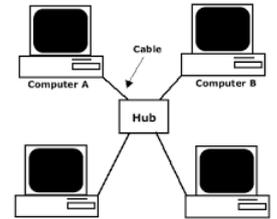
- I. There are total _____ layers in the OSI Model
- II. _____ layer of OSI model manages device addressing.
- III. In _____ media, data is transmitted using cables.
- IV. Bluetooth is an example of _____ media.
- V. In _____ communication mode, data communication is unidirectional.

Ans: I. Seven (7) II. Network III. Guided IV. Unguided V. Simplex

Que:4 Short Answer Type Questions.

Q:1 What is a Network?

Ans: Networks are the base of communication in Information Technology. A Computer Network is a set of two or more computers which are connected with each other using some communication media. This communication media can be either guided or unguided. Computer networks are used to share information, for communication or to perform some other tasks.



Q:2 Write the different types of OSI layers.

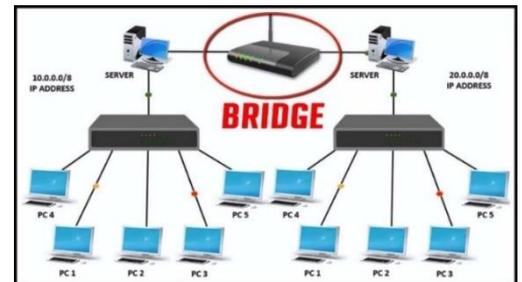
Ans: OSI stands for Open System Interconnection. ISO develops a 7 layered model for communication between computer systems in a network. Each layer performs its designated function.

These 7 layers are:

1. Application Layer
2. Presentation Layer
3. Session Layer
4. Transport Layer
5. Network Layer
6. Data Link Layer
7. Physical Layer

Q:3 What is a Bridge?

Ans: Bridge is a network device. This device is used to connect two different ethernet networks. This device uses MAC addresses to forward data packets in a network. It only forwards packets from one network to another concerned network. This device has only one input port and only one output port. Hence this device is also called 2-port device.



Q:4 Why do we need a network?

Ans: Following are some of the important reasons why we need a network:

- To Communicate information (using email, video, instant messaging).
- To share different types of hardware devices (such as printers, modems, etc.).
- To share files.
- To share software and operating systems available on remote systems.
- For network users so that they can easily access and manage information.

Q:5 What is guided media?

Ans: Guided media is a type of transmission media. Using this media, data is transferred using cable wires. This media transfers data through a particular fixed path. Examples of commonly used guided media are:

- Twisted pair cable
- Co-axial cable
- Optical fiber cable

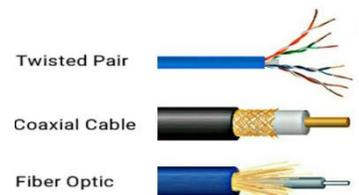


Fig: Guided Media

Q:6 What is un-guided media?

Ans: Unguided media is also a type of transmission media. Using this media, data is transferred through air without using cable wires. This type of communication is often referred to as wireless communication. In this media, data transfer can take place in any direction instead of a fixed path.

Examples of commonly used unguided media are:

- Infrared
- Wi-Fi
- Microwaves
- Bluetooth
- Radio waves
- Satellites

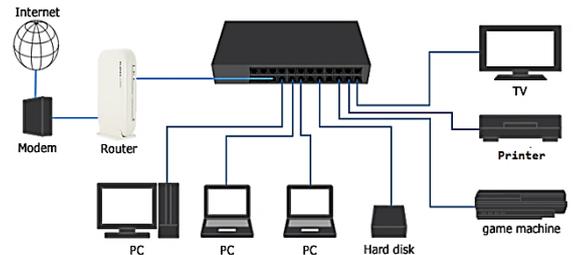
Q:7 Define Protocol.

Ans: Network protocols are a set of rules. These rules control the exchange of information in an easy, reliable and secure way. Any kind of data transfer over the network or the Internet is possible only with the help of these protocols. TCP/IP, FTP, SMTP, HTTP, etc. are examples of some commonly used network protocols.

Que:4 Long Answer Type Questions.**Q:1 What are network devices? Describe any three network devices.**

Ans: Network device refers to the hardware devices that are used to build a network. Different types of network devices are used for different types of networks, such as: switches, hubs, routers, bridges, gateways, brouters, etc. Following is the description of some of the major network devices:

- **SWITCH:** This device connects the various devices in a network, such as computers, printers, routers, or other switches, so that these devices can communicate with each other.
- **ROUTER:** This device is used to connect our network to the Internet. It is a switch-like device that sends data packets to the network based on its IP address.
- **BRIDGE:** This device is used to connect two different Ethernet (LANs) networks. It uses the MAC address to forward data packets to the network. This device has only one input port and only one output port. That is why it is also called 2-port device.

**Q:2 What is Unguided Media? Explain any two media.**

Ans: Unguided media is a type of transmission media. Using this media, data is transferred through air without using cable wires. This type of communication is often referred to as wireless communication. In this media, data transfer can take place in any direction instead of a fixed path. Bluetooth, WiFi, Radio Waves, Satellites etc. are the examples of Unguided Media.

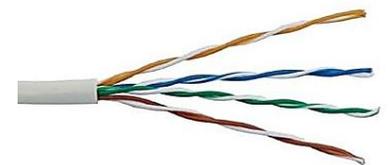
- **WiFi:** Full Form of WiFi is Wireless Fidelity. It is a popular wireless networking technology. Using this technology, we can exchange wireless information between two or more devices connected to the same network.
- **Bluetooth:** It is a kind of radio communication technology. It enables short-distance wireless networking between phones, computers and other networking devices. The process used to connect two Bluetooth devices is called "pairing".

Q:3 What is a Twisted Pair Cable? Define its advantages and disadvantages.

Ans: Twisted pair cable is a guided transmission media. It is used to transmit data across a network. This cable consists of two different insulated copper wires, which are twisted together. The first wire is used for data transfer and the second wire is used for grounding (earthing). The wires are twisted together to reduce cross-talk.

Advantages of Twisted Pair Cable:

- These cables can be used for both analog and digital broadcasting.
- These cables are cheap for short distances.
- If any part of the network is damaged, the entire network is not down.

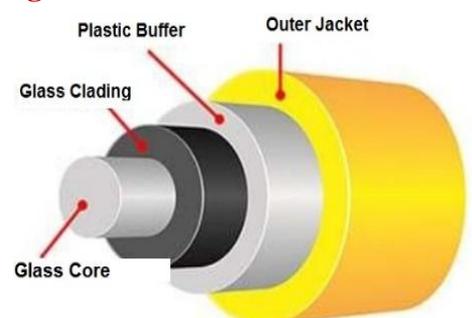
**Disadvantages of Twisted Pair Cable:**

- The signal cannot travel over the long distances without the use of repeaters.
- These wires are very thin and break easily.

Q:4 What is Fibre Optic Cable? Define its advantages and disadvantages.

Ans: Optical fiber cable is a guided transmission media. It is used to transmit data across a network. It transfers digital data signals in the form of light. This cable is made up of many thin flexible optical fibers. Each fiber is made up of three layers:

- **Core:** It is made up of high-quality silica glass or plastic.
- **Cladding:** It is also made up of high-quality silica glass or plastic.
- **Buffer:** It is an outer protective cover made of plastic.



Advantages of optical fiber:

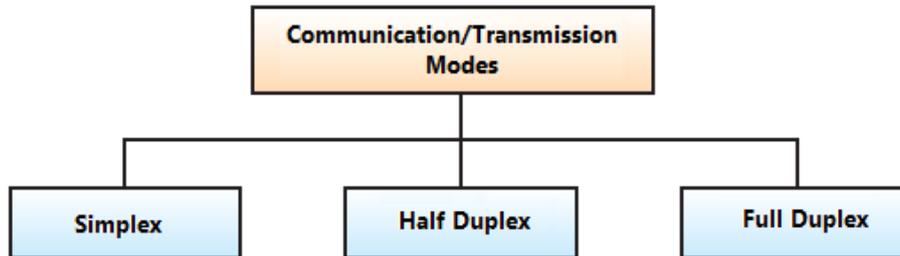
- It is suitable for industrial and noisy areas.
- Its data transfer rate is very high.
- It can be used to transfer data over hundreds of miles.

Disadvantages of optical fiber:

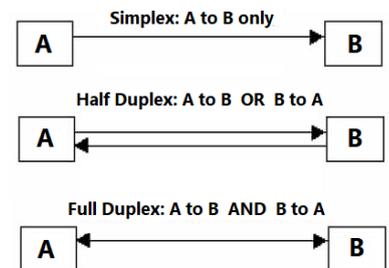
- Optical fiber cables are expensive.
- These wires are not easy to use.

Q:5 What is Communication Mode? Define its types in detail.

Ans: Communication mode is also known as transmission mode. Transmission mode is the process of transferring data or information between two devices connected within a network. There are three types of communication modes:



- **Simplex mode:** In this mode of communication, the communication is unidirectional. Only one of the devices in this mode can send a signal and the other can only receive a signal. For example: Communication between keyboard and computer.
- **Half-duplex mode:** In this communication mode, the flow of communication can be in both directions, but only one device is capable of communicating at a time. For example: In a walkie-talkie, sender speaks on one side and the receiver on the other side listens and then after a pause, another speaks and the first person listens.
- **Full duplex mode:** Even in full duplex mode, the flow of communication is in both directions, but communication is possible in both directions at the same time. This is the fastest mode of communication between devices. For example: Communication between two people using mobile phones.



Chapter 4th

Current Trends in Information Technology

Que1: Multiple Choice Questions

1. Information Technology (IT) is an area under which computers or other physical devices (hardware, software) are used to create, _____, secure and exchange electronic data.

- a. Access b. process c. define d. save

2. With the introduction of online education services, students can learn from anywhere using the _____.

- a. Internet b. electricity c. 5G Technology d. email

3. Android operating system is a _____ operating system.

- a. Computer b. Mobile c. Technology d. Virtual reality

4. Cloud computing is a kind of _____ based computing.

- a. Big-data b. IoT c. Internet d. Bluetooth

Que:2 Write the Full form of following

1. **Wi-Fi** : Wireless Fidelity
2. **VR** : Virtual reality
3. **IoT** : Internet of Things
4. **IT** : Information Technology
5. **GPS** : Global Positioning System

Que:3 Fill in the blanks

- I. _____ is a technology that uses radio waves for wire-less high speed internet and network-coinnctions.
- II. _____ means experiencing things through our computer that do not really exists.
- III. M.Commerce is also known as _____ Commerce
- IV. _____ storage is a way of saving digital things online.

Ans: I. WiFi II. Virtual Reality III. Mobile IV. Cloud

Que:4 Short Answer Type Questions.

Q:1 What is Information Technology?

Ans: Information technology is a technology in which computers or other devices are used to create, process, store and exchange electronic data. Information technology is such a field of any organization or business that does all the operations related to computers and technology.

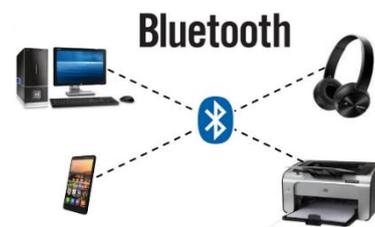
Q:2 Give name of any four current trends in Information Technology.

Ans: Following are the names of current major trends in information technology:

- WiFi technology
- Bluetooth technology
- E-commerce
- GPS technology
- Android technology
- Internet of Things (IoT)

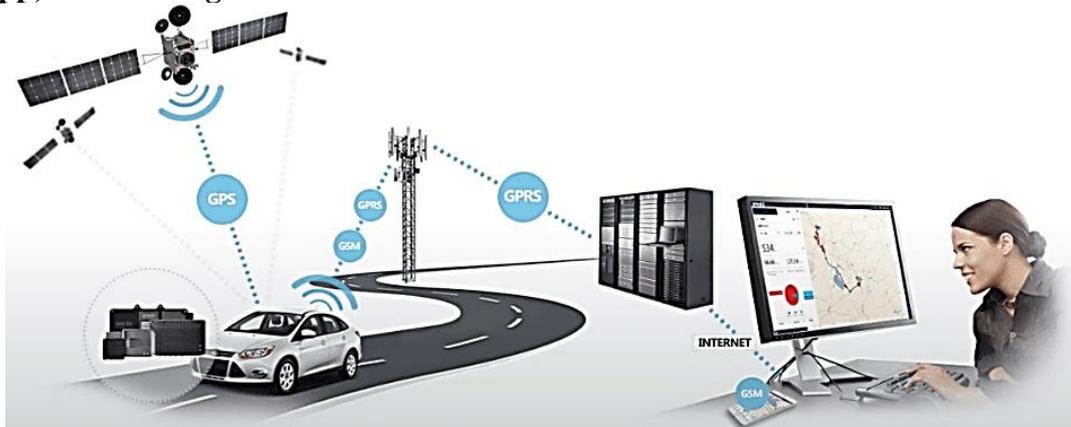
Q:3 Define Bluetooth Technology.

Ans: Bluetooth is a type of radio communication technology that allows all types of media files to be sent or received wirelessly. It enables short-distance wireless networking between phones, computers and other devices. The process used to connect two Bluetooth devices is called "pairing".



Q:4 Define GPS Technology.

Ans: The full name of GPS is Global Positioning System. GPS is available in every smartphone today. GPS is used to find the geographical location of any place. It is a global navigation satellite system. We can use it to find the distance or route between two places. When we send our live location to someone on WhatsApp, we are using GPS.



Q:5 What do you know about E-Commerce?

Ans: E-commerce stands for Electronic Commerce. It is also known as Internet Commerce. It is a way of doing business using the internet. With the use of this technology, buying or selling of goods and services is possible through the Internet. In this technology, two or more parties exchange data and money electronically. Examples of E-Commerce websites are Amazon, Flipkart etc.

Q:6 Define 5G technology.

Ans: 5G technology means 5th generation technology. 5G is the next generation of wireless technology. This technology is much better than 2G, 3G and 4G technologies. The 5G technology based mobile networks will connect people as well as connect and control machines and devices. In 5G technology, the speed of internet can be 100 times faster than 4G technology. Its internet speed will be more than 20 Gbps so that large amount of data can be easily downloaded and uploaded within a very short time span.

Que:4 Long Answer Type Questions.

Q:1 What is Information Technology? Describe the various applications of Information Technology?

Ans: Information technology is used in every field of human life. Here is a description of some of the application areas of information technology:

- **Business:** Information technology is used in business to run it smoothly.
- **Online education:** In online education, students can get education from anywhere by using internet.
- **Health:** Information technology has greatly improved the field of health. Information technology is used to manage lab test results, patient records, etc.
- **Transportation:** In the field of transportation, information technology is used for various purposes, such as: booking railways and airplane tickets from home, availability of seats, travel time, etc.
- **Telecommunications:** Information technology has opened the door to new telecommunication services, such as: exchanging information via email, video conferencing etc,
- **Entertainment:** The computer has become an important tool for watching movies, listening music and playing games etc.



Q:2 Describe Android Technology with its advantages.

Ans: Android is an operating system. It is used for mobile devices. It was developed by the Open Handset Alliance and later supported by Google. It was later used for touch screen devices, cellphones and tablets.

Benefits of Android:

- It is compatible with different platforms, such as Windows, Linux operating system, etc.
- It supports different media, such as: MP3, MP4 etc.
- It supports various technologies, such as: Camera, Bluetooth, Wi-Fi etc.
- It supports multi-tasking.
- It can be used easily.

Q:3 Describe Internet of Things (IoT) with its advantages

Ans: The Internet of Things or (IoT) is a new technology that focuses on making human life more comfortable. The Internet of Things (IoT) is a cyber physical system that uses sensors to collect data from the physical world. It is a network of interconnected digital devices and objects. The Internet of Things (IoT) aims to connect everyday devices, such as ACs, refrigerators, TVs etc. to the Internet.

Some of the benefits of the Internet of Things (IoT):

- IoT devices work automatically so it makes human work easier.
- All devices are more secure as they are automatic and technical.
- They definitely save a lot of human time due to high mechanical processing.
- We and our home appliances - cameras etc. stay connected to each other through this technology.
- Our home appliances can be turned on and off automatically, which helps in efficient use of electricity and energy.

Chapter 5th

Artificial Intelligence and Expert System

Que1: Multiple Choice Questions

1. Who brought the concept of AI?

- a) Victor Allis b) Marvin Minsky c) Alan Turing **d) John McCarthy**

2. Which type of AI focuses on single set of abilities & performs a particular task?

- a) Super AI **b) Narrow AI** c) General AI d) None of these.

3. Which one of AI type does not have memory for data storage

- a) Limited Memory **b) Reactive machines** c) Things of Mind d) Self Awareness

4. The core of the expert system which by applying set of rules and draw the results of the user question is the function of

- a) Inference engine** b) Knowledge base c) User Interface d) None of these

5. Place where knowledge from the human expert is collected

- a) Domain expert **b) Knowledge Base** c) User d) All of these

6. Robots which provides help for analyzing the collected data are

- a) Healthcare robots b) Domestic robots c) Military robots d) Research robots

Que:2 Fill in the Blanks:

- Artificial Intelligence is divided into two types _____ and _____
- _____ is a chess playing computer developed by IBM.
- _____ is a good example of narrow artificial intelligence.
- _____ machine have no memory.
- MYCIN and _____ are examples of earlier expert systems.
- _____ Generation Robots are smart as humans.

- Ans:** 1. Type-1, Type-2 2. Deep Blue 3. Apple Siri
 4. Reactive 5. Dyndral 6. Fourth

Que:3 Write the Full form of following:

- AI** Artificial Intelligence
- GAI** General Artificial Intelligence
- NLP** Natural Language Processing
- SAI** Strong Artificial Intelligence

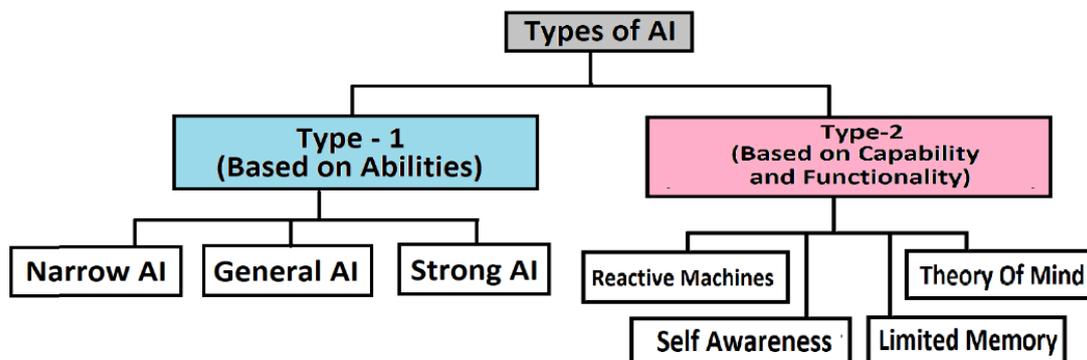
Que:4 Short Answer Type Questions

Q:1 What is artificial intelligence?

Ans: Artificial Intelligence (AI) means the artificial development of intellectual ability. AI is a branch of computer science that enables machines to work as intelligently as humans. Artificial intelligence develops smart machines to make human life easier and more comfortable. Some examples of Artificial Intelligence (AI) are: robots, smart cars, drone systems, Alexa, etc.

Q:2 What are the types and subtypes of AI? Depict them with the help of diagram.

Ans: The following diagram shows types and subtypes of Artificial Intelligence:



Q:3 What do you mean by expert systems? Give examples of expert systems.

Ans: Expert systems are computer software. These softwares fall under the category of Artificial Intelligence which is a branch of computer science. These softwares are primarily developed using AI technology. Such software systems have specialized knowledge of a particular field, subject or skill. Here are some examples of expert systems:

- **DENDRAL:** This is an expert system for chemical analysis.
- **MYCIN:** This expert system specializes in the treatment of blood infections.

Q:4 What is the difference between human system and expert system?

Ans: The differences between the human system and the expert system are as follows:

Human System	Expert System
1. Its capacity decreases with time.	1. Its capacity is permanent.
2. Human outcomes cannot be predicted.	2. The results obtained from these are consistent.
3. They are difficult to transfer.	3. They can be easily transferred.
4. Human experts are expensive.	4. It is a cheaper alternative than a human being.

Q:5 Summarize about some computer languages used in the field of AI?

Ans: Computer Languages used to develop Artificial Intelligence are as follows:

1. **PYTHON:** This language is widely used in the field of Artificial Intelligence.
2. **LISP:** LISP is a very old language for the development of AI. It was developed in 1958 by John McCarthy, the father of AI.
3. **PROLOG:** This language is used to work on medical projects and is also used extensively to develop Expert Systems.
4. **JAVA:** Java can also be considered as a good option for the development of AI.
5. **R:** This language is a good choice for statistical analysis.

Que:5 Long Answer Type Questions.

Q:1 What are the applications of artificial intelligence?

Ans: The major application areas of artificial intelligence are described below:

1. AI is used to build Intrusion Detection Systems. For example, a firewall program in the operating system that automatically blocks unauthorized websites.
2. AI is used in the Gaming field. In particular, it plays an important role in strategic games such as chess, tic-tac-toe.
3. AI plays an important role in systems that process Natural Languages. For example: human interactive computer systems that can understand and process human language.
4. AI is used to create Vision Systems. These systems are able to understand and analyze the visual input on the computer. Example: Spy Drones
5. AI is used in building Expert Systems.
6. AI is used to make Intelligent Robots.
7. AI is used in building Machine Learning Systems.

Q:2 What is the importance of AI?

Ans: There are many areas of importance for artificial intelligence. Here is a brief description of some of these key areas:

1. **Game Playing:** AI plays an important role in strategic games like Chess, Poker, Tic-Tac-Toe etc. For example: Deep Blue machine developed by IBM for playing the game of chess.
2. **Voice recognition:** AI technology recognizing words spoken by the user and convert them into the text or perform some operations. It is also called Speech Recognition System. For example: Apple's Siri software also provides voice recognition and answers to questions asked by users.
3. **Understanding Natural Language:** AI is used to understand and analyze natural languages (Punjabi, Hindi, English etc.). The main function of natural language processing is to translate, analyze grammar, etc. For example: Dragon Dictation, Voice Text Messaging, Alexa etc.
4. **Computer Vision and Analysis:** AI plays an important role in computer vision. This system automatically gathers and provides information from pictures and patterns. For Example: Spy Drones

Q:3 What are the Pros and Cons of Artificial Intelligence?

Ans: The advantages and disadvantages of artificial intelligence are described below:

Benefits of Artificial Intelligence:

1. AI-based systems increase performance. These systems perform complex tasks without errors.
2. AI based systems can work for a long time without having rest. These systems are not as sick as human beings and do not take leave.
3. Machines are emotionless so emotional interruptions cannot stop machines or robots to work.
4. There is no possibility of error in the operation of these systems.
5. These systems can operate in hazardous areas where human life is in danger, such as: work in deep mines, work in space, etc.

Disadvantages of Artificial Intelligence:

1. There is no sympathy in machines.
2. Excessive use of these systems will increase unemployment.
3. If these systems break down, important data stored in them will also be lost.
4. These systems can be misused if they fall into the wrong hands.

Q:4 Discuss the characteristics of expert systems?

Ans: Following are some of the important characteristics of Expert System:

- **Expertise:** Expert systems specialize in a specific area. For example, the MYCIN Expert System specializes in the treatment of blood infections.
- **Quick Reaction Time:** Expert Systems provide quick answers to the questions being asked from them.
- **Reliability:** No mistakes are made by the expert system, so they are trustworthy.
- **Decision Quality:** Expert systems are capable of making high quality decisions.
- **Consistent:** Expert systems always give same answer for the same questions.
- **Low cost:** It reduces the cost of consulting a specialist for various areas such as: medical examination.
- **Successful Model of Artificial Intelligence:** Expert System is a successful model of Artificial Intelligence.

Chapter 6th Digitization

Que:1 Multiple Choice Questions:

1. _____ is the process to convert information into computer readable form.
a) E-learning b) E-commerce **c) Digitization** d) Net Banking
2. _____ is meant to be online buying and selling of goods.
a) E-commerce b) Digi Locker c) Digital Payment d) None of these
3. Easiest and convenient way for cashless payment is _____.
a) Digitization b) Storage c) Offline **d) Digital Payment**
4. _____ stores only those educational certificates, issued by educational institutes through digital mode.
a) SWAYAM **b) NAD** c) MOOCs d) DigiLocker
5. _____ is a type of e-commerce which involves company and customer.
a) B2B **b) B2C** c) C2C d) None of these

Que:2 Write the full forms:

- | | | | |
|----------|---|---------|------------------------------|
| I. B2B | Business to Business | IV. NAD | National Academic Depository |
| II. B2C | Business to Consumer | V. UPI | Unified Payment Interface |
| III. C2C | Customer to Customer OR
Consumer to Consumer | | |

Que:3 Short Answer Type Questions.

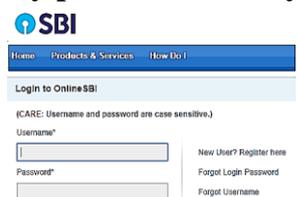
Q:1 What is digitization?

Ans: Digitization means the process of converting information into digital medium. Converting information to a digital medium means converting information into a computer readable and manageable form. In digital media, information is stored in bits. Nowadays pictures, documents, audio, video, etc. can be converted to digital medium with the help of various devices. Examples of digitization are land records, Aadhaar cards, e-books etc.

Q:2 Describe Net Banking.

Ans: Net-banking is also called internet-banking. Using Net Banking, we can easily perform a variety of banking activities from home at any time, such as:

- View our bank account statement
- Make a variety of online payments
- Pay bills
- Transfer money to other accounts, etc.



Q:3 What do you mean by E-Commerce.

Ans: E-commerce stands for Electronic Commerce. It is also known as Internet Commerce. It is a way of doing business using the internet. With the use of this technology, buying or selling of goods and services is possible through the Internet. In this technology, two or more parties exchange data and money electronically. Examples of E-Commerce websites are Amazon, Flipkart etc.

Q:4 Name types of E-Commerce.

Ans: Following are the names of types of e-commerce:

- | | |
|-------------------------------|-------------------------------|
| 1. Business to Business (B2B) | 3. Consumer to Consumer (C2C) |
| 2. Business to Consumer (B2C) | 4. Consumer to Business (C2B) |

Q:5 Write down the benefits of online payment.

Ans: The main benefits of online payment are as follows:

1. Online payment is a very easy and convenient way to transact money.
2. With this facility, there is no need to keep more cash in our pocket.
3. Due to online payment, we can easily make money transactions anytime and anywhere.
4. There are various concessions offered by the government on digital payments to promote digital payments. This returns a small percentage of what we have paid back to our account.

Q:6 Describe Digi Locker.

Ans: DIGILOCKER is a secure way to store all our important documents online. We need to register online to store documents on Digilocker. Our account is linked to Aadhaar card during registration. This account provides 1GB of cloud storage to the person concerned. In Digilocker, we can store other documents besides educational documents like Aadhaar card, driving license etc.

Q:7 What is e-learning?

Ans: E-learning is also called Electronic-Learning or Online Learning or Online Education. E-learning means getting online education. It is an easy and comfortable way to get an education. Using this learning method, we can study online courses from home. The exam is also given online. After passing the examination, the certificate can also be downloaded from the website of the concerned institution. Course related materials like e-books, video or audio lectures etc. are also provided online by the concerned institute. MOOCs, SWAYAM, SWAYAM-PRABHA, PSEB E-BOOKS etc. are some of the important popular e-learning tools.

Q:8 What is digital or online payment?

Ans: Online payments are also called Digital Payments or E-Payments or Electronic Payments. This is an easy and fast way to make cashless payments. Both the payer and the receiver use digital media. Money transfer, purchase of goods, payment of bills, etc. can be done easily through digital payment. Credit-card, debit-card, e-wallet, net-banking, Bhim app etc. can be used for online payment.

Que:4 Long Answer Type Questions.**Q:1 Write down the types of e-commerce in detail.**

Ans: E-commerce can be divided into four main types:

- **Business to Business (B2B):** In this type of e-commerce, different companies do their business with each other. This type of e-commerce involves only manufacturers, wholesalers and retailers.
- **Business to Consumer (B2C):** It includes companies and consumers. Through this model of e-commerce, companies provide their products and services directly to their consumers. Examples: Amazon, Flipkart, eBay etc.
- **Consumer to Consumer (C2C):** In this type of e-commerce, Consumers are in direct contact with each other and no company is involved. In this model, people can sell and buy their personal belongings to each other. It is usually used by people to sell their surplus or second-hand goods. For example: OLX, Quikr etc.
- **Consumer to Business (C2B):** In this type of e-commerce, consumer provides his goods or services to the company. Example: An individual develops his own software and sells it to a company.

**Q:2 Write down the advantages and disadvantages of e-commerce.**

Ans: The advantages and disadvantages of e-commerce are described as follows:

Benefits of e-commerce:

1. E-commerce companies can provide their goods or services anywhere in the world.
2. E-commerce saves a lot of money as we can buy directly from the manufacturing company, which eliminates many taxes and additional costs. This is how we get the product at a lower price.
3. Purchased goods are delivered to the consumer in the shortest possible time by the companies directly to the address given by the consumer.
4. Shopping can be done at any time through e-commerce. Business never stops here.

5. From the long list of items on e-commerce websites, we can select any item to purchase very easily.

Disadvantages of e-commerce:

1. Items purchased through e-commerce are not immediately received by the customer, as it takes a few days for the e-commerce company to deliver the goods to the customer's given address.
2. The quality of the item purchased through e-commerce is known to the customer when he receives the item.
3. E-commerce websites store important customer details and information. If this information is obtained by an unauthorized person, the customer may suffer heavy financial or personal loss.

Q:3 Give brief note on various digital or online payment modes.

Ans: There are many ways to pay online. Here is a description of some of the major online payment methods:

1. **Credit Cards:** This is a plastic card issued by banks to their customers. When the customer makes a purchase using this card, the concerned bank pays for that purchase. The customer has to repay the payment made by the bank within the stipulated time.
2. **Debit Cards:** Like a credit card, it is a plastic card. When a customer pays by debit card, the payment amount is immediately deducted from the amount deposited in the customer's account.
3. **E-Wallets:** This method of payment uses digital payment apps. These apps store the customer's credit, debit card or bank account information so that payments can be made easily. Paytm, JioMoney, Google Pay etc. are some of the major e-wallet apps.
4. **Net Banking:** Net-banking is also called internet-banking. Using Net Banking, we can easily perform various banking related activities at any time from home. It also allows us to make different types of online payments.
5. **BHIM App (Bharat Interface for Money):** BHIM is a mobile app. It's an easy and fast way of payment. Payment is made by using the UPI ID of the person concerned or by scanning the QR Code.

Chapter 7th

E Governance (Part-II)

Que:1 Multiple Choice Questions:

1. The online service of government is called-

- a) Public welfare services b) democracy services **c) E-governance** d) internet services

2. G2C Stands for –

- a) Government to employee **b) Government to citizens**
 c) Government to business man d) Government to government

3. The modern form of E-Governance services is:

- a) E-Business b) E-Commerce c) E-Services **d) Smart governance**

4. How many digits are there in Aadhar card number?

- a) 14 **b) 12** c) 16 d) 10

5. Which one is the part of information system?

- a) Database and procedures b) network c) Hardware and software **d) All of these**

Que:2 Fill in the blanks:

1. The services and facilities of E-governance is divided into _____ parts.
2. _____ gives a unique identity to Indian citizens.
3. In Punjab at village level _____ Gives E-Governance services.
4. _____ is used to solve difficult problems.
5. Smart cards are symbol of _____

Ans: 1. Three 2. Aadhar number 3. Suvidha Centers 4. Expert System 5. Smart Governance

Que:3 Write Full forms:

- | | | | |
|-----------------|--|----------------|-------------------------------|
| I. UIDAI | Unique Identification Authority of India | IV. MIS | Management Information System |
| II. G2G | Government to Government | V. DSS | Decision Support System |
| III. G2E | Government to Employee | | |

Que:4 Short Answer Type Questions.**Q:1 What are the three levels of E-governance? Give detail.**

Ans: The different levels of E-Governance system are as under:

1. National Level
2. Domestic Level / State Level
3. International Level

Q:2 In brief describe Smart Governance?

Ans: The modern name of e-governance is Smart Governance. 'Smart' means attractive and governance means to govern. In simple words, the use of new technology for better planning and better decision making in a democratic system is called smart governance. It deals with ways to improve democratic processes and provide better public services through the use of technology.

Q:3 Write down any four uses of Aadhaar card?

Ans: Here are some key uses of Aadhaar Card:

- i. To open a bank account.
- ii. To get gas connection and subsidy.
- iii. To get a mobile SIM card or telephone connection.
- iv. To avail various welfare schemes.
- v. As a unique identification document.

Q:4 What are the different parts of information system?

Ans: The components of an information system are as follows:

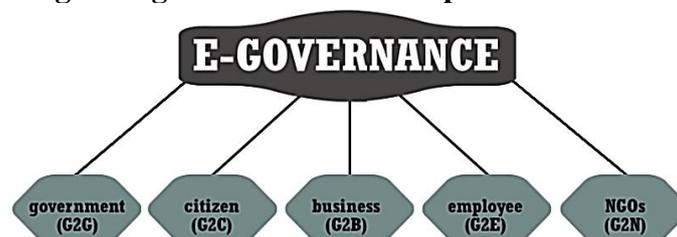
- **Hardware:** This component monitors, CPUs, keyboards, mice, printers, hard disks etc.
- **Software:** This component includes all programs that process data using hardware.
- **Database:** This component is used to store data.
- **Network:** This part is used to share resources, information and data.
- **Procedure:** This component includes the methods and processes to obtain information from data.

Q:5 What is the Sewa/Suvidha Kendra? Describe.

Ans: The government has opened many help-desks at different levels (districts, tehsils, blocks, cities, villages) to provide e-services and facilities through e-governance. These support centers are called Sarva Sewa Kendras or Sewa Kendras. These centers provide various e-services to the citizens, such as: issuance of residence certificate, caste certificate, birth-death certificate, etc.

**Que:5 Long Answer Type Questions****Q:1 What do you mean by E-Governance? Define its working system?**

Ans: E-Governance is a functional system in which governments, citizens and organizations participate in the online facilities and services. All of them perform their activities using the internet in different ways. The workings of e-governance can be explained under the following sections:



1. **G2G (Government to Government):** This type of e-governance includes online services in which the Central Government and the State Governments share data and information with each other.
2. **G2C (Government to Citizen):** In this form of e-governance, the government provides services and facilities to its citizens. These services are free or provided at very low cost. Such as: online payment of bills, online payment of income tax etc.
3. **G2B (Government to Business):** This type of e-governance provides services and facilities to businesses by the government. For example: online services related to online sales, purchase of goods, taxes on goods and subsidies etc.

- G2E (Government to Employee):** In this form of e-governance, the government provides services and facilities to its employees. Such as: online services for pay-bills of employees, maintenance of their service records, departmental transfers etc. For example: iHRMS
- G2N (Government to NGOs) / Government to NGOs:** In this type of e-governance, services and facilities are provided by the government to NGOs. For example: Online registration of NGOs or societies etc.

Q:2 What are the benefits and limitations of E-Governance?

Ans: The advantages and disadvantages of e-governance are as follows:

Benefits of e-Governance:

- People can easily get e-governance services online or at their nearest Service or Suvidha Kendras.
- With the advent of e-governance, government work has also accelerated.
- E-Governance reduces the cost of documentation.
- e-Governance has created a transparent environment in the working style of all offices.
- The concerned officer or employee is liable for any delay in work.

Disadvantages of e-Governance:

- Uneducated or technically ignorant people cannot avail these services properly.
- We must have Internet access to use these services.
- Opening a service center in every village is an expensive task.
- The Internet cannot be considered completely secure.

Q:3 What is Aadhar card? Describe its characteristics?

Ans: Aadhaar is a unique 12-digit identification card number. This number is issued to Indian citizens by UIDAI (Unique Identification Authority of India). No two people in India can have the same Aadhaar number. Basic characteristics of aadhar card are as follows:



- Unique Identity:** Aadhaar provides a unique identity to every Indian citizen.
- Residential document:** The complete residential address of the person concerned is printed on it.
- No expiration date:** There is no expiration date of Aadhaar card.
- Identity Proof:** Since the Aadhaar card contains personal and biometric information of the person, it can be used as proof of identity.
- Online Authentication:** Nowadays authentication is done only through Aadhaar card number for various types of online facilities.

Q:4 Write down the list of services provided by Sewa/Suvidha Kendra?

Ans: Following are some of the online services and facilities offered by the service centers:

- Issuance of residency certificate
- Issuance of Caste Certificate
- Issuance of birth and death certificate
- Issuance of income certificate
- Issuance of Aadhaar Card
- Issuance of Certificate of Religion
- Issue copies of registry, mutations.
- Issuance of Vehicle Registration (RC) Certificate
- Filling up old age/widow pension forms
- Issuance of driving license
- Submitting electricity, telephone and many other types of bills online.



Chapter 8th

Image Editing and File Conversion Tools

Que:1 Multiple choice question:

- _____ tool allows us to select a drawing with a free hand.
 - Fuzzy Selection
 - Lasso
 - Text
 - Bucket Fill
- SHIFT + C** is a shortcut for _____.
 - To Create Duplicate Image
 - To Delete Layer
 - To Copy of an image
 - To Crop an Image

Q:2 How to resize a picture in GIMP?

Ans: Sometimes we need to resize the image, i.e. increase or decrease the width or height of the image. Modifying these dimensions of the image is called resizing. The steps to resize the image are as follows:

1. Click on the Image menu.
2. Click on Scale Image.
3. The Scale Image dialog box opens. Change the Width and Height values as required.

GIMP also allows us to set the measurement units such as px, percentage, centimeters, meters, inches, feet etc.

Chapter 9th
Video Editing

Que:1 Fill in the Blanks:

1. In order for the computer to play audio files, different _____ are required.

- a. Video codecs **b. Audio Codecs** c. Both a & b d. None

2. _____ format is a common audio format that is played extensively on electronic devices.

- a. wmv b. avi **c. mp3** d. cda

3. Audio files are stored on the Audio CD in _____ format.

- a. flv b. aac c. mov **d. cda**

4. The effect applied between two video-clips is called _____

- a. sound b. video **c. video transition** d. photo

5. The process of dividing the video into sections is called _____

- a. merging **b. splitting** c. compressing d. decompressing

Que:2 Write True or False:

1. The process of making a movie is divided into five stages. **False**
2. Video editing works with only one video clip. **False**
3. Merging a video means splitting the clip into several parts. **False**
4. It is advisable to save the project before starting the process of exporting video file. **True**
5. MPEG-4 video format uses different compression for audio and video tracks. **True**

Que:3 Write the Full Forms of the Following:

1. **MP4** Moving Picture Experts Group-4
2. **WMV** Windows Media Video
3. **FLV** Flash Video
4. **AVI** Audio Video Interleaved

Que:4 Short Answer Type Questions.

Q:1 Write the names of the three stages of making a movie.

Ans: The task of making a movie is usually divided into three stages:

- Pre-Production
- Production
- Post-Production

Q:2 Write down the names of some video editing software.

Ans: The following are some of the popular video editing software:

- **For Windows operating systems:** Filmora Pro, Windows Movie Maker, Adobe Premiere Pro CC
- **For Android (ANDROID) operating system:** Adobe Premiere Pro, KineMaster, Viva Video

Q:3 What are Audio Converters?

Ans: Audio converters are software used to convert one audio file format to another. These softwares require CODECS to complete this conversion. Some popular audio converter software are: Xilisoft Audio Converter, Switch Audio Converter, Format Factory, Fre:ac etc.

Q:4 What are codecs?

Ans: A codec is a file or program used to Compress and Decompress a digital media file. The codec can be divided into two parts: Encoder and Decoder. The Encoder compresses the media and the decoder decodes it. Some codecs contain both of these components and some codecs contain only one of them. For example: When a song is Ripped from an audio CD to a computer, Windows Media Player compress the song in the .WMA (Windows Media Access) format by default using the audio codec. When the .WMA file is played, Windows Media Player decompress the file using the audio codec to play the audio properly.

Q:5 What do you mean by Video Split?

Ans: Sometimes we need to remove unwanted part of a video from the beginning or end of the video or we need to delete a part of the video in between. Video cutting is the process of changing the length of a video as required. Here are some keywords related to video cutting:

- **Trim:** Using trim operation, we can remove a part of the video from the beginning or end.
- **Cut:** It means to cut a part of a video clip.
- **Split:** When a long video is divided into smaller parts, this process is called splitting the video.

Que:5 Long Answer Type Questions.

Q:1 What are Tracks?

Ans: When we Import a video in Video Editing Software and insert it into the tracks, the video is divided into two parts: Visual and Audio. The visual part contains only video (without sound) and the audio part contains only sound. These video and audio sections are housed in separate video and audio tracks, where we can edit them. All video editing software provides separate tracks for audio and video and we can add as many tracks as we need. Tracks are very useful when we need to edit a specific part of an audio / video. It is not possible to put two clips on the same track at same place. If we want to include audio as well as our video, we still need to use more than one track.

Q:3 Explain the difference between Video Transitions and Video Effects.

Ans: Video transitions are the effects applied to a video. These effects are applied between two objects. A video transition controls how another video or picture will be displayed after one video clip or picture has been played in the movie. We can apply transition effects between two images, video clips or titles. Storyboards or timelines are used to insert transition effects. This transition takes place after one clip is finished and before the next clip starts. We can also set the transition time according to our requirements.

Q:3 Write in more detail: Storyboard, Timeline, Titles.

Ans: Storyboard, Timeline and Titles can be explained as follows:

- **Storyboard:** This is a panel of pictures or other video clips to create the story of the movie. It shows the sequence of photos and video clips that will appear in the movie. We can re-arrange pictures or videos by placing them in the storyboard. It also shows transition effects.
- **Timeline:** This is used to edit the timing of clips in our project. Audio clips included in the movie project are not displayed on the storyboard. They can be viewed in the timeline panel. In the timeline view, we can trim the clips. It can also include tracks as needed.
- **Titles:** Titles help us to enhance our movie by adding text-based captions to the movie. We can add titles to the movie to show any kind of information, such as movie name, movie release date, cast names, etc. We can also apply animation effects to the titles to make the movie more attractive.