Computer: A Wonder Machine

BOOK 6

Chapter 1

Computer System

1. Answer the following questions:

(a) Following are the generations of computers:

(i) **First Generation:** Components used were vacuum tubes. The first computers used vacuum tubes for circuitry and magnetic drums for memory, and were often enormous, occupying an entire room.

(ii) **Second Generation:** Components used were transistors. The transistors were far superior to the vacuum tubes, allowing computers to become smaller, faster, cheaper, more energy-efficient and more reliable than the first-generation computers. These were also the first computers that stored instructions in their memory, which moved from a magnetic drum to magnetic core technology.

(iii) **Third Generation:** Components used were Integrated Circuits. In this generation of computers, the transistors were miniaturised and placed on silicon chips, called semiconductors, which drastically increased the speed and efficiency of computers.

(iv) **Fourth Generation:** Components used were microprocessors. In this generation, thousands of integrated circuits were built onto a single silicon chip.

(v) **Fifth Generation:** Infused intelligence into computers called Artificial Intelligence. This is today's generation of computers and devices are still in the process of development. There are some applications, such as voice recognition, that are being used today to give commands to these computers.

(b) A programming language is a set of commands, instructions, and other syntax used to create a software program. We call these languages as programming languages because they help programmers write the programs. Nowadays, writing computer programs is very easy as we write them in a language that is almost like English. Earlier, it was not as easy as these languages did not exist. Computer languages have evolved over time.

(c) As coding in machine language was cumbersome, it became imperative to develop a language that was relatively simple to program in. Thus, a new language of symbols, known as assembly language, emerged. It helped in overcoming the limitations of machine language by—

(i) using alphanumeric codes, instead of number codes. For example, ADD instead of 1110 (binary code), SUB instead of 1111 (binary code).

(ii) allowing programmers to easily locate the storage location by using alphanumeric addresses.

(d) Difference between—

(i) **Compiler and Interpreter**

Compiler–Compiler is a translator program, which translates the program written in high-level language into a machine language.

Interpreter–An interpreter software reads one instruction of the program at a time (line by line), converts it into binary code and executes it, unlike compilers which compile the complete program and then run it.

(ii) **Machine language and Assembly language**

The main difference between machine code and assembly language is that the machine language is a binary language consisting of 0 and 1 that can be directly understood and executed by the computer whereas assembly language is a low-level programming language consisting of mnemonics consisting of mnemonics that requires a software called an assembler to convert it into machine code.

(e) High-level language is also known as the third generation language. It was developed after assembly language. These languages were English-like and a single word communicated a set of instructions to the computer. Assembly language programs required assemblers to convert them into machine language programs. High-level language programs also required compilers and/or interpreters to convert them into machine language. Following are the advantages of high-level language:

(i) **Machine-independent**–The programs written in high-level language are machine-independent. This means that we can write a program on one machine and can execute on another machine.

(ii) **Hassle-free programming**–The programmers can write the programs in high-level language concentrating on the logic of the program. They need not worry about the internal structure or the storage capacity of the computer on which the program is to be executed.

(iii) **Easy to learn and use**–High-level language is easy to learn because it is quite similar to the English we use.

(iv) **Check on errors**–As the programmer fully concentrates on the logic of the program, there are less chances of making an error. When compilers and interpreters translate the high-level language code into machine language, it automatically checks for errors.

(v) **Easy to maintain**–The programs are written in a language similar to English. Therefore, they are readable and can be maintained and modified easily by the programmers.

2. Fill in the blanks:

(a) ON, OFF

(b) Machine or binary

(c) Assembly

(d) Assembler

(e) Interpreter

(f) Compiled program

(g) Assembly

3. Match the following:

(a) (iv) Vacuum Tubes

(b) (v) line by line

(c) (vii) Integrated Circuits

(d) (vi) Infused Artificial Intelligence

(e) (ii) Compiled program

(f) (iii) Transistors

(g) (i) Microprocessors

4. Write T for true and F for false statements:

(a) F (b) F (c) F (d) T (e) F

(f) T (g) T

5. Tick (✓) the correct option:

(a) (ii) Symbolic language

(b) (ii) Converting high-level program codes into machine language

(c) (iii) VISUAL FOXPRO

(d) (i) Assembler

(e) (i) Binary language

(f) (iii) Machine language

(g) (iii) Alphanumeric codes

Chapter 2
Working with Windows

1. Answer the following questions:

(a) An Operating System is the most important software and a computer cannot work without it. It acts as an interface between the computer hardware and a

user. All the programs run on the Operating System. Operating Systems perform basic tasks, such as recognising input from the keyboard, sending output to the display screen, keeping track of files and directories on the disk, and controlling peripheral devices such as disk drives and printers.

(b) The two main objectives of an Operating System are:

(i) **Making computer system easy to use**–An Operating System forms a layer of software around the core hardware. On this Operating System various Application Software and System Software are loaded, which are provided to the user with a convenient interface for using the system.

(ii) **Managing the resources of a computer system**–An Operating System is to manage various resources of the Computer System such as CPU, memory, I/O devices, etc. It keeps track of tasks such as resource usage, resource requests and sharing of resources.

(c) Operating system has user authentication methods that ensure validity of user access. It also provides antivirus protection against malicious attacks and has inbuilt firewall which acts as a filter to check the type of files opened.

(d) The main features of Windows 11 are:

(i) It is the most recent version of Microsoft Windows Operating System.

(ii) Windows 11 supports all the features of earlier versions of Microsoft Windows.

(iii) Windows 11 is designed in such a way that it can also work on tablets and smartphones.

(iv) Start menu expands making it easier to find important apps.

(v) Microsoft Edge is a new browser designed to give Windows users a better experience on the Web. It is faster, more secure, and includes many new features.

(vi) Cortana is a virtual assistant with our computer's microphone. Cortana can answer any question.

(e) Control Panel is a part of the Microsoft Windows 11 which allows us to view and manipulate basic system settings and controls. With the help of applets (small programs) we can add hardware, add and remove software, control user accounts, and change accessibility options, etc.

(f) We can open Control Panel in any of the following ways:

(i) **Using Search–**

Press the 'Windows' key on your keyboard to open the Start menu. Type Control Panel in the search box.

(ii) **Using Run dialog–**

Press 'Windows + R' on your keyboard to open Control Panel. Type 'Control' in the Run dialog box.

(g) Applet names:

(i) Date and Time applet
(ii) Personalization applet
(iii) Programs and Features applet
(iv) Devices and Printers applet
(v) Mouse applet

2. Explain briefly the following software:

(a) **Antivirus**–A computer virus is a computer program that can cause damage to a computer software, hardware or data. It is called virus because it has the capability to replicate itself. Antivirus software, as the name suggests, helps protect a computer system from viruses. Some of the examples of Antivirus software are McAfee, Norton, Quick Heal, etc.

(b) **Backup**–We should take backup of our important files on a regular basis. This helps us retrieve them in case of any data loss. Backup software helps create a backup of the files on the computer. This software copies our important files to another storage device, such as an external hard disk. Some of the examples of backup software are Norton Ghost, Symantec Backup Exec, Acronis True Image, TotalRecovery Pro, etc.

(c) **Disk Cleanup**–This tool is used to remove unimportant files on a hard disk drive.

(d) **Disk Defragmenter**–Files on a computer are constantly being written, deleted or resized which leads to fragmentation. This is a natural process and occurs when files are broken up into pieces to fit on the disk. These pieces of file spread at different locations on the disk. It takes longer to read and write on these file pieces. Fragmentation also leads to slow speed of the computer.

(e) **Applet**–Control Panel is the collection of small programs, which are also known as applets. These applets are used individually to change the settings of Windows OS.

3. Fill in the blanks:

(a) Control Panel
(b) Category View
(c) Disk Cleanup
(d) Fragmentation
(e) Analyze, Optimize

4. Tick (✓) the correct option:

(a) (iii) Both (i) and (ii)
(b) (iv) All of these
(c) (ii) Date and Time
(d) (ii) High
(e) (ii) Computer virus
(f) (i) Retrieve data
(g) (iv) Fragmentation

5. Write T for true and F for false statements:

(a) F (b) T (c) F (d) T (e) F

Chapter 3
File Management—Organization of Data

1. Answer the following questions:

(a) File management is the fundamental method of handling our files in an organized manner. During file management process, we name, store and handle files. File explorer is a program which helps us in managing our files and folders. It is a program which helps us to browse (view) the files and folders present on our computer.

(b) Transferring of data from one location to another is known as Data Migration. There could be many reasons. Some of them are listed below:

(i) For cleaning up our hard drives.
(ii) We are running out of space on the computer.
(iii) We need backup of our important data.

(c) The difference between copying and moving a file is that 'copying' makes a duplicate of a file or folder in another location without affecting the original content while 'moving' transfers the original file or folder to another location.

(d) With the increase in use of the internet, we store our data online. Storing data online is Cloud Storage. It is very useful as we can access data from any device and from any place. The Cloud Storage is very safe and secure.

Cloud storage is a term used to describe services provided over a network by a collection of remote servers. Some commonly used cloud storage services are Google Docs, Microsoft OneDrive, Amazon Web Services, etc.

(e) Multitasking is the term used for working with multiple applications at the same time.

2. Fill in the blanks:

(a) File format
(b) File suffix
(c) File explorer
(d) Folder, Contents, preview
(e) Data migration
(f) Cloud storage
(g) Multitasking

3. Tick (✓) the correct option:

(a) (iv) Multitasking
(b) (iii) Cloud
(c) (i) Online
(d) (iv) Data migration
(e) (ii) Content
(f) (i) Cloud Storage Service

4. Write T for true and F for false statements:

(a) T (b) F (c) T (d) F (e) T
(f) T (g) T

5. Match the following:

(a) (iii) File suffix

(b) (iv) Working with multiple applications

(c) (v) Copying and moving data

(d) (vi) Compact Disc

(e) (vii) Cloud Storage

(f) (ii) Data layout in a file

(g) (i) .docx

Chapter 4
Presentation—Visual Effects

1. Answer the following questions:

(a) Microsoft PowerPoint Presentation can be viewed in the following different views:

(i) Normal View (ii) Outline View

(iii) Slide sorter View (iv) Notes page View

(v) Reading View (vi) Slide Show View

(b) Normal View is the main editing view, which we use to create, modify and design our presentation. Normal view is the default view in PowerPoint. Normal View has three working areas:

(i) **First working area**–It has the Slides tab on the left of the screen.

(ii) **Second working area**–This is the working area that is in the centre and displays the slide on which we are working. The largest size of single slide is displayed in this area.

(iii) **Third working area**–This area provides us the space to write notes for the slide which we are preparing. These notes can be printed along with the slide content for reference.

(c) In the Slide Sorter View, all the slides are displayed in the form of thumbnails, *i.e.*, as small icons. After we have finished creating and editing our presentation, we can use Slide Sorter View to get an overall picture. This allows us to reorder, add or delete slides easily.

(d) Slide Show displays all the slides one after the other on full screen. This is also known as full-screen view. It shows slides with graphics, animation and transition effects used in the presentation. The slides can't be edited in this view.

(e) To start the slide show, use any one of the following options:

Option 1: Click on the Slide Show button placed at the bottom of the screen on the Status bar.

Or

Option 2: Left click on Slide Show tab, locate Start Slide Show group on the ribbon. This group provides various options of starting the slide show. These are:

- From Beginning–Slide Show will start from the beginning of the presentation.
- From Current Slide–Slide Show will start from the current slide.
- Broadcast Slide Show–This is used to show the slides on the web.
- Custom Slide Show–This will show only the selected slides to the viewer.

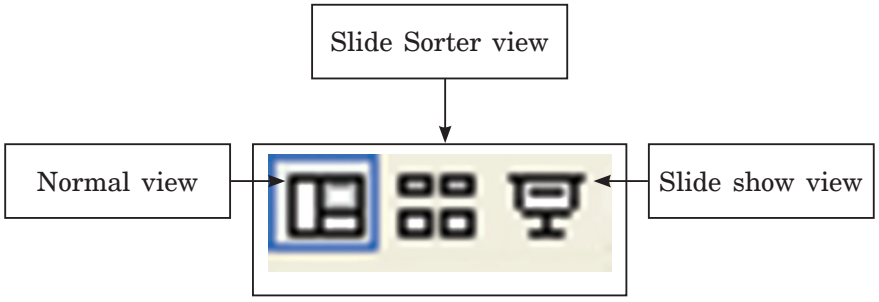
Or

Option 3: Press F5 function key to start the slide show.

(f) Action Buttons are the built-in shapes. We can insert these buttons on our presentations, which make them interactive. The Action button helps navigate easily within the presentation. When we click on the Action button, the selected action will occur. These buttons work as hyperlinks on a webpage. With Action button, we can make our presentations more interactive and easier to use.

2. Fill in the blanks:

(a)



(b) (i) End show option (ii) Escape

(c) Transition

(d) Animation

(e) (i) On mouse click (ii) After (defined time interval)

3. Tick (✓) the correct option:

(a) (i) Slide Sorter (b) (iv) Apply to All

(c) (iv) All of these (d) (iii) Broadcast Slide Show

(e) (iii) Header and Footer (f) (i) at any point of time

(g) (iii) Slide Sorter (h) (iii) Escape

(i) (i) Themes

4. Match the following:

(a) (i) Main editing view

(b) (ii) Slides in the form of thumbnail

(c) (iii) Full screen view

(d) (iv) Text on all slides

(e) (v) Special audio and visual effects

5. Write T for true and F for false statements:

(a) T (b) F (c) T (d) F (e) T

(f) T (g) T (h) F

Chapter 5
Spreadsheet—An Introduction

1. Answer the following questions:

(a) Excel files are called workbooks and each workbook holds one or more worksheets. We can add new worksheet in a workbook. Worksheet is in the form of a grid and is made up of columns, rows and cells.

(b) In MS Excel, data type of the contents specifies the type of data a column can hold. Some of the data types MS Excel supports are:

(i) Whole numbers (ii) Decimal numbers

(iii) Text/Label (iv) Date

Data type determines the kind of operations we can perform on the columns.

(c) Sometimes, while entering data in Excel sheet, we find that there is a need for entering sequential data. For that we can use a feature provided by MS Excel called Auto Fill. This feature allows us to quickly fill cells with repetitive or sequential data. We can use this to fill the data down in a column or across a row.

(d) For inserting a cell in a worksheet, the following options are provided:

(i) Shift cells down – On selecting this option and left clicking OK, a blank cell will get inserted at active location and the entire column with its contents will shift downwards.

(ii) Shift cells right – On selecting this option and left clicking OK, a blank cell will get inserted at active location and the entire row with its contents will shift towards the right side.

(iii) Entire row – If this option is selected, then a new row will get inserted above the selected cell. We can see that a blank row is inserted.

(iv) Entire column – If this option is selected then a new column will get inserted before the selected cell. We can observe that a blank column is inserted.

(e) Fill handle computes the difference between the two cells (second cell minus first cell). Then, we drag the Fill handle. It adds the difference to the last cell value and enters the new computed value in the next cell. This way, a series of numbers are entered by Fill handle. Suppose we have to create an odd number series. We can enter 1 and 3 in the first two cells and then use the Fill handle to generate the odd number series.

2. Fill in the blanks:

(a) Active

(b) .xlsx

(c) Formula

(d) CTRL + SHIFT + Left/Right Arrow

(e) Shift cells right

3. Write T for true and F for false statements:

(a) T (b) T (c) F (d) T (e) T

(f) T (g) F (h) F (i) T (j) T

4. Write down the keys used to perform the following actions:

(a) SHIFT + ENTER

(b) ENTER

(c) SHIFT + TAB

(d) TAB

(e) CTRL + HOME

(f) CTRL + Right Arrow

(g) CTRL + Down Arrow

(h) Left Click on the cell

(i) Left Click on the Row Number

(j) Left Click on the Column Letter

(k) CTRL + A

(l) Left Click on the first cell of the range and drag mouse over the cells to be selected

5. Tick (✓) the correct option:

(a) (i) Extends a sequential series of data

(b) (ii) Formula bar

(c) (iii) Last cell that contains data in the worksheet

(d) (iv) Delete

(e) (ii) Auto Fill

Chapter 6
Spreadsheet—Functions and Charts

1. Answer the following questions:

(a) In Excel, we can enter data either as a label or as a value or as a formula.

(i) **Label**–When we enter text, Excel treats it as a label. Labels are alphabetic, alphanumeric or numeric text. No mathematical calculations can be done on labels. Labels are left aligned by default. They do not have any value associated with them, *e.g.*, John, Abraham, Imran, Ganesh.

(ii) **Value**–When we enter a number, Excel treats it as a specific fixed value. Mathematical calculations can be done on values. Values are right aligned by default, *e.g.*, 5, 32, 567, 346546.

(iii) **Formula**–In order to do mathematical calculations, we enter a formula in a cell. Arithmetic calculations can be done on numeric values. A formula always starts with an equal to (=) sign. We can say a formula is like an equation (as studied in mathematics subject), *e.g.*, to add numbers 2 and 3, we can write the formula as = 2 + 3.

(b) (i) **Label**–When we enter text, Excel treats it as a label. Labels are alphabetic, alphanumeric or numeric text. No mathematical calculations can be done on labels. Labels are left aligned by default. They do not have any value associated with them, *e.g.*, John, Abraham, Imran, Ganesh.

(ii) **Value**–When we enter a number, Excel treats it as a specific fixed value. Mathematical calculations can be done on values. Values are right aligned by default, *e.g.*, 5, 32, 567, 346546.

(c) A cell reference identifies a cell or a range of cells in a worksheet and tells MS Excel where to look for the values or data we want to use in a formula. With references, we can use data contained in different parts of a worksheet in one formula or use a value from one cell in many formulae. There are three types of cell references:

(i) **Relative reference**–If the position of the cell containing the formula changes, then referred cells in the formula also change.

(ii) **Absolute reference**–If the position of the cell containing the formula changes, then referred cells in the formula do not change. For this, we use '$' sign as a prefix to the cell address.

(iii) **Mixed reference**–When both relative reference and absolute reference are used together in the formula, we call it a mixed reference.

(d) **Formula**–In order to do mathematical calculations, we enter a formula in a cell. Arithmetic calculations can be done on numeric values. A formula always starts with an equal to (=) sign. We can say a formula is like an equation (as studied in mathematics subject), *e.g.*, to add numbers 2 and 3, we can write the formula as = 2 + 3.

Function–Excel provides predefined formulae which are called functions. Functions can be used for performing simple or complex calculations by using specified values called arguments in a particular sequence or order. A function is written with a name followed by brackets. For example, there is a function called SUM(), which we can use to add values of more than one cell.

Some of the commonly used functions in Excel are:

- Average()–used for computing average of a given set of values.
- Max()–used for finding the maximum number out of a given set of values.
- Min()–used for finding the minimum number out of a given set of values.
- Count Numbers()–Count Numbers function counts the number of cells that contain numbers in the given range of cells.

(e) We can open insert function window—

By left clicking Formula tab → Function Library group → Insert Function window

Or

By clicking on insert function button on the formula bar → Insert Function window

(f) Charts are used to represent data in a graphic form. Charts are also called graphs. Charts are visually more appealing and make it easy for us to analyse and compare trends in data. It is much simpler to observe patterns in a chart as compared to finding the same by looking at rows and rows of data.

(g) (i) **Title**–The title should be such that it can clearly describe the purpose of the chart.

(ii) **Horizontal Axis (x-axis)**–Horizontal axis of the chart is also known as category axis.

(iii) **Legends**–It displays the colour representation of each data series in the chart.

(iv) **Data Series**–Related data points on the chart forms the data series.

(v) **Vertical Axis (y-axis)**–Vertical axis of the chart is also known as value axis.

(h) The first step is to collect the data for which we want to create a chart. We will have to do the following steps to make a chart using this data.

(i) Select the complete data range including the column headings and row labels. This is our source data.

(ii) Open the Insert tab and locate Charts group on the ribbon.

(iii) The Charts group provides different types of charts.

(iv) Select the desired chart category from the Charts group.

(v) Click on the arrow below the selected chart category to select the chart type. Each chart category has different chart types.

(vi) Select the desired chart type from the drop-down menu.

(vii) The chart will appear in the excel sheet.

(i) On inserting the chart in the Excel sheet, two Chart tool tabs appear on the Ribbon. The two chart tool tabs are design and format.

- Design tab–Change chart type, layout and chart style, Switch between row and column, Move chart to different worksheet.
- Format tab–Formatting of the chart is done under this tab.

2. Fill in the blanks:

(a) Alphabetic, alphanumeric or numeric

(b) Relative

(c) Formula

(d) $

(e) Predefined

(f) Graphs

(g) x-axis, y-axis and charts

(h) AutoSum

(i) +, -, * and /

(j) Links

3. Match the following:

(a) (iii) = A1+A2

(b) (iv) = A2–A1

(c) (vi) = A1/A2

(d) (vii) = A1*A2

(e) (ix) 150

(f) (viii) B6

(g) (ii) Ctrl+C

(h) (x) Ctrl+V

(i) (i) = $A1+B$1

(j) (v) = A1 *B1

4. Write T for true and F for false statement:

(a) T (b) T (c) F (d) T (e) T

(f) F (g) F (h) T (i) T (j) F

5. Choose the correct option:

(a) (iii) Relative reference

(b) (ii) Absolute reference

(c) (i) Mixed reference

(d) (i) Mixed reference

(e) (ii) Formula bar

(f) (i) = A1+A2

(g) (iv) B1:G10

(h) (ii) Click the AutoSum button on the toolbar

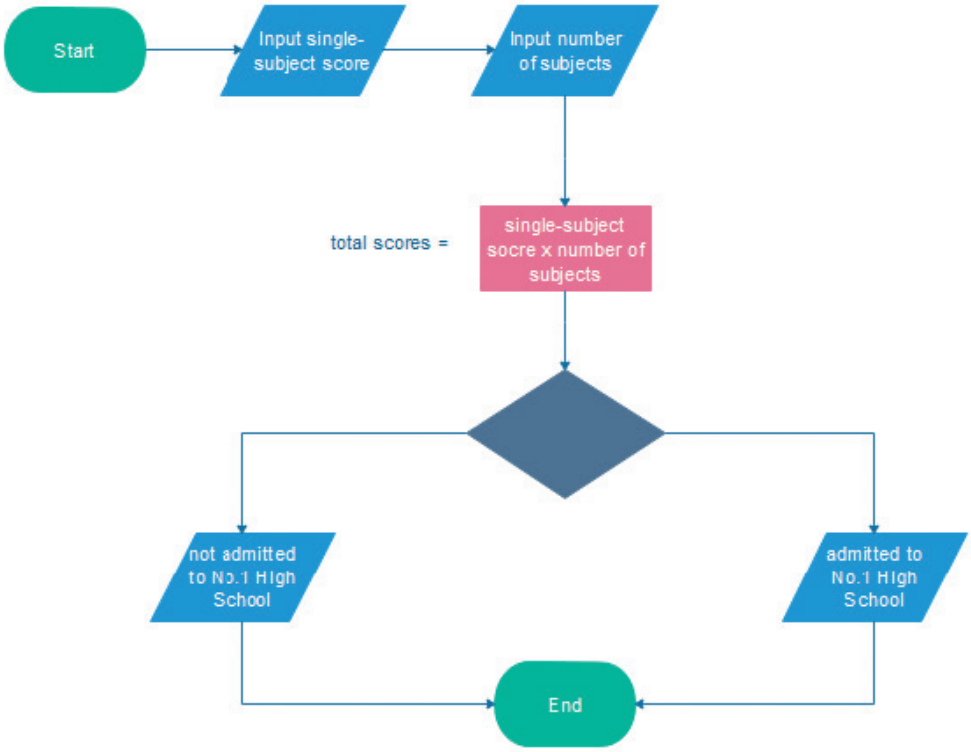
(i) (i) Insert Function

(j) (ii) Constants

Chapter 7
Algorithm and Flow Charts

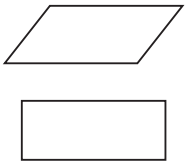
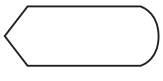
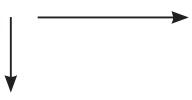
1. Answer the following questions:

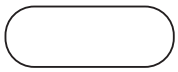
(a) Flow chart is a graphical representation of sequence of logical steps of a program. Flow charts use simple geometric shapes to depict processes and arrows to show relationships and process/data flow.



(b) There is a set of symbols that we use to draw flow charts. Each symbol represents a specific function, activity or process. These symbols have predefined meanings and have to be used appropriately.

These are:

Symbol	Activity
	Input – This symbol is used to indicate the input required for processing. Processing – Indicates the processing of the inputs provided.
	Output – Results obtained after processing are displayed using this symbol.
	Decision – If there is a choice to be made between two options, this symbol is used.
	Flow Lines – These are used to show the direction in which the process steps are moving. These lines end with an arrow head.

	Terminator – This indicates either start or end of a process.
	Connector – When a flow chart doesn't fit into one page and we want to show connectivity between the two, we use connectors.

(c) (i) **Variable** – A variable is a named unit of data that may be assigned a value. If the value is modified, the name does not change. The assigned value can be a variable or constant.

(ii) **Constant** – Constants do not change their value or property, like milk will remain milk in whichever container we keep it.

(iii) **Pseudocode** – In pseudocode we write the logic in simple language like English.

(iv) **Operators** – Operators are symbols that tell the compiler to perform specific mathematical or logical manipulations.

(d) Variables are of two types based on the data stored in these variables:

(i) **Numeric variables** – These variables hold only numeric data. Numbers like 10, 15, our age, weight or height can be stored in numeric variables.

(ii) **Character variables** – These variables hold alphanumeric data, *i.e.*, any data that has any combination of alphabets, letters, words, numbers and special characters.

(e) Difference between flow chart and pseudocode:

Flow Chart	Pseudocode
Flow chart is the graphical representation of the logic or algorithm.	Pseudocode is an algorithm which is written in simple language. It is easy to understand.
Diagram of flow chart starts with a keyword Start and ends with Stop.	Pseudocode starts with keyword Begin and ends with End keyword.

2. Fill in the blanks:

(a) Algorithm

(b) Pseudocode

(c) Graphical

(d) Variables

(e) Numeric, Character

3. Match the following:

(a) Input/Output

(b) Processing

(c) Display

(d) Decision

(e) Flow lines

(f) Terminator

(g) Connector

4. Write T for true and F for false statements:

(a) F

(b) T

(c) F

(d) T

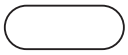
(e) F

(f) T

(g) T

5. Tick (✓) the correct option:

(a) (ii) Flow chart

(b) (iv) 

(c) (iii) Variables

(d) (i) numeric data

(e) (iii) initialization

(f) (iii) Both (i) and (ii)

(g) (i) Memory space in RAM is allocated to it.

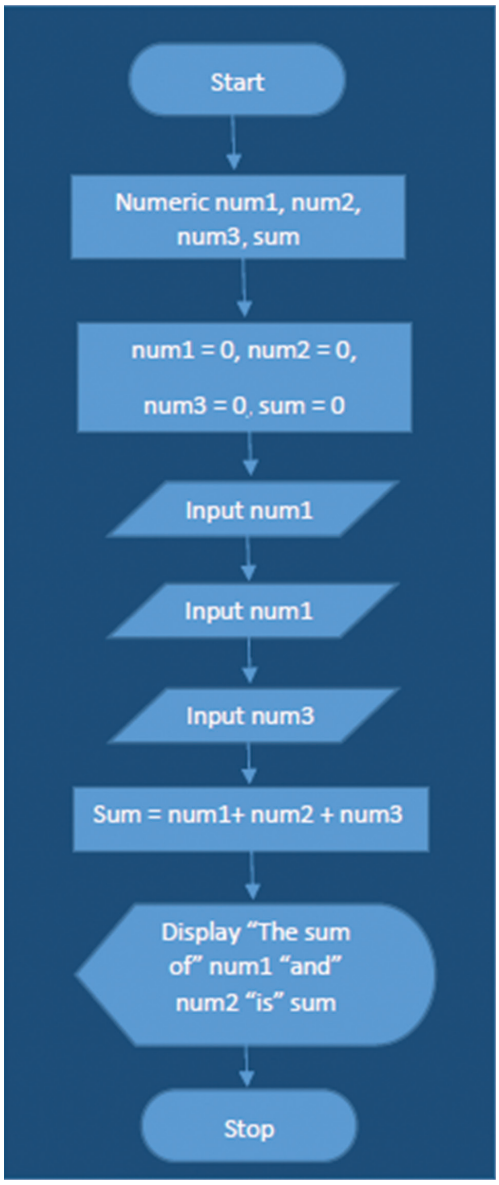
(h) (iv) =

(i) (iv) Num1 is greater than and equal to Num2

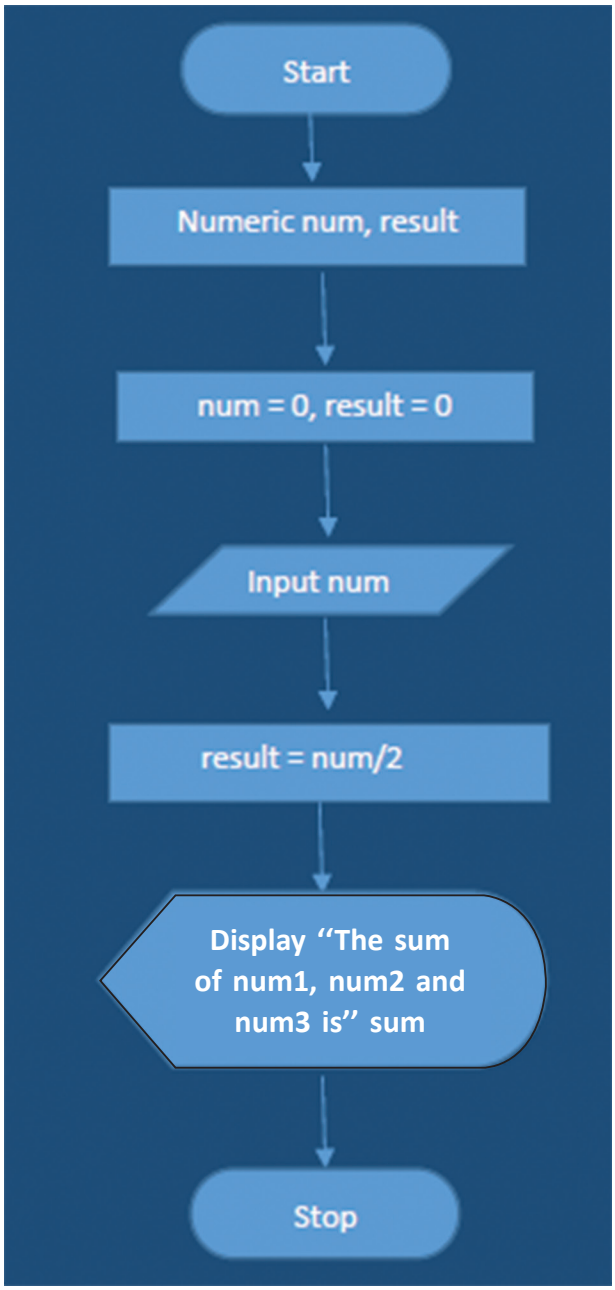
(j) (i) BEGIN

6. Flowcharts for the given processes:

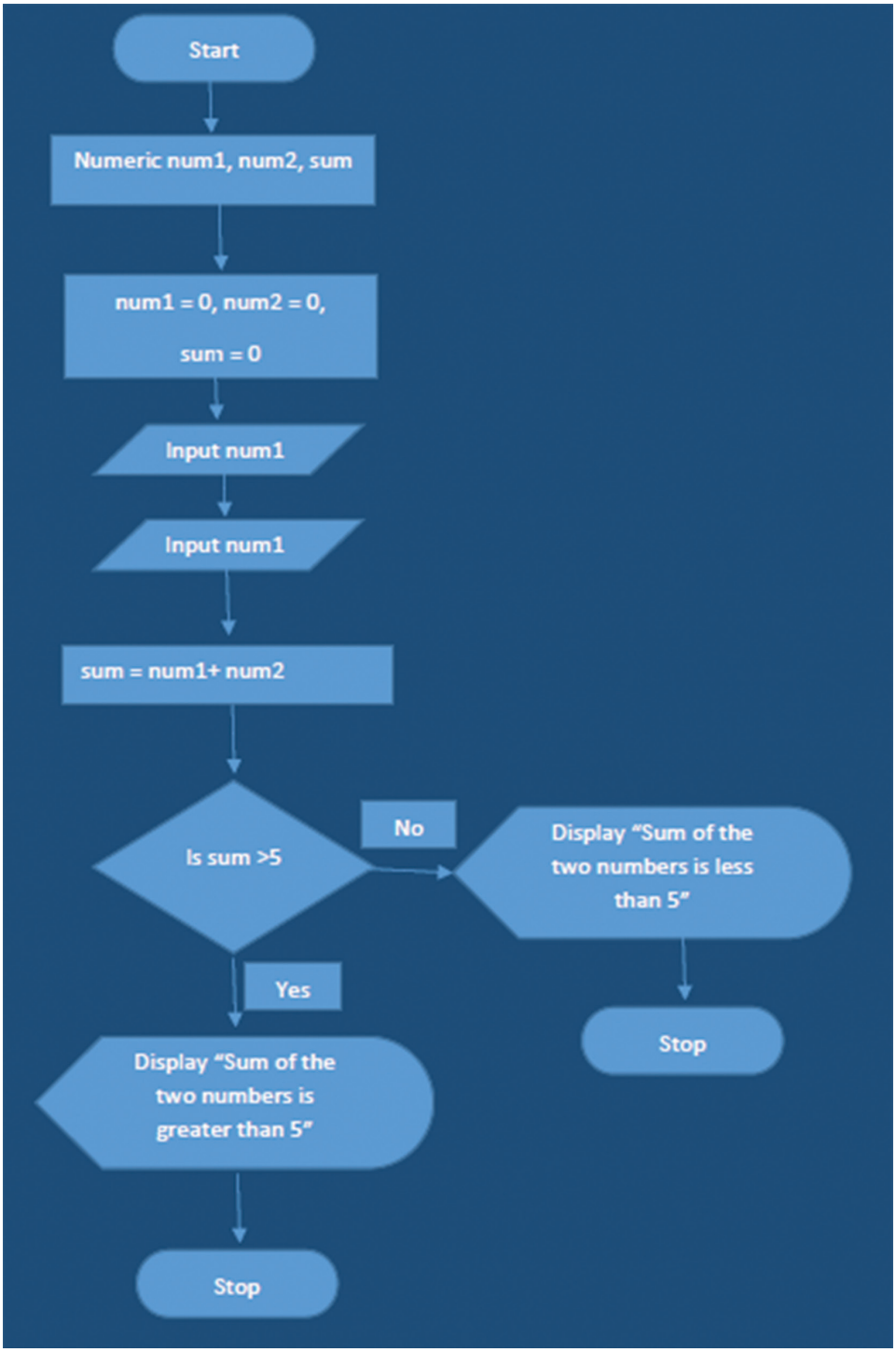
(a) Accept three numbers and display the sum of these three numbers.



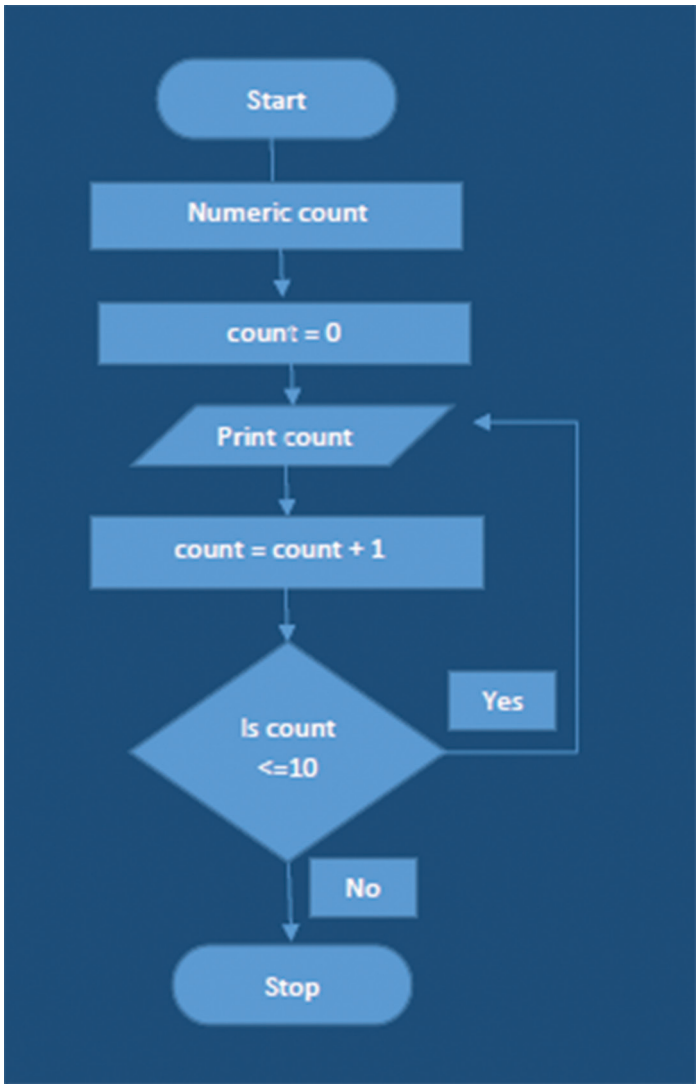
(b) Accept any number and then divide this number by 2 and display result.



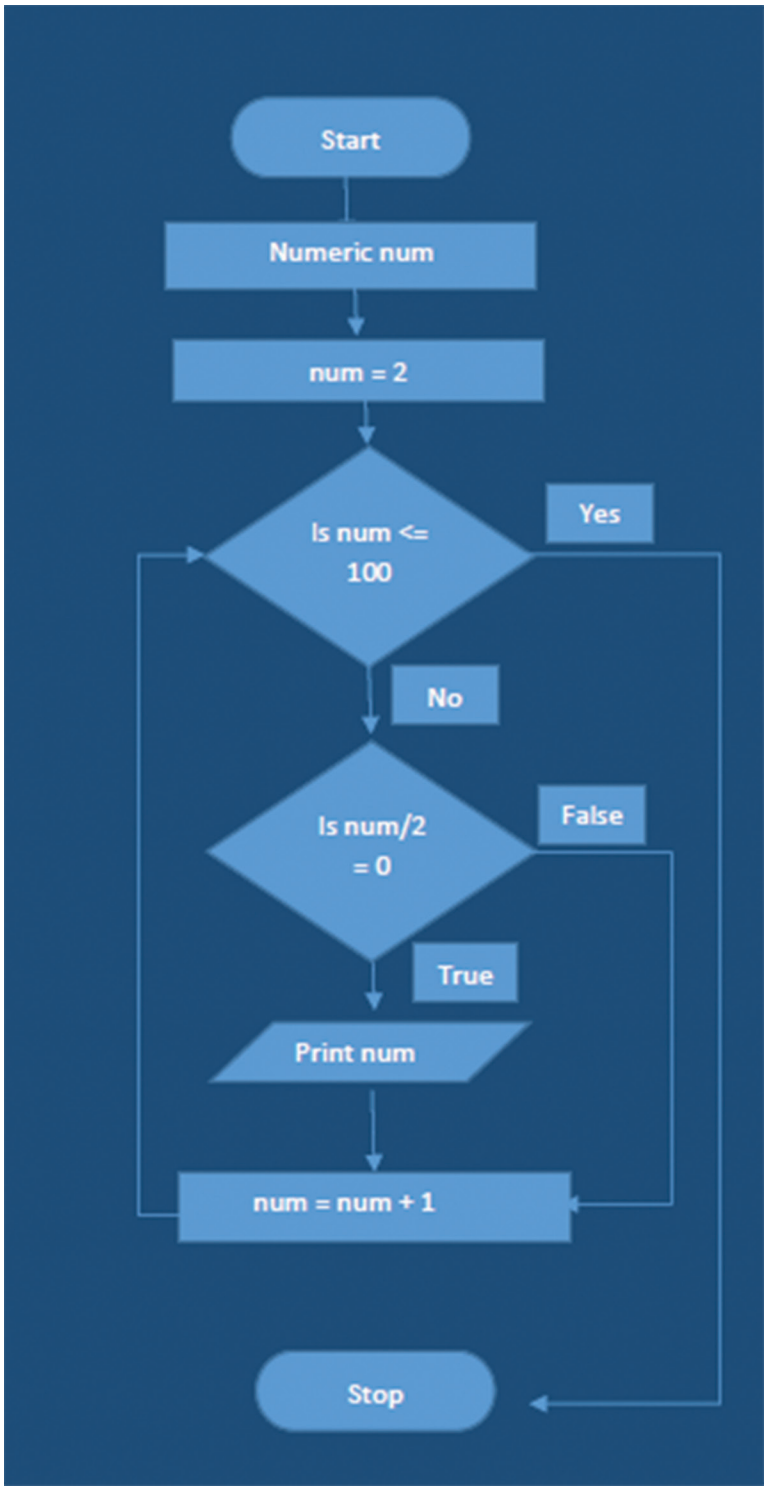
(c) Accept two numbers and add them. If the sum of these two numbers is greater than 5, then display the message "Sum of the two numbers is greater than 5"; if not, then display the message "Sum of two numbers is less than 5".



(d) Generate a number series from 1 to 10.



(e) Generate an even number series from 2 to 100.



Chapter 8
Introduction to Python

1. Answer the following questions:

(a) Python is a flexible programming language. Python is also known as general-purpose programming language as it can be used to build any kind of program.

(b) Some of the important features of Python language are:

(i) Simple,

(ii) Easy to understand,

(iii) Easy to learn syntax,

(iv) Emphasizes readability,

(v) Compatible with major platforms and operating systems,

(vi) High level,

(vii) Object-oriented.

(c) Python is used for:

(i) Desktop application development

(ii) GUI application development

(iii) Used as a scripting language

(iv) Used in software testing

(v) Used for data analysis

(vi) Writing system administration software

(vii) Web programming development

(d) IDLE is an Integrated Development Learning Environment that comes built-in with Python. IDLE allows us to create, edit, run and debug a Python program.

(e) Python provides two different ways to work with:

(i) Interactive mode (Python shell window)

(ii) Script mode (Python Editor's window)

We can use Python shell window to write code which executes one line at a time. Therefore, for writing code, we will use the Python editor's window (Script mode) and for displaying the output of the code, we will use Python shell window (Interactive mode).

2. Fill in the blanks:

(a) Guido van Rossum

(b) General-purpose

(c) Script

(d) Interactive

(e) Print()

(f) .py or .pyw

(g) F5

(h) Shell

(i) Printing

3. Write T for true and F for false statements:

(a) F (b) T (c) F (d) F (e) T

(f) F (g) T (h) T

4. Tick (✓) the correct option:

(a) (iii) Integrated Development Learning Environment

(b) (i) File menu → Exit option

(c) (iv) All of these

(d) (i) General-purpose language

(e) (iii) Flexible

(f) (iv) All of these

(g) (ii) Multi-line

(h) (ii) Printing

(i) (i) .py or .pyw

(j) (ii) In Editor's window → Run → Run Module

Chapter 9
Google Earth

1. Answer the following:

(a) They both provide information about our Earth and help us to find places on it. The information provided by a map is two-dimensional whereas the globe provides the same information which is three-dimensional. The map is easy to use and is portable whereas a globe is not. A globe is also known as duplicate earth as it is spherical in shape as our earth. Between the two, globe is considered more accurate as it is a miniature form of the earth. However, for detailed study, we always use maps as it features a lot about a particular region. Globe does not provide the minute details about any region.

(b) Advantages of digital maps are:

(i) Digital maps can include any area.

(ii) They are scalable – we can freely zoom them in and out.

(iii) They are more accurate.

(iv) They are more up-to-date.

(v) They provide a lot of extra information.

(vi) They are interactive (we can search about any location).

(vii) They take up less space.

Disadvantages of digital maps are:

(i) Need a computer to work on.

(ii) Can get corrupted.

(c) Google Earth is a virtual globe where we can obtain accurate information quickly on our computer screens. It is created with the help of images taken by the satellites, aerial photography and available geographic information.

(d) Google Earth is available in three different versions:

(i) Google Earth on web

(ii) Google Earth on mobile

(iii) Google Earth Pro

(e) We need not install Google Earth on web. For opening Google Earth on web, we need to follow the steps given below:

(i) Click on Google Chrome icon to open the window.

(ii) Type the site address: *https://www.google.com/earth/*

Or

Search for Google Earth on Web.

(iii) Click on Launch Earth in Chrome option on the screen. A new window of Google Earth will open with a message of loading in progress.

(iv) It will take some time and we will be able to see a new Google Earth on our screen.

2. Fill in the blanks:

(a) Miniature

(b) Digital

(c) Google Earth

(d) Launch Earth in Chrome

(e) (i) Editor's pick (ii) Games

(iii) Layers (iv) Street View

(v) Nature (vi) Culture

(vii) Travel (viii) Education

3. Tick (✓) the correct option:

(a) (ii) I'm Feeling Lucky

(b) (iv) 

(c) (iv) Voyager

(d) (i) Knowledge box

(e) (iv) Google Chrome

(f) (iii) Launch Earth on chrome

(g) (iv) All of these

(h) (i) Three-dimensional

4. Write T for true and F for false statements:

(a) F (b) T (c) F (d) F (e) T

(f) T (g) T (h) T (i) F (j) F

Chapter 10
Mind Map

1. Answer the following questions:

(a) A mind map is a graphical way to represent ideas and concepts. A visual thinking tool helps us in structuring information graphically. It helps us to analyse, understand, create, recall and generate new ideas.

(b) Mind mapping activity is both analytical and artistic. It engages our brain fully and helps us in all its reasoning functions. It helps us to analyse, understand, create, recall and generate new ideas.

(c) (i) **Node**–A node is a text box that is used to store information.

(ii) **Edges**–Nodes are connected together using curved lines called edges.

(iii) **Root Node**–When we create a new mind map in FreeMind, a grey, oval-shaped node with a label "New Mindmap" is placed in the centre of the working area. This is the root node. We build our map by adding nodes to the root node.

(d) (i) **Child Node**–A child node originates from the parent node and is positioned 1 level lower than the parent node.

Sibling Node–A sibling node is positioned at the same level as its reference node.

(ii) **Bubble**–The Bubble style uses an oval-shaped bubble to enclose the data of a node.

Fork Style–The Fork style holds the data without any enclosure.

(e) Mind mapping is very useful. It is very important to save the mind map as it helps us in:

(i) Referring back

(ii) Note-making

(iii) Brainstorming

(iv) Problem-solving

(v) Studying and memorising

(vi) Planning

(vii) Researching and consolidating information from multiple sources

(viii) Presenting information

(ix) Increasing creativity

2. Fill in the blanks:

(a) Child

(b) New mind map

(c) Benefits of mind mapping are:

(i) Note-making

(ii) Brainstorming

(iii) Problem-solving

(iv) Studying and memorizing

(v) Planning

(vi) Researching and consolidating information from multiple sources

(vii) Presenting information

(viii) Increasing creativity

(d) New child node

(e) .mm

(f) Bubble and Fork

(g) Remove node

(h) Node Background color

(i) Node color

(j) Color, style and width

3. Tick (✓) the correct option:

(a) (iv) None of these

(b) (i) Select Node → Format Menu → Node Background Color

(c) (iv) Child Node

(d) (iv) All of these

(e) (ii) CTRL + B

(f) (i) Bubble

(g) (i) Delete Node

(h) (i) Child nodes only

(i) (i) Working area

(j) (ii) Same

4. Write T for true and F for false statements:

(a) T (b) F (c) T (d) T (e) F

(f) F (g) T (h) F (i) T (j) T

Chapter 11
Internet—Online Surfing

1. Answer the following questions:

(a) The word 'shopping' brings to us the joy of getting new things of our choice. We search for items we want by going around different shops, walking around looking at show windows of showrooms, visiting street stalls, etc.

(b) A mail or message sent through the internet to a specific individual or group is known as **email**. We can attach files to emails. While working on the internet, we can connect to the mail server with our unique email id to send and receive emails. As the address of our house is unique, so is an email id. When we send an email, the mail server decides the route and passes it to another mail server on another network to ensure delivery at the right destination. The most commonly used email sites are *www.yahoo.com*, *www.hotmail.com* and *www.gmail.com*.

Advantages of Email

Email has the following advantages:

- It enables speedy communication.
- It is reliable.
- It is inexpensive.
- It can be automated to perform certain tasks automatically.
- Email messages are always easy to locate.
- We can send email messages to more than one person at a time.
- It keeps the information safe and secure as it allows access only through password.

(c) Some of the potential threats in cyber world are as follows:

(i) **Botnets**–These are collection of software robots, which are largely undetected. They create an army and attack the computers like zombies. They are remotely controlled by the originator. They can send spam mails with virus attached and send malwares.

(ii) **Distributed Denial-of-service attack**–Also known as DDoS attack, it

increases the volume of traffic on server and websites causing them to slow down for the users. The most common DDoS attack occurs when the attacker floods the network with useless information. This forces the target system to shut down due to a flood of incoming messages.

(iii) **Hacking**–It describes the action of a hacker, who is unauthorized and gains access to a computer. This is how cyber criminals have access to our computers.

(iv) **Malware**–This is a malicious software which infects our computer.

(v) **Pharming**–The fraud that is done online is called pharming.

(vi) **Phishing**–Also known as Spoofing. Fake emails, messages and websites are created and appear as if they are from authentic sources. They can extract our personal and financial information without any effort.

(vii) **Ransomware**–It is a type of malware, which accesses our computer and displays a message that our computer has been locked and demands payment to regain access.

(viii) **Spam**–This is the most common method of sending out information. These are unwanted junk mails which annoy us. They create burden on the network.

(ix) **Spyware**–These software collect our personal information without our knowledge.

(x) **Trojan Horse**–It is a malware. In this, files get downloaded and installed in our computer without our knowledge and delete our files.

(xi) **Viruses**–These are the programs which are received through emails as attachments. These viruses send spam, infect our computer and also access contacts from our contact list.

(xii) **Worms**–Unlike viruses, they do not attach to any file or emails. They cause damage to internal network and impact the internet as a whole.

(d) Advantages of E-Commerce:

(i) Marketing to target segment
(ii) Comparison and selection
(iii) Buying online or payment on delivery
(iv) 24 × 7 availability
(v) Increased sales
(vi) Post-sales assistance
(vii) Efficient inventory management
(viii) Extensive communication

(e) Short notes:

(i) **Blogging**–A blog is also known as Weblog. It is a personal online diary or a journal which allows us to share our thoughts and ideas, add videos, games, pictures, music. The visitors can add comments on our blog. Blogging is the act of posting content on a blog (a Weblog or online journal).

(ii) **Podcast**–A podcast is like a radio show. However, instead of being

broadcast live, a podcast is recorded and then distributed on internet. We can listen to these audio voices whenever we want. There are thousands of podcasts available, ranging from general interest entertainment shows to specific topics like computers, music, education, etc.

(iii) **Credit Card**–The easiest form of electronic money that is available and most widely used today. There are several million credit cards that are being used to make online payments in India. Many international sites and mobile commerce sites allow us to pre-store our credit card number securely so that we don't have to key in the number each time.

(iv) **Debit Card**–The second largest e-commerce payment medium in India is Debit Cards. With the debit card, one can only pay for purchased goods with the money that already exists in our current or savings account. It can also be used to withdraw cash at ATM machines.

(v) **Electronic money**–E-money is the money stored electronically on a personally held device or at a server that we can access remotely. Both the shopkeeper and us have to open an account with a bank that issues electronic money. The advantage of using e-money is that it is safe, secure and the system protects our personal information.

(f) While working or surfing internet, we should follow some etiquettes. "Internet Etiquettes" are also referred to as Netiquettes. These are set of rules created for everyone so that the internet experience is pleasant for all.

Some of the basic netiquettes are:

(i) Help the newbies–New users on internet are called newbies. So, we should help the new internet users.

(ii) Before asking any question to anyone, we should research on internet. We can also check FAQ (frequently asked questions) section regarding our query.

(iii) Emotions are very important on internet. Therefore, we should avoid unnecessary usage of capital letters in emails. It is considered rude. We can use few smileys in our emails to express our emotions.

(iv) While referring to any quotes, we should use them as it is, without any editing.

(v) Never use pictures or images from internet even if they fulfil our requirements because they may be copyrighted. We can only use them after taking permission and giving credit to the owner.

(vi) We should mind our language on internet.

(vii) No Spamming. Spams are unwanted internet mails which are not welcomed by anyone.

(viii) The content of any mail should be relevant and match with the header.

2. Fill in the blanks:

(a) Electronic medium

(b) Electronic medium is made up of

(i) computers (user devices like desktop, laptop, tablet, mobile),

(ii) networks (internet),

(iii) servers (machines that host shopping sites)

(c) Malware

(d) Hacking

(e) Blog, Podcast

(f) E-money

(g) Google Drive

3. Match the following:

(a) (iii) Creates an army and attacks the computers like zombies

(b) (viii) Cyber criminals have access to our computer

(c) (x) Malicious software which infects our computer

(d) (i) Fraud that is done online

(e) (ii) Spoofing

(f) (iv) Messages that our computer has been locked

(g) (ix) Unwanted junk mails

(h) (v) Software collects our personal information

(i) (vi) Deletes our files

(j) (vii) Causes damage to internal network

4. Write T for true and F for false statements:

(a) F (b) F (c) T (d) T (e) T

(f) F (g) T

5. Tick (✓) the correct option:

(a) (iv) Cheque

(b) (ii) 24 × 7

(c) (iv) All of these

(d) (i) search engines

(e) (iv) www.123greetings.com

(f) (i) Netiquettes

(g) (iii) Cash

Chapter 12
Applications of Artificial Intelligence

1. Answer the following questions:

(a) Role of AI in healthcare sector — Artificial Intelligence is playing a very important role in the health-care industry. Doctors use AI technology for a variety of tasks including:

(i) Diagnosis of the problem

(ii) Treatment protocol development

(iii) Drug development

(iv) Personalized medicine

(v) Patient monitoring

(vi) Care of the patient

(vii) Robotic surgery—Robots perform various surgeries. They assist surgeons in improving their ability to see, stitch wounds, etc. Some common robotic surgeries are eye surgery, gynaecological surgery, laparoscopic surgery and head and neck surgery.

(viii) Updating patient records

(ix) Billing

(x) AI helps doctors in analyzing relationship between clinical techniques and patient outcomes. It benefits patients as well as reduces medication cost.

(xi) AI-based Brain-Computer Interface (BCI) is a boon to patients who are physically challenged or suffering from spinal cord injury.

(b) (i) **Intelligent Tutor System:** Also known as ITS, Intelligent Tutor System is a computer system that interacts and provides feedback to students without any human intervention. ITS replicates the role of a teacher.

(ii) **Smart Classroom Technologies:** A smart classroom is a digitally-equipped classroom that offers a wide variety of teaching and learning methods. It uses AI technology to conduct a class. It includes audio and visual components to explain the subject. There are various applications which assist the teacher in teaching both online and offline.

(iii) **Adaptive Learning:** Adaptive learning is also known as adaptive teaching. It is a method in which computer algorithms and artificial intelligence are used to teach and interact with the learner. The teaching is customized according to the specific needs of the learner.

(iv) **Pedagogical Agents:** Pedagogical agents are virtual human-like characters used in online learning environments. They integrate Artificial Intelligence and assist us in our learning processes. These agents act as instructors and motivators. They interact with learners and provide support. Interacting with on-screen agent and learning helps in improving performance.

(c) Monitoring Crop Health: AI-enabled application called plantix identifies deficiencies in the soil, including plant pests and diseases, allowing farmers to use better quality fertilizers and improve crop yield.

(d) Until a few years back, humans were the only intelligent beings capable of making decisions based on data analysis. With the development of artificial intelligence, decision-making also got a shot in the arm. Now, based on data, computers can make decisions in a matter of seconds. This technology is being used in various fields including self-driving cars. These cars use autopilot mode, which drives on their own and reacts accordingly if they encounter any obstacle along the way. For example, if someone comes in front of the car, a self-driving car stops automatically.

(e) Mining is the process of extracting useful materials from the earth. Some examples of substances that are mined include coal, gold or iron ore. Iron ore is the material from which the metal iron is produced. AI is used through robots for mining. These robots can also detect harmful gases or water during mining.

2. Fill in the blanks:

(a) Plantix

(b) Pedagogical agents

(c) Adaptive

(d) Smart classroom

(e) Intelligent Tutor System

(f) Brain-Computer Interface (BCI)

(g) Weather forecasting

(h) Decision-making

(i) Human error and risk of losing human life

(j) Production cost and unemployment

3. Tick the correct option:

(a) (iv) All of these

(b) (i) Provides combat support

(c) (iv) Robot

(d) (iii) Adaptive learning

(e) (ii) Digitally

(f) (iv) All of these

(g) (i) Surgeries

(h) (iv) All of these

(i) (iv) Sensors

(j) (i) Data available

4. Write T for true and F for false statements:

(a) F

(b) T

(c) F

(d) T

(e) T

(f) F

(g) T

(h) F

(i) T

(j) T