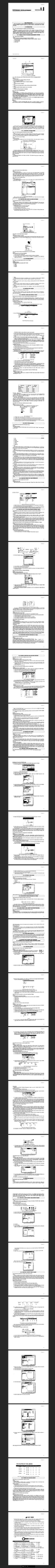

3.2 INTERNAL INSTALLATION

Before installing the internal modem, make sure that the computer is switched off and disconnected from the mains. Also disconnect any other peripherals connected to the computer.

3.2.1 INSTALLATION

1. Remove the cover of the computer.
2. Select an unused slot and remove the slot cover.
3. Insert the modem into the slot.
4. Fix the modem with the screw.
5. Replace the cover of the computer.
6. Connect the telephone line to the modem.
7. Switch on the computer.

3.2.2 CONFIGURATION

Configure the modem using the software provided with the modem. Refer to the software manual for more information.

3.3 EXTERNAL INSTALLATION

Before installing the external modem, make sure that the computer is switched off and disconnected from the mains. Also disconnect any other peripherals connected to the computer.

3.3.1 INSTALLATION

1. Connect the modem to the computer with the cable provided.
2. Connect the telephone line to the modem.
3. Switch on the modem.
4. Switch on the computer.

3.3.2 CONFIGURATION

Configure the modem using the software provided with the modem. Refer to the software manual for more information.

3.4 CONNECTING TO THE TELEPHONE LINE

Connect the telephone line to the modem. Make sure that the telephone line is not connected to any other telephone or fax machine.

3.5 CONNECTING TO THE COMPUTER

Connect the modem to the computer. Make sure that the computer is switched off and disconnected from the mains.

3.6 CONNECTING TO THE MAINS

Connect the modem to the mains. Make sure that the modem is switched off.

3.7 SWITCHING ON THE MODEM

Switch on the modem. The modem will start up and be ready for use.

3.8 SWITCHING OFF THE MODEM

Switch off the modem. The modem will shut down and be ready for disconnection.

3.9 DISCONNECTING FROM THE MAINS

Disconnect the modem from the mains. Make sure that the modem is switched off.

3.10 DISCONNECTING FROM THE COMPUTER

Disconnect the modem from the computer. Make sure that the computer is switched off and disconnected from the mains.

3.11 DISCONNECTING FROM THE TELEPHONE LINE

Disconnect the telephone line from the modem.

3.12 REMOVAL

1. Remove the cover of the computer.
2. Remove the screw.
3. Remove the modem from the slot.
4. Replace the cover of the computer.

3.13 CONFIGURATION

Configure the modem using the software provided with the modem. Refer to the software manual for more information.

3.14 TROUBLESHOOTING

Problem	Cause	Solution
No dial tone	Telephone line not connected	Connect the telephone line to the modem.
No dial tone	Telephone line connected to other telephone or fax machine	Disconnect other telephone or fax machine from the telephone line.
No dial tone	Telephone line not working	Contact your telephone company.
No dial tone	Modem not switched on	Switch on the modem.
No dial tone	Modem not installed	Install the modem.
No dial tone	Modem not configured	Configure the modem.
No dial tone	Modem not connected to the computer	Connect the modem to the computer.
No dial tone	Modem not connected to the mains	Connect the modem to the mains

KEY POINTS

- Microsoft Office Access 2007 is a member of Microsoft Office 2007 integrated software and it is the most popular software used worldwide for developing and managing databases.
- Access is a relational database management system (RDBMS) that runs on Windows.
- An Access file of information is a database in which it stores data in a relational database format.
- Simple tables data types are generally used in Access which are text, memo, number, date/time, number, yes/no, currency and autonumber.
- Text data type allows letters, numbers or alphanumeric or numerically not the records in a table in descending or ascending order.
- A form is a tool that makes it easy to enter, delete, modify and view the information stored in one or more tables. Forms are used to display information from one or more tables or queries.
- Queries is a tool that answers questions about data in select specific information from tables and to perform a predefined task or various ways. It lets you sort the data you want and in the order you want it.
- A report is a tool that presents information in a formatted way. Reports are used to present information and meaningful to other people. Reports are used to print data stored in tables and queries, which is an essential part of using a database.
- Table Wizard helps you create a table by asking questions and with a table to be left. It presents the information in a single record over many rows.
- Tabular reports display items of records in a horizontal row with field labels at the top of the report.

EXERCISE

Select the Right Answer

1. Which of the following is used to gather information based on one or more criteria?
   (a) Table (b) Query (c) Form (d) Report
   Answer: (b)
2. Which data field type is used to provide descriptive information?
   (a) Text (b) Memo (c) Autonumber (d) Yes/No
   Answer: (a)
3. Which data field type is used to store a given number of characters?
   (a) Hyperlink (b) Text (c) Memo (d) Date/time
4. Which data field type is used to store information in a table?
   (a) Text (b) Memo (c) Number (d) Date/time
5. The maximum number of records in a table that can use the Autonumber field is slightly more than 2 billion.
   (a) True (b) False
6. Which of the following is used to store information in a table?
   (a) Table (b) Query (c) Form (d) Report
7. What is the default length of characters for the Text data type?
   (a) 50 (b) 255 (c) 100 (d) 75
   Answer: (b)
8. Which query is used to add records from a table to another table?
   (a) Select Query (b) Update query (c) Delete Query (d) Make Table query
9. Which query is used to change data in existing records?
   (a) Select Query (b) Update query (c) Delete Query (d) Make Table query
10. Which of the following is a type of Access Wizard?
    (a) Table (b) Query (c) Form (d) Report
    (e) Tabular Reports (f) Charts (g) Chart (h) Pivot Table (i) Crosstab (j) Database Tools

11. In which tab of Access ribbon Query Design icon is located?
    (a) Home (b) Create (c) External Data (d) Database Tools
    Answer: (b)

1	2	3	4	5	6	7	8	9	10	11
(a)	(a)	(b)	(a)	(a)	(a)	(b)	(b)	(b)	(a)	(b)

Fill in the Blanks

1. Which tools can be performed using Microsoft Office Button?
   Answer:
   Tools performed using Microsoft Office Button:
   By using Microsoft Office Button following tasks can be performed:
   1. Opening
   2. Saving
   3. New file creation
   4. Printing
   5. Preview
   6. Various various ways of deleting records in a table.
2. Deleting Records from a Table:
   The following are the steps for deleting records from a table:
   1. Open the table that contains the records to be deleted.
   2. Select the record you want to delete by clicking in the selector box, which is on the left end of the record.
   3. Press the Delete key or choose Delete from the Records option on the Home tab.
   4. Choose the yes button in the dialogue box that appears to delete the record.
   Ways of deleting records:
   Ways of deleting records deleteing multiple records by selecting them by clicking the row selector and dragging up or down and then pressing the Delete key.
   Once you delete a record and click Undo button to confirm your action, you will not be able to restore the deleted record. Access does not provide a confirmation dialogue box for deleting records. If you are sure you want to restore a deleted record, you will have to re-enter it from the scratch.
   Deleteing a table: Deleteing a table is a very simple. Open the database that contains the table, Press the Delete key or choose the Delete option from the Edit menu. A dialogue box appears, asking you if you want to delete the table. It permanently deleteing the table and all the table information about a single entry.
   What is record in a table is deleted that is related to another table. Access might need to delete one or more related records in other tables before it can delete the record you want to delete. If it does, it will prompt you, you must deleteone whether you want Access to delete the additional records. Deleteing a table is a very simple.
3. What are the advantages of using forms?
   Answer:
   Advantages of using forms:
   The advantage of using form is presenting data in an organized and attractive manner.
   Forms are based on referential integrity.
   Answer:
   Referential integrity enforcement prevents you from deleting or modifying values of a primary subject record on which related records depend.

4. Describe three records can be added and deleted using forms.
   Answer:
   Adding new record using forms
   To create a new records click the New Record button that contains the selector on the Tabbed of the bottom of the form window or click the New Record button in the Records group of Home tab. The new record appears at the end of the table and will be displayed in the form window so that you can enter information into it.
   Deleteing a record
   To delete a record, first display it in the form window and then choose Delete Record from the Edit menu or click the Delete button. The record deleteing from the table is permanently lost and it cannot be restored using the undo command.
5. Describe otherwise: Tabular and datasheet layouts of forms.
   Answer:
   Columnar layout
   Columnar layout of form aligns all fields in columns.
   Tabular layout
   Tabular layout of form creates a form that looks like a table.
   Datasheet layout
   Datasheet layout creates a form that looks like a datasheet.
6. What is the use of Query Design grid?
   Answer:
   Use of Query Design grid
   Query Design grid is used to stores a particular type of data.
7. What is OpenOffice Base?
   Answer:
   OpenOffice Base
   OpenOffice Base is the database module of OpenOffice Suite. It is an open source application that provides features a fully fledged database management system.
8. Differentiate between update and append query.
   Answer:

Difference between update and append query	
Update queries allow you to add, change, and or delete a table data in existing records. You cannot use update queries to add records to other tables. Access will prompt you before it deleteing records from a table.	Append queries allow you to add records from a table to another table. Access will prompt you before it deleteing records from a table. Choose a location for the new table and then run the query to create the new table.

9. Differentiate between columnar and tabular reports.
   Answer:

Difference between columnar and tabular reports	
Columnar report	Tabular reports
Columnar report displays items of records in a vertical row with a label to the left. It presents the information for a single record.	Tabular report displays items of records in a horizontal row with field labels at the top of the report.

Fill in the Blanks

1. Which tools are used common on Access ribbon?
   Answer:
   Tables
   Forms
   Queries
   Reports
   Macros
   Answer:
   Tables
   Access stores all the information of a database in one or more tables. Information stored in tables is very similar to the Excel worksheet. Information in tables is organized in rows and columns.
   Forms
   A form is a window that is used for viewing, modifying or deleteing data that is stored in tables and for controlling the flow of an application.
   Queries
   Queries are used to gather selected information from a database and organize it either for use in reports or for viewing on screen. A query can combine information from several tables.
   Reports
   Reports are used for printing information from a database. A report can combine data from more than one table.
2. Explain the Field data types used in Access.
   Answer:
   Field Data in Access
   Access supports seven types of field data types, which are commonly used in Access.
   - Text
   - Memo
   - Number
   - Date/Time
   - AutoNumber
   - Yes/No
   - Currency
   - OLE Object
   - Text
   Text fields are used common on Access ranges field on the default data type. A Text field can contain up to 255 characters and you can designate a maximum length, which is 255 by default. Access assigns a default length of 50 characters.
   Memo
   Memo fields contain contain as many as 65,535 characters. You use them to provide descriptive information about a table. Access stores Memo fields in a separate area in the table from where you set a memo field.
   Number
   Numeric numeric data subtypes are available in the Field Properties pane of Table Design window. Choose the appropriate data subtype by selecting one of the Field Size property settings. You specify the precision and scale of a Number field using the Field Size property.
   AutoNumber
   AutoNumber field is a special Long Integer value that Access automatically fills in for each new record you add to a table. Access can Crosstabulate the AutoNumber field. The value has double of the Long Integer value. Access automatically assigns the next value in the sequence. Access lets you choose the maximum number of decimals in a table that can use the AutoNumber field is slightly more than 2 billion.
   Yes/No
   Yes/No field is Access uses 1 to Yes (True) and 0 for No (False). You use the Format property to display Yes/No fields as Yes or No, True or False, On or Off or -1 or 0.

4. Currency
   Currency is a special field format with four decimal places designed to prevent rounding errors that would affect accounting operations where the value must total to the penny.
   OLE Object
   Object and Ones are stored in a special field format. The active number portion of the Date/Time value deteriorates the date and the time is represented by its decimal fraction. You control how Access displays the date and time by using the Format property.
   Additional Properties of a Table Field
   Access provides a number of properties you can choose to refine, you can add additional properties for a table field. You set these additional properties on the General page of the Table Design window's Field Properties pane, selecting from drop-down or combo lists or by typing values.
   Setting Data Type
   When you Deleteoriginal all the fields that you want to include in your table, you must select a Other data type for each field. Access lets you select a data type from a drop-down list. Access lets you give your data a name. You can also select a by clicking the back icon on the top left corner of the screen.
5. Describe how forms are created.
   Answer:
   Steps for creating the form
   Following are the steps for creating the form shown in Fig.8.24 for the related tables STUDENT and RESULT. Open the database containing the tables.
   1. On the Create tab of Access ribbon, click Blank Forms group and select Form Wizard from the drop down menu.
   2. Select the STUDENT table in the Tables/Queries drop down list in the first dialog box.

Fig.8.24 Form Wizard dialog box

   3. Move all the fields of STUDENT table from the Available Fields list to the Selected Fields list by clicking the >> button.
   4. In the same dialog box, select the RESULT table and move all the fields in the Selected Fields list by clicking the >> button. Click the Next button.
   5. This screen will ask you how you want to view your data: Select by STUDENT and also select the Form with subform(s) option. Click the Next button. Select the Datasheet option.
   6. Select a style that you like and click the Next button.
   7. Enter the form name as STUDENT in the dialog box. Click the Finish button.
   8. Select the form name as STUDENT.
   9. Write the steps for creating relationships between tables.
   Answer:
   The connection between a field in one table and a field in another table must be defined when

Access. Such a definition is known as a relationship and each of the fields to said to be related to the other field. Once a relationship has been designated, Access can help you maintain the integrity of the data in related tables. Access can also automatically fill in the data in one table when you create queries, forms and reports that display information stored between other.
   Creating Relationship between STUDENT and RESULT Tables
   Open the database containing the tables. Click on the STUDENT table and the RESULT table. The Access first primary key field, STUDENTID of the STUDENT table and the RESULT table. Access automatically creates a relationship between the two tables if the primary key field is the same. Access lets you create relationships between tables in the Relationships window. Note that the data type for STUDENTID in the STUDENT table and the data type of RESULTID should be the same. Access will prompt you if such a problem arises.
   Steps for creating relationship:
   Following are the steps for creating a relationship between given tables below:
   1. Click the Relationships icon in the Ribbon of Access Database as shown in Fig.8.25.

Fig.8.25 Relationships icon

   2. Click the STUDENT table and click the Add button.

Fig.8.26 Show Table dialog box for adding tables

   3. Click the RESULT table and click the Add button.
   4. Click the Close button to close the dialog box.
   5. Move the mouse pointer to the primary key STUDENTID and drag it to the foreign key RESULTID field in the RESULT table.
   6. Describe the types of queries that can be created in Access.
   Answer:
   The following are five types of queries that can be created in Access.
   - Select Query
   - Update Query
   - Delete Query
   - Make Table Query
   - Append Query
   Creating a Select Query
   Following are the steps for creating a Select Query that will display all the records of STUDENT table in which the CITY field is GUJARATI.
   1. Click the Create tab.

   2. Click the Query Design icon in the Other group to bring up the query design window.
   3. Select the STUDENT table and click the Add button.
   4. Double click all the fields one by one in the box selected STUDENT table in the query design grid. The field names will appear in the row of each column in the query design grid.
   5. Enter the criteria in the CITY field as GUJARATI as shown in Fig.8.28.

Fig.8.27

   6. Click the Save icon above the Access ribbon to save the query. When you are prompted for the name of the query, enter the name as STUDENTCITY and click the OK button.
   7. To run the query, click the query name in the Navigation Pane on the left side of the screen. The query will run and the results will be displayed in the form of a table as shown in the Fig.8.29. You can also run the query without saving it. After creating the select query, click Run in the Results group of Design tab and the query will run.

Fig.8.30 List of students living in Gandhidham

   Creating an Update Query
   Update queries are used to change, and or delete data in existing records. You cannot use an update query to add records to or delete records from a table but you can it to change existing records in a table. Access will prompt you before it deleteing records from a table.
   We are going to create an update query that will update the CITY field of all the records that have the value GANDHIDHAM in the CITY field to the value GANDHI. We are going to create an update query to change the value GANDHIDHAM to GANDHI.
   Steps to create update query:
   1. Open the database that contains the records that you want to update.
   2. Find create the select query with the criteria GANDHIDHAM in the CITY column.
   3. On the Design tab in the Query Type group as shown in Fig.8.31 click Update.

Fig.8.31

   4. Access will add the update To row in the query design grid as shown in Fig.8.32. Type GANDHI in the CITY column in the Update To row.
   5. Click the Save icon on the top left corner of the screen.
   6. Type a name for the query and click OK.

   8. Double click the query in the Navigation Pane to see the result.

Fig.8.33 Data Sheet view of the updated query

   Creating a Delete Query
   Delete queries are used to delete entire records from tables along with the primary key. The process of creating a delete query using query design window is very similar to creating update queries. To do this, first create a select query to select the records that you want to delete and then convert it into a delete query.
   Suppose in our Student Database Management System we want to delete records of all the students living in Gandhidham.
   The following are the steps to create the query:
   1. First create the select query with the criteria GANDHI in the CITY column.
   2. On the Design tab in the Query Type group and click Delete. This will hide the Show row and add a Delete row in the query design grid.

Fig.8.34 Creating a delete query

   3. To delete the selected records, click Run in the Results group of Design tab. Access will ask you confirmation before deleteing the records.
   To delete related data in tables, deleteinvolve records and in the case of the relationship between tables, Access will prompt you before it deleteing related records. Access will prompt you before it deleteing the table and deleteinvolve the table and deleteinvolve deleteing and

Q.1 Select the correct choice from the following questions.

1. **There are _____ types of relational database management systems:**
   A. Two B. Three C. Four D. Five
2. **It is one of the popular database software by Microsoft:**
   A. Microsoft Access B. Microsoft Word
   C. Microsoft PowerPoint D. Microsoft Excel
3. **It stores all the data of a database:**
   A. Report B. Table C. Form D. Query
4. **It is a window that displays data for viewing, entering and editing information:**
   A. Report B. Table C. Form D. Query
5. **It is used to gather information based on one or more criteria:**
   A. Report B. Table C. Form D. Query
6. **It is used for printing information from database:**
   A. Report B. Table C. Form D. Query
7. **Microsoft Access is a:**
   A. RDBMS B. OODBMS
   C. ORDBMS D. Network Database Model
8. **Access assigns this data type as the default data type:**
   A. Number B. AutoNumber C. Text D. Memo
9. **A Text field can contain _____ characters:**
   A. 255 B. 200 C. 355 D. 155
10. **Access assigns a default length of _____ characters:**
    A. 40 B. 50 C. 60 D. 70
11. **Memo fields ordinarily contain as many as _____ characters:**
    A. 65,555 B. 75,535 C. 65,535 D. 85,535
12. **You use them to provide descriptive comments:**
    A. Number B. AutoNumber C. Text D. Memo
13. **It is a numeric (Long Integer) value that Access automatically fills in for each new record you add to a table:**
    A. Number B. AutoNumber C. Text D. Memo
14. **Access can increment the AutoNumber field by _____ for each new record:**
    A. 1 B. 2 C. 3 D. 4
15. **There are _____ basic types of forms depending on the layout:**
    A. Three B. Four C. Five D. Six
16. **While working in forms, to move back to the previous control press:**
    A. Shift+Tab B. Ctrl+Tab C. Alt+Tab D. F3+Tab
17. **This query is used to change, add or delete data in existing records:**
    A. Select Query B. Update Query C. Delete Query D. Append Query
18. **This query is used to delete entire records from tables along with the primary key:**
    A. Select Query B. Update Query C. Delete Query D. Append Query
19. **This query is used to add records from a more source table to a destination table:**
    A. Select Query B. Update Query C. Delete Query D. Append Query

Answers:

1.	Three	**2.**	Microsoft Access
3.	Table	**4.**	Form
5.	Query	**6.**	Report
7.	RDBMS	**8.**	Text
9.	255	**10.**	50
11.	65,535	**12.**	Memo
13.	AutoNumber	**14.**	1

15.	Shift+Tab	**16.**	Update Query
17.	Update Query	**18.**	Delete Query
19.	Append Query		

Q.2 Give short answers of the following questions.

Q1: Why databases are developed?
Ans. Databases are developed to provide facilities to store, manage and retrieve information in an organized way.

Q2: Why relational databases are successful in organizations?
Ans. Relational databases have been very successful in organizations for managing databases. In relational databases, data is stored in tables. The relations between the tables make it a relational database.

Q3: Which things are included in the creation database objects?
Ans. Database development includes the creation of database objects (tables, forms, queries, reports, etc.), keys and relationships between the tables

Q4: Name the Types of Relational Database Management Systems (RDBMS).
Ans. There are three types of relational database management systems (RDBMS). These are:

- ⇨ Microsoft Access
- ⇨ OpenOffice Base
- ⇨ SQL Server

Q5: Write down the use of OpenOffice Base.
Ans. OpenOffice Base allows users to create interactive databases where they can manage data related to payroll, inventory, assets, budgets, customers, sales orders and invoices, etc..

Q6: Give a brief introduction of SQL Server.
Ans. SQL Server is a product of Microsoft Office. SQL Server is a relational database management system that offers a variety of tools for database development, maintenance and administration.

Q7: Write down the function and use of SQL Server.
Ans. Main function of SQL Server is to store and retrieve data as requested by other software applications. It is also used to create and manage Web-based databases.

Q8: State the function of Microsoft Office Button.
Ans. The Microsoft Office Button performs tasks such as saving, opening, new file creation and printing, etc..

Q9: Write down the steps for launching Access 2007.
Ans. Following steps are used for launching Access 2007:

1. Click the Start button on the Windows taskbar.
2. Click All Programs on the Start menu.
3. Click Microsoft Office on the All Programs submenu.
4. Click Microsoft Office Access 2007 to launch Access 2007 and display the Getting Started with Microsoft Office Access screen.

Q10: What are the objects which are used in Access?
Ans. The following are the main objects used in Access:

- ⇨ ables
- ⇨ Forms
- ⇨ Queries
- ⇨ Reports

Q11: What is a form?
Ans. A form is a window that is used for viewing, modifying or deleting data that is stored in tables and for adding new data.

Q12: Why queries are used?
Ans. Queries are used to gather selected information from a database and organize it either for use in reports or for viewing on screen. A query can combine information from multiple tables.

ABBREVIATIONS

ATM	Automated Teller Machine	**BIOS**	Basic Input Output System
BIPS	Billion Instructions Per Second	**CD**	Compact Disk
CISC	Complex Instruction Set Computer	**CRT**	Cathode Ray Tube
DBA	Database Administrator	**DBMS**	Database Management System
DIMM	Dual In-line Memory Module	**DRAM**	Dynamic Random Access Memory
DSL	Digital Subscriber Line	**DVD**	Digital Video Disk
EEPROM	Electrically Erasable Programmable Read Only Memory	**EPROM**	Erasable Programmable Read Only Memory
GB	Gigabyte	**GPS**	Global Positioning System
IBM	International Business Machines	**IC**	Integrated Circuit
IP	Internet Protocol	**ISDN**	Integrated Services Digital Network
ISO	International Standards Organization	**KB**	Kilobyte
LAN	Local Area Network	**LCD**	Liquid Crystal Display
LSI	Large Scale Integration	**MAN**	Metropolitan Area Network
MB	Megabyte	**MIPS**	Million Instructions Per Second
MSI	Medium Scale Integration	**NIC**	Network Interface Card
OSI	Open System Interconnection	**PDA**	Personal Digital Assistant
PROM	Programmable Read Only Memory	**PSTN**	Public Switched Telephone Network
RAM	Random Access Memory	**RDRMS**	Relational Database Management System
RISC	Reduced Instruction Set Computer	**ROM**	Read Only Memory
SATA	Serial Advanced Technology Attachment	**SDRAM**	Synchronous Dynamic Random Access Memory
SIMM	Single In-line Memory Module	**SSI**	Small Scale Integration
TB	Terabyte	**TCP**	Transmission Control Protocol
TIPS	Trillion Instructions Per Second	**USB**	Universal Serial Bus
VLSI	Very Large Scale Integration	**VPN**	Virtual Private network
WAN	Wide Area Network	**WWW**	World Wide Web

GLOSSARY

Application software	A set of programs designed to perform a specific task, such as typing a letter, preparing payroll, playing music or creating animated display.
Assembler	A system software that translates assembly language programs into machine language for execution by the computer.
Asynchronous Transmission	A type of transmission in which the time interval between the characters being transmitted varies.
Attribute	A property or characteristics of an entity.
Bus Topology	A type of topology in which the transmission medium is usually a single cable to which all the devices are attached.
Cache Memory	Small amount of high-speed semiconductor memory which exists inside the microprocessor or on the motherboard of a computer.
Circuit Switched Network	A mode of operation of a network in which communication path is first established between the source and the destination and used exclusively for the duration of the call or transaction.
Client	A computer on the network that accesses resources that are shared by other computers.
Client/Server Network	A computer network in which each computer on the network acts as either a server or a client.
Communication Media	Communication lines used to transmit data between computers, such as telephone line, fiber optics or coaxial cable.
Compiler	A system software that translates entire program written in a high-level language into machine language program for execution by the computer.
Computer Casing	A box or an enclosure that contains most of the components of a computer except the input/output devices.
Computer Network	An interconnection between two or more computers so that they can communicate with each other.
Computer Program	A sequence of instructions which are stored in main memory of a computer and specify which operations are to occur to solve a problem.
Control Unit	A unit of CPU that directs and coordinates the operations of entire computer system.
Data File	A collection of records.
Data Inconsistency	The same items of data held in many different files having different values.
Data Redundancy	The same data duplicated in many different data files.
Database	A collection of related data in data files or tables.
Database Management System (DMBS)	A general-purpose software that allows users to create and maintain a database.
Database Administrator	A person incharge of a group who is responsible for supervising both the database and the use of DBMS
Database	A collection of many different data files linked in such a way that information can be retrieved from several files simultaneously.
Device Driver	A computer program whose purpose is to control the operation of a hardware device attached to computer.

Digital Computer	A machine that can solve problems by carrying out instructions given to it in a computer programming language.
Direct Access Memory	A type of memory in which the actual physical location of a memory word has no effect on how long it takes to read from or write into that location.
Entity	A thing of interest to an organization about which data is to be held.
Entity-Relationship (E-R) Diagram	A diagrammatic way of representing the relationship between entities in a database
Firmware	An intermediate form between hardware and software which consists of software embedded in electronic devices during their manufacture.
Form	A window that displays a collection of controls, such as labels, text boxes, check boxes and lists for viewing, entering and editing the information in database fields.
Freeware	Software distributed free of cost like shareware but it is usually full version of the software for an unlimited period of time.
Full-duplex Mode	A type of information exchange method between two communicating devices, whereas, information can be exchanged in both directions simultaneously.
Gateway	A device that is used to link very different kinds of networks, such as a network of IBM mainframe computers and a network of PCs.
Half-duplex Mode	A type of information exchange method between two communicating devices, whereas, information can be exchanged in both directions alternatively.
Hardcopy	Output generated by an output device, such as printer on paper that is permanent record of information and cannot be changed.
Hardware	Physical components of computer, such as monitor, keyboard, hard disk, printer, along with the circuitry connecting them.
Hierarchical Database Model	A database model in which data is organized into a tree-like structure.
Hyper Text Markup Language(HTML)	The major language of the Internet's World Wide Web to write web pages.
IC Chip	A silicon chip that consists of miniature logic circuits etched on it.
Interpreter	A system software that translates high-level language program into machine language but it translates one instruction at a time and executes it before translating the next instruction.
IP Address	A unique address made up of 32 bits that identifies a host on Internet.
ISO	International Standards Organization based in Geneva that develops standards for various devices.
Local Area Network (LAN)	A network that consists within a limited geographical area such as a building or a university campus.
Memory Address	A number that points at a location of a word in memory.
Metropolitan Area Network(MAN)	A backbone network of fiber optic cables that could span hundreds of square miles within a city.
Microprocessor	A single VLSI chip that directs and coordinates the operation of all the other part of computer.
Modulation	The process of transmitting a sequence of 1s and 0s by varying amplitude or frequency of a sine wave.

Motherboard	A circuit board that connects all the components of computer system through ports, cables or expansion slots.
Network Database Model	A hierarchical database model in which some of the data elements can have more than one owner data element
Object-Oriented Database Model	A database model that stores objects rather than data, such as integers, real numbers and strings. Objects are used in object-oriented programming languages, such as C++ and Java.
Open Source Software	Computer software that is available in the form of source code that allows users to study, change and improve it.
Operating System	A system software that manages the hardware and software resources of a computer system, such as CPU, storage and all the input devices.
OSI	Open System Interconnection is a standard model of a data communication system developed by ISO to facilitate communication system in which equipment from different vendors can communicate with each other.
Packet Switched Network	A mode of operation in which each message transmitted through the network is first divided into a number of smaller units known as packets. Each packet contains addressing information and the packets are reassembled at the destination.
Pear-to-Peer Network	A network in which every computer is capable of playing the role of client, server or both at the same time.
Plotter	An output device used to produce hardcopy of graphs, maps, engineering drawings and machine components.
Port	Connectors at the back of motherboard that provide interface for communication between the microprocessor and input/output devices.
Primary Key	A unique field of an entity in a database.
Protocol	A language or set of rules that nodes agree to use to communicate over a network
Query	An object used to gather selected information from a database and organize it either for use in reports or for viewing on screen.
Record	All the information about one person or item.
Referential Integrity	A feature in DBMS that prevents from deleting or modifying values of a primary table's record on which related records depend.
Register	Small storage unit whose function is to temporarily store binary information and pass it on to the other parts of the processor or main memory during the execution of program instructions.
Relational Database Model	A database model in which data is held in tables and the tables are linked by means of common fields.
Relationship	A link or association between entities.
Resolution	The sharpness or quality of picture or text displayed on monitor or printed on printer
Ring Topology	A type of topology in which each computer is connected to its nearest neighbor until all the computers are connected in the form of a ring
Router	A device that reads network addressing information in the packet and may add more information to get it through the network.
Secondary Key	If a database table needs to be searched on a field other than the primary key, it is known as a secondary key.

Sequential Access Memory	A type of memory in which the access time is not constant but varies depending on the address location.
Server	A computer on the network that shares resources for others to use.
Shareware	A proprietary software that is given to people free of charge in a compact disk along with periodicals or magazines or it can be downloaded from a website.
Simplex Mode	A type of information exchange method between two communicating devices whereas information can be passed only in one direction.
Softcopy	Output that appears on a monitor or is saved on some medium, such as hard disk, CD or flash drive.
Software	See definition of computer program.
Software License	A contract between the producer and the user of computer software that specifies the perimeters of permission granted by the owner to the user.
Star Topology	A type of topology in which there is a central computer that performs all the switching functions.
Switch	A device that links cable segments of a LAN, links two LANs or links the cable of LAN to leased lines, such as telephone lines.
Synchronous Transmission	A type of transmission in which the time interval between characters being transmitted is constant.
System Bus	A group of parallel strands of wires for transmitting binary information in the computers.
System Software	Collection of operative programs whose purpose is to make the use of computer easy and effective.
System Unit	A computer casing with all the components, such as motherboard, CPU, main memory and hard disk installed inside it.
Topology	A map of layout of nodes and connections in a network.
Utility Software	Software that provides facilities to carry out tasks which are beyond the capabilities of the supervisor of operating system.
Virtual Private Network (VPN)	A network that provides remote access to individuals or offices to their organization's networks by using public telecommunication infrastructure such as Internet.
Wide Area Network (WAN)	A network that spans a large physical area, connecting computers across cities, countries and continents.
Wireless Network	A network that uses electromagnetic waves to provide facilities to computer users to exchange information without additional wiring network.