Chapter 1: Introduction to Computer

1. **From which word is computer derived from?**
   The word computer is derived from Latin word '**computare**' which means to '**calculate**'.
2. **What is computer?**
   Computer is an electronic device which accepts raw facts and figure as input through input device, process it according to the instruction supplied by the user, stores it and produce a meaningful information as output through output device.
3. **Explain the working principle of computer.**
   The working mechanism of computer is based on the principle of IPO(Input, Process and Output) and Memory.
   i. **Input**: The process of providing data and instructions to the computer is called input. Input devices are used to enter data and instructions to the computer. Some of the examples of input devices are keyboard, mouse, scanner, microphone, etc.
   ii. **Process**: The process of executing or calculating the data as per the instructions is called process. It is performed by the CPU (Central Processing Unit).
   iii. **Output**: The meaningful information obtained after processing is called output. The output is provided to the user through output devices. Some of the output devices are monitor, speaker, plotter, printer, etc.
   iv. **Memory/Storage**: A physical device that stores data or instructions temporarily or permanently in it is called memory device. Computer can store data either temporarily in RAM or permanently in devices like Hard disk, pen drive, optical disk, etc. Some examples of memory devices are RAM, ROM, Hard disk, CD, DVD, etc.
4. **What are input devices? Write its examples.**
   The devices which are used to provide data and instructions to the computer for processing are called input devices. For example: keyboard, mouse, scanner, microphone, etc.
5. **What are output devices? Write its examples.**
   The devices which are used to provide the result obtained after processing to the user are called output devices. For example: monitor, speaker, plotter, printer, etc.

6. **What is data and information?**
   Data is the raw facts and figure which does not have any meaning. Information is the processed data that has some meaning.
7. **What is instruction and program?**
   Instruction is the command given to the computer. Program is the set instructions given to the computers to perform specific task.
8. **What is computer hardware and software?**
   Computer hardware is the physical part of the computer that can be touched and felt. For example: keyboard, mouse, printer, speaker, etc. Software is the logical part of the computer and collection of program that cannot be touched or felt. For example: MS-PowerPoint, MS-Word, MS-Excel, Google Chrome, etc.
9. **Explain the types of output.**
   The types of output are:

i. **Soft-copy output**: Output that cannot be physically touched and resides in the form of electronic media is called soft-copy output. The device that shows output on a screen or plays sound is called soft copy output device. Some of the examples of soft-copy output devices are monitor, speaker, etc.

ii. **Hard-copy output**: Output that can be physically touched is called hardcopy output. The device that provides output in the form of paper is called hardcopy output device. Some of the example of hardcopy output devices are printer, plotter, etc.

10. **What is processing?**
    The process of converting raw facts and figure into meaningful information.
11. **How is the speed of a computer measured?**
    The speed of a computer is measured in Hertz (Hz), commonly in Gigahertz (GHz).
12. **What is storage or memory device? List its types.**
    A physical device that stores data or instructions temporarily or permanently in it is called memory device. Its types are:
    i. Primary memory/Main memory
    ii. Secondary memory/Auxiliary Memory
13. **What is primary memory/main memory?**
    Primary memory is the memory that can be directly accessed by the CPU (Central Processing Unit). For example: RAM and ROM.

14. **What is secondary memory/auxiliary memory?**

    A physical device that stores data and information permanently in it is called secondary/auxiliary memory. For example: Hard disk, CD, DVD, pendrive, etc.

15. **Explain the characteristics/features of computer.**

    The characteristics/features of computer are explained below:

    i. **Accuracy**: Computer are the accurate machine that means result produced by computer are 100% accurate. Since, it follows GIGO. The error that may arise in output is due to human not by a computer.
    ii. **Speed**: Computer works on tremendously high speed. The operating speed of computer are measured in millisecond, microsecond, picosecond and nanosecond.
    iii. **Storage**: It is the area or unit which is capable of storing data and information for present and future use. These days computer comes with high volume of memory which are measured in Megabyte (1024 KB), Gigabyte (1024 MB), Terabyte (1024 GB) and Petabyte (1024 TB).
    iv. **Versatility**: The implementation of computer are not only limited to specific purpose, they solve general requirement of the user and can be used in more than one type of job.
    v. **Diligence**: Computer can perform any number of task continuously until it is accomplished. It never get tired like humans
    vi. **Automatic**: Once the instruction is generated it perform accordingly until command is terminated. This is called automatic.

16. **Explain the applications/implementation/uses of computer.**

    The applications of computer are listed and four of them are explained are described below.

    i. Education:
    ii. Communication:
    iii. Business:
    iv. Engineering and designing:
    v. Science and research
    vi. Military
    vii. Industry
    viii. Medicine
    ix. Robotics

x. Transportation

Education: Computers help students learn with videos, quizzes, and online classes. Teachers use computers to show presentations and store student records.

Medicine: Computers are used in hospitals for keeping patient records, diagnosing diseases, and controlling advanced machines like X-rays and MRI scanners.

Robotics: Robots controlled by computers can do tasks like cleaning, building cars, or even exploring other planets. They make work easier and safer for humans.

Business: Computers are used in businesses to manage accounts, store customer information, and create advertisements. They also help in online shopping and tracking sales

17. Write the capabilities and limitations of computers.

Capabilities/Advantages/Merits/Pros of computer:

i. It can store huge amount of data.
ii. It has higher speed and accuracy.
iii. It can be used to perform several jobs
iv. It provides faster and cheaper way for communication.
v. Computer are used to solve complex and critical situation.

Limitations/Disadvantages/De-merits/Drawback/Cons of computer:

i. It cannot make their decision on their own.
ii. It operates on electricity or battery.
iii. It can affect human eye, when used for long period of time.
iv. It may be not affordable for everyone.
v. It cannot think, learn or react as human.
vi. It cannot draw conclusion and provide feedback.

Chapter 2: History of Computer

Chapter 3: Generation of Computer

18. Define generation of computer. List the different generations of computer.

Generation of computer is the division of electronic computers on the basis of technology used by the computer. The different generations of computer are:

i. First generation of computer
ii. Second generation of computer
iii. Third generation of computer

iv. Fourth generation of computer
v. Fifth generation of computer

19. Write the features of first generation of computers.

The features of first generation of computers are:
i. **Vacuum tube** was used as the main component.
ii. The operating speed of the computer was in terms of **millisecond**.
iii. **Machine language** was used to develop program.
iv. **Magnetic core memory** was used as the primary memory.
v. **Punched card, magnetic drum and magnetic tape** were used as secondary memory.
vi. **Punched card** as input and the **printed copy** as output were used.
vii. **Example:** ENIAC, EDVAC, EDSAC, UNIVAC etc.

20. Write the features of second generation of computers.

The features of first generation of computers are:
i. **Transistor** was used as the main component.
ii. The operating speed of the computer was in terms of **microsecond**.
iii. **Assembly language** was used to develop program.
iv. **Magnetic core memory** was used as the primary memory.
v. **Magnetic drum and magnetic tape** were used as secondary memory.
vi. **Punched card** as input and the **printed copy** as output were used.
vii. **Example:** Leo Mark III, IBM 1620, IBM 7094, etc.

21. Write the features of third generation of computers.

The features of first generation of computers are:
i. **Integrate Circuit (IC)** was used as the main component.
ii. The operating speed of the computer was in terms of **nanosecond**.
iii. **High Level Language (HLL)** was used to develop program.
iv. **RAM and ROM** were used as the primary memory.
v. **Magnetic tape and magnetic disk** were used as secondary memory.
vi. **Keyboard** as input and the **monitor** as output device were used.
vii. **Example:** IBM 360 series, ICL 900 series, Honeywell 200 series, etc.

22. Write the features of fourth generation of computers.

The features of first generation of computers are:
i. **Microprocessor or VLSI** is used as the main component.
ii. The operating speed of the computer is in terms of **picosecond**.
iii. **High Level Language (HLL) and Fourth generation language (4GL)** are used to develop program.
iv. **RAM, ROM and cache memory** are used as the primary memory.
v. **Magnetic disk, optical memory and flash memory** are used as secondary memory.

vi. Flexible input/output devices like mouse, touch screen, LCD, LED are used.
vii. **Example:** IBM desktop PC, Dell notebook, iPad, HP laptop, etc.

23. Write the features of fifth generation of computers.

The features of first generation of computers are:
i. **Biochip** will be used as the main component.
ii. The operating speed of the computer will be in terms of **femtosecond**.
iii. **Natural language** will be used to develop program.
iv. **Superconductor memory** will be used.
v. The computer will have Artificial Intelligence (AI).
vi. **Example:** Param 1000, Pentium PCs, Intel P4, etc.

24. What is Artificial Intelligence (AI)?

Artificial Intelligence is the ability of artificial object to learn, think and make decisions as humans.

25. What is vacuum tube?

A vacuum tube is an electrical device that controls movement of electric current between electrodes in a vacuum.

26. What is transistor?

A transistor is a semiconductor device used to amplify or switch electronic signals.

27. What is Integrate Circuit (IC)?

Integrate Circuit is a small silicon chip that contains large number of transistors within it.

28. Write short notes on:

a) Vacuum tube: A vacuum tube is an electrical device that controls movement of electric current between electrodes in a vacuum. It is also called electron tube or valve. It is the main technology used in first generation computer.

b) Transistor: A transistor is a semiconductor device used to amplify or switch electronic signals. It replaced the vacuum tube in second generation of computer because it is smaller, reliable, faster and has low power requirement than vacuum tube.

c) Integrated Circuit (IC):

Integrate Circuit is a small silicon chip that contains large number of transistors within it. It is major technology used in third generation computer. It is based on Large Scale Integration.

d) Artificial Intelligence (AI): Artificial Intelligence is the ability of artificial object to learn, think and make decisions as humans. It can be used in various areas like military, medical, education, business, research, molecular

modeling, study of DNA structure, etc. It can perform the work faster than the human at high accuracy.

Chapter 4: Types of Computer

29. **What are the classification/different types of computers?**
Classification of computer: Depending upon the use and advancement of technology computer are categorized in 4 different types:

Classification of Computer				
Basis of Operation/ working principle	**Basis of Purpose or use**	**Basis of performance and size**	**Basis of brand**	**Basis of model**
i. Analog computers	i. General purpose computer	i. Super computer	i. IBM PC	i. XT
ii. Digital computers	ii. Special purpose computer	ii. Mainframe computer	ii. IBM compatible	ii. AT
iii. Hybrid computers		iii. Mini computer	iii. Apple machintosh	iii. PS/2
		iv. Micro computer		

30. **What is general purpose computer? Give some examples.**
A computer which can be used for multiple or generalized task is called general purpose computer. For example: Desktop Pc, laptop, Notebook pc, etc.

31. **What is special purpose computer? Give some examples.**
    A computer which is used for particular work only is called special purpose computer. For example: thermometer,seismograph, speedometer, etc. Most of the analog and hybrid computers are special purpose computer.
32. **Explain the types of computer on the basis of purpose or use.**
    The types of computers on the basis of purpose or use are:
    i. General Purpose Computer:
    A computer which can be used for multiple or generalized task is called general purpose computer. For example: Desktop Pc, laptop, Notebook pc, etc. It is the ordinary computer computer which can store large amounts of data, programs and used for preparing documents, playing games, watching movies, surfing internet, etc.
    ii. Special Purpose Computer:
    A computer which is used for particular work only is called special purpose computer. For example: thermometer,seismograph, speedometer, etc. Most of the analog and hybrid computers are special purpose computer. Such computers are used for weather forecasting, rocket launching, diagnosis in hospital, controlling industry, etc.
33. **What is analog computer? Give some examples.**
    Analog computer is a computer that operates on continuous data like temperature, speed, pressure, etc. by measuring and comparing. For example: Presley, speedometer, thermometer, voltmeter, etc.
34. **What is digital computer? Give some examples.**
    Digital computer is a computer that operates on discontinuous data like 0 and 1 by counting and calculation. For example: Desktop, laptop, digital watch, etc.
35. **What is hybrid computer? Give some examples.**
    Hybrid computer is a computer that operates on both continuous and discontinuous data. For example: ECG (Electrocardiogram) machine, CT scan machine, ultrasound machine, etc.
36. **Write the differences between analog computers and digital computers.**
    Differentiate between analog and digital computers with examples.

Analog computer	**Digital computer**
It operates on continuous data like temperature, speed, pressure, etc.	It operates on discontinuous data like 0 and 1.

It operates by comparing and measuring.	It operates by counting and calculation.
It is special purpose computer.	It is general purpose computer.
It is less accurate, cheaper and has low storage capacity.	It is more accurate, expensive and has high storage capacity.
Example: Presley, speedometer, thermometer, voltmeter, etc.	For example: Desktop, laptop, digital watch, etc.

37. **Explain the types of computers on the basis of working principle/operation.**
    The types of computers on the basis of working principles/operation are:
    i. Analog Computer
    Analog computer is a computer that operates on continuous data like temperature, speed, pressure, etc. by measuring and comparing. For example: Presley, speedometer, thermometer, voltmeter, etc. It is special purpose computer.
    ii. Digital Computer
    Digital computer is a computer that operates on discontinuous data like 0 and 1 by counting and calculation. For example: Desktop, laptop, digital watch, etc. It is general purpose computer.
    iii. Hybrid Computer
    Hybrid computer is a computer that operates on both continuous and discontinuous data. For example: ECG (Electrocardiogram) machine, CT scan machine, ultrasound machine, etc. It is special purpose computer.
38. **Define supercomputer. Give some examples.**
    Supercomputer is the most expensive and fastest computer in terms of processing speed. For example: CRAY, ANURAG, PARAM, etc.
39. **Define mainframe computer. Give some examples.**
    A mainframe computer is a large, powerful computer that can process billions of transactions and calculations in real time. For example: IBM 1401, ICL 39, CYBER 170, etc.

40. **Define minicomputer. Give some examples.**

A minicomputer is a small-scale computer that's more powerful than a personal computer but less powerful than a mainframe. For example: HCL, MAGNUM, PDP series, etc.

41. Define microcomputer. Give some examples.

Micro computers are the smallest and most portable computers which are based on microprocessor. For example: Desktop, Laptop, mobile phone, etc.

42. Explain the types of computer on the basis of size.

The types of computer on the basis of size are:

i. Super computer

Supercomputer is the most expensive and fastest computer in terms of processing speed. For example: CRAY, ANURAG, PARAM, etc. It is special purpose computer. It is used in the areas of defence and weaponry, weather forecasting, scientific research, satellite communication, molecular modelling, study of DNA structure, etc.

ii. Mainframe computer

A mainframe computer is a large, powerful computer that can process billions of transactions and calculations in real time. For example: IBM 1401, ICL 39, CYBER 170, etc. It is used for storing large amount of data, large volume processing and supporting large number of users at a same time. It is the largest computer on the basis of size. IBM 1401 was the first computer brought in Nepal.

iii. Mini computer

A minicomputer is a small-scale computer that's more powerful than a personal computer but less powerful than a mainframe. For example: HCL, MAGNUM, PDP series, etc. It occupies around 100 sq. ft area and contains around 50 I/O terminals. It is used by medium sized organization such as medium sized banks, business organizations, colleges, insurance companies, etc. with limited amount of data to be stored and a smaller number of users to support.

iv. Micro computer

Micro computers are the smallest and most portable computers which are based on microprocessor. For example: Desktop, Laptop, mobile phone, etc. It has single I/O terminal, so it is developed for single user. It is used for personal use such as creating documents, accessing internet, entertainment, communication, etc. It has least storage capacity, slowest

processing speed and cheapest cost.

There are three types of microcomputers:

a. Desktop computers: These portable computers are also called personal computers (PC). They are so portable that fix in the desk of the user. They are general purpose computers which can be use to perform several varieties of work.

b. Laptop computers: They are the most portable micro computer that exist today. They can easily carried from one place to another place easily. Since, they can run on battery also they can be carried to any place of work.

c. Handheld/Palmtop: Handheld/Palmtop or Personal Digital Assistant (PDA) are the small battery powered device which can be used a computing device to store address, schedule appointment, take notes or even play games. The handheld devices this days has more functionality and use touch screen technology.

43. Define microcomputers. Explain its types in brief.

Micro computers are the smallest and most portable computers which are based on microprocessor. For example: Desktop, Laptop, mobile phone, etc. It has single I/O terminal, so it is developed for single user.IT is used for personal use such as creating documents, accessing internet, entertainment, communication, etc. It has least storage capacity, slowest processing speed and cheapest cost.

There are three types of microcomputers:

a. Desktop computers: These portable computers are also called personal computers (PC). They are so portable that fix in the desk of the user. They are general purpose computers which can be use to perform several varieties of work.

b. Laptop computers: They are the most portable micro computer that exist today. They can easily carried from one place to another place easily. Since, they can run on battery also they can be carried to any place of work.

c. Handheld/Palmtop: Handheld/Palmtop or Personal Digital Assistant (PDA) are the small battery powered device which can be used a computing device to store address, schedule appointment, take notes or even play games. The handheld devices this days has more functionality and use touch screen technology.

44. Write the differences between microcomputer and supercomputer.

Micro computer	Super computer
It is a less powerful and slower computer in terms of processing.	It is a more powerful and faster computer in terms of processing.
It is a general purpose computer.	It is a special purpose computer.
It can be portable as well as non-portable.	It is non-portable computer.
It can be handled by only one person.	It requires numbers of experts or users to handle.
It is smaller and cheaper than supercomputer.	It is expensive and larger than microcomputer.
For example: Desktop, Laptop, Tablet, etc.	For example: CRAY, ANURAG, PARAM, etc.

45. **Which was the first computer brought in Nepal, when and why?**
    The first computer brought in Nepal was IBM 1401 in 2028 BS for population census which was a mainframe computer.
46. **Some key points to remember:**
    Key point:
    IBM company was originally a tabulating machine company established by Dr. Herman Hollerith.
    IBM PC are the branded computers manufactured by IBM company.
    IBM compatibles are duplicate of IBM often called assembled computers.
    Apple computer have their own hardware and software.

Chapter 5: Computer Software

47. What is instruction?

The command given to the computer is called instruction.

48. What is a program?

A program is the set of instructions which helps to do particular task.

49. What is software?

Software is the set of programs written for a computer to perform particular task.

50. Explain the types of software.

The types of software are listed and explained below:

i. System software

ii. Application software

i. System software

System software is a type of software that manages the hardware devices and create environment to use application software. For example: Windows OS, compiler, driver of printer, etc. It is responsible for resource management, software repairing, language translation and system maintenance. It is further divided into four types and they are: Operating System, Language Processor/ Translator, Device Driver and Utility software.

ii. Application software

Application software is the user oriented software which is used to solve the problem of the user. It is installed as per the user requirements. For example: word, excel, PowerPoint, Skype, Outlook, etc. Application software allows doing things like to create document, play game, listen to music and surf the internet. It is further divided into tailored software and packaged software.

51. Explain the types of system software.

The types of system software are listed and explained below:

i. Operating System (OS)

ii. Language processor/ translator

iii. Device driver

iv. Utility software

i. Operating System (OS)

Operating system is the system software that manages the hardware and software resources of the computer. For example: Windows, DOS (Disk Operating System), Linux, UNIX, etc. It manages process, memory, input/output devices, files, etc. Without OS, a user cannot use a computer system.

ii. Language processor/ translator

Language processor/ translator is a program that converts programs written in assembly or high level language into machine level language. Assembler, Compiler and Interpreter are the types of language processor.

Assembler is the language processor that converts program written in assembly

language into machine level language.
Compiler is the language processor that converts program written in high level language into machine level language at once.
Interpreter is the language processor that converts program written in high level language into machine level language line by line.
iii. Device driver
Device driver is the system software required to operate a particular hardware. For example: driver of printer, graphics card, sound card, keyboard, etc.
iv. Utility software
Utility software is a type of system software used to manage, organize, optimize, and enhance the functioning of a computer system. For example: antivirus, backup software, recovery software, compression software, etc.

52. Explain the types of software.

The types of application software are listed and explained below:
i. Tailored software
ii. Packaged software
i. Tailored software
Tailored software is a software developed according to the need of a particular user or organization. For example: Software used for hotel reservation, e-payment software used in business sector, inventory management software.
ii. Packaged Software
Packaged software is the readymade software developed with the target of large number of users. For example: MS Office package, Tally, Adobe Photoshop, etc.

53. fd

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55. Differentiate between System Software and Application Software.

The differences between System Software and Application Software are:

System Software	Application Software
System software is a type of software that manages the hardware devices and create environment to use application software.	Application software is the user oriented software which is used to solve the problem of the user.
It is capable of running independently	It is not capable of running independently

	because it required system software to run.
It is hardware oriented and general purpose software.	It is user-oriented and specific purpose software.
It is either cheaper or provided by free of cost.	It is usually expensive.
For example: Windows OS, compiler, driver of printer, etc.	For example: word, excel, PowerPoint, Skype, Outlook, etc.

56.

57.

Chapter 7: Word Processing (MS Word)

58. What is word processor? Give any four examples of word processor.

Word Processor is an application software used to create, edit, format, and print textual documents. **For example**: MS Word, MS Write, Word Star and Word Perfect.

59. What is MS Word?

MS Word is an application software developed by Microsoft Inc. which is used to create, edit, format, and print textual documents.

60. Write the features of MS Word/Word Processor?

The features of MS Word/Word Processor are:

Text Formatting: Provides options to change font style, size, color, and alignment.

Spell Check and Grammar Check: Automatically detects and suggests corrections for spelling and grammar errors.

Table Insertion: Allows the creation of tables to organize data.

Page Layout: Offers tools to adjust margins, orientation, and paper size.

Templates: Provides pre-designed templates for resumes, letters, and more.

Image and Media Integration: Allows the insertion of images, charts, and videos into documents.

Mail Merge: Facilitates bulk creation of personalized letters and emails.

Chapter 11: Information and Communication Technology (ICT)

61. **Define communication.**

The process of exchanging message between sender and receiver using desired medium is known as communication.

62. **What is telecommunication?**
Communication done over longer distance is known as telecommunication.

63. **What is data communication?**
The process of exchanging data between sender and receiver using desired medium and protocol is known as data communication.

64. List out the components/elements of data communication
i. Sender [Source]
ii. Receiver [Destination]
iii. Medium [Transmission media]
iv. Protocol [Rules through which communication is guided]
v. Data [information to be exchange]

65. **Define ICT.**
ICT stands for Information Communication Technology is a a diverse set of technological tools and resources used to transmit, store, create, share or exchange information.

66. What are the positive and negative impacts of ICT in our society?
Positive impacts:
i. Easier, faster and cheaper communication.
ii. Online and practical based education.
iii. Better diagnosis and treatment of diseases.
Negative impacts:
i. Piracy of software, audio and video
ii. Data theft, hacking and pornography.

67. **Explain the uses/application/implementation of ICT.**
i. ICT in Education:
ICT can be use make teaching and learning process effective. We can use modern technologies such as internet, projects to enhance our learning experience.

ii. ICT in Business:
ICT can be used to buy and sell good and services. Technology like e-commerce can help to flourish business.

iii. ICT in Entertainment:
ICT has become huge source of entertainment. We can watch movies, listen music and even play videos using ICT to entertain ourself.

iv. ICT in Transportation:
Modern transport service like trains, aircraft are possible due to ICT. Now a days, it is possible to buy air ticket, train ticket virtually. ICT also have great role in traffic management.

v. ICT in Health Sector:
ICT can be used to diagnose different critical illness which were impossible back in old days. ICT is also used for keeping records of patient. An expert system like MYCIN is used in hospital for effective treatment of severe bacterial infection.

vi. ICT in Engineering and design:
It has become possible to have beautifully crafted design in every sector whether its in cloths, furniture, houses, structure etc.

vii. ICT in Communication:
ICT is used in communication field such as Internet, E-mail, televisions, radio and telecommunication. It is also used for collecting news and information. We can call or chat with our friends, family and relatives even if they are far from us.

68. **Write short note on ICT.**
ICT stands for Information Communication Technology is a a diverse set of technological tools and resources used to transmit, store, create, share or exchange information.. Due to advancement in technology, there is a drastic improvement in the way of making communication. People are using modern tools and technology to perform communication. Hence, the implementation of technology in the field of communication can be considered as ICT. For eg, use of internet has revolutionized the way people used to make communication which is possible due to ICT.

Chapter 12: Computer Ethics and Cyber Law

69. Define computer ethics/cyber ethics.
Computer ethics are the set of moral principles that governs the use of computer.
70. Write down the commandments/provision of cyber ethics.
i. Do not use a computer to harm other people.
ii. Do not use a computer to bear false witness.
iii. Do not use a compute to steal other's information.
iv. Always use computer for the welfare of human being.
v. Do not use other computer without proper authorization.
71. Define cyber crime/computer crime? Give some example.
72. The criminal activity that are done by using modern technology and computers are known as cyber or computer crime. Some of the examples of cyber crime are:

- Hacking/Cracking
- Piracy

- Cyber bullying
- Phishing
- Pornography
- Fake accounts etc

73. Explain the different forms/types of cyber crime?
    The different forms/types of cyber crime are explained below:
    I. Piracy: The process of copying and using others software, audio, video, data without permission of the owner is called piracy.
    ii. Spreading computer viruses: Viruse is a malicious software that infects, destroys, corrupts another program or data.
    iii. Theft: Computers are used to steal the data from companies, government agencies for some special purpose.
    iv. Pornography: The process of viewing or distributing adult sexual contents like text, images or video is called pornography.
    v. Plagiarism: Copying other person's work, arts, notes, ideas for own purpose is called plagiarism. It includes copying articles, books, literature works, etc.
    vi. Hacking: Hacking is the process of gaining unauthorized access to other's computer system or network. Hacker is a person who intentionally gains the unauthorized access to other's computer system or network.
    vii. Harassment: Irritating other people by sending insulting comments focusing on gender, race, nationality,etc. is harassment. Nowadays, such activities are done with the help of computer or mobile phone.
74. What is Cyber Space?
    Cyber space is a virtual space connecting several numbers of device and people together using ICT.
75. Define cyber law? Explain cyber law of Nepal.
    The law which govern the cyber space to punish cyber criminal, look after all the legal issues in cyber space including legal online transaction made is known as cyber law.
    Every country has their own cyber law depending upon the requirement and advancement in technology. Similarly Nepal also introduce cyber law in Nepal in 2061 BS 30th Bhadra and the name of the law is "Electronic and Digital Signature Act - Ordinance". Since technology has drastically change over the decades but the law remains the same so, it has failed to address or solve many current issues.

Chapter 16: Working with Graphics

76. What is computer graphics?

Computer graphics is the branch of computer science, which deals with producing images with the help of computer.

77. From which word is 'graphics' derived from? What does it mean?

The word 'graphics' is derived from Latin word 'graphicus' which means 'painting or drawing'.

78. Write the uses/purposes/application of computer graphics.

The uses/purposes of computer graphics are:

i. It is used in advertising, books, magazines and newspapers.

ii. It is used to make cartoons movies and computer games.

iii. It is used in engineering design and scientific modelling.

iv. It used to develop attractive webpages.

79. What is graphics software? Give any four examples.

Graphics software is a software that is used to manipulate images or models visually on a computer. For example: Adobe Photoshop, Adobe Illustrator, MS-Paint, Picasa, etc.

80. List some of the graphical software used for web.

Some of the graphical software used for web are Adobe Photoshop, Adobe Illustrator, Adobe InDesign, etc.

81. What is Adobe Photoshop?

Adobe Photoshop is premium graphic and web design tool used to create the graphics for web design.

Adobe Photoshop is a software application that allows users to edit, create, and enhance images, graphics, and other digital content:

82. What is Adobe Illustrator?

Adobe Illustrator is graphical software which is used to create artwork, icons and posters.

83. What is Adobe InDesign?

Adobe InDesign is a graphical software used in publishing industry for designing magazines, books, posters, brochures, etc.

84. **What is an image?**

An image is a visual representation of something, such as a drawing, painting, photograph, etc.

85. What are different the types of images/graphics?

The types of images are:

i. Vector Graphics
ii. Raster/Bitmaps Graphics

86. What is vector graphics?

Vector graphics is the type of image developed by using mathematical description of objects like circle, lines, etc.

87. List some common vector file types.

Some of the common vector file types or formats are PDF, SVG, ai, EPS, etc.

88. What is raster/bitmaps graphics?

Raster graphics is the type of image made up of tiny squares arranged in a grid called pixels.

89. List some common raster/bitmaps image types.

Some of the common raster/bitmaps image types or formats are JPG, GIF, PNG, BMP, etc.

90. Write the differences between vector and raster/bitmaps graphics.

Vector Graphics	**Raster/Bitmaps Graphics**
Vector graphics is the type of image developed by using mathematical description of objects like circle, lines, etc.	Raster graphics is the type of image made up of tiny squares arranged in a grid called pixels.
Quality of image decreases with increase in size.	Quality of image does not decrease with increase in size.
Some of the common vector file types are PDF, SVG, ai, EPS, etc.	Some of the common raster/bitmaps image types are JPG, GIF, PNG, BMP, etc.
Adobe Illustrator, CorelIDraw, InkScape, etc. are used to make vector graphics.	Adobe Photoshop, GIMP, CorelIDraw, etc. are used to make raster/bitmaps graphics.

91. **List some common web graphics file format.**
    Some of the common web graphics file format are: JPEG, GIF, PNG, EPS, TIFF, etc.
92. **What is graphics Editing?**
    Graphics Editing is a process of changing and improving graphics images using an image editor.
93. **Who created Adobe Photoshop and when?**
    Thomas and John Knoll created Adobe Photoshop in 1988. The company named "Adobe Inc." published Adobe Photoshop for MS windows and Mac OS.
94. **Write the features of Adobe Photoshop.**
    The features of Adobe Photoshop are:
    i. Working with image: size, mode, adjustment, crop, transform, Extract, Distort
    ii. Working with layers and filter.
    iii. Working with guide, grid and ruler.
    iv. Working with channel.
95. **fd**
96. **f**
97. **fd**

Multimedia

Q) Define multimedia. Write its importance.

Multimedia consist of two words “Multi” means many and “Media” means way of expressing information. Hence, multimedia can be defined as the several ways of

expressing information using media like text, audio, video, graphics and animation. Its importance are:

1. It enhances the level of understanding.
2. It helps in effective communication
3. It helps to make attractive and engaging contents.

Q) What the several components/Elements of multimedia?

The several components/elements of multimedia are:

Text: It is one of the common and oldest medium to express information. It consist of alphanumeric characters. For eg, News paper, books use text to express information. The file extension of text documents are .DOC, .TXT etc. Software like MS-Word, Notepad, Word-pad etc can be used to work with text.

Graphics: It include pictures and images to express information. The smallest unit of picture is PIXEL (Picture Elements). Higher the pixel greater the resolution will be which means quality of picture increases. The file extension of Image file are .JPG, .JPEG, .PNG etc. Software like Adobe photoshop, Corel Draw etc can be used to work with images.

Audio: Audio is the voice signal which can be heard. Audi can be in different form such as speech, music, noise, lecturing etc. The file extension of Image file are .MP3 etc. Software like Windows Media Player, Apple music etc can be used to listen Audio.

Video: Video are the sequence of moving pictures with sound in real time. Normally video are denoted by the Number of frames captured Per Second (FPS). Higher the FPS smoother the video will be. The file extension of Image file are .MP4, .FLV, .MPEG etc. Software like Final cut pro, iMovie, Adobe Premeire etc can be used to edit video files.

Animation: Animation are the sequence of computer graphics or computerized images that appears to be moving. Nowadays, animations are made with computer-generated imagery (CGI). The file extension of Image file are .FLI, .GIF etc. Software like MAYA animation, Macromedia flash etc can be used to edit video files.

Q) What are the application areas of multimedia?

The application areas of multimedia are:

Education: Multimedia helps to make teaching and learning process much for interesting and effective. Students can learn any topic from any where any time. Distant learning is possible due to use of multimedia components. Tools like Computer Aided Learning (CAL), Computer Based Education (CBE) can be used to learn on any subject. Online trainings can also be conducted using multimedia.

Communication: Nowadays, Due to use of multimedia components people can communicate with each other in real time by exchanging audio and video signal. Using multimedia make our communication faster and secure. Video Conferencing is the best example of use of multimedia in Communication.

Business: Business involves buying and selling goods and services. Nowadays same process of buying and selling goods and services can be done using internet virtually. Thus it is easier and convenient to do business these days using tools of multimedia.

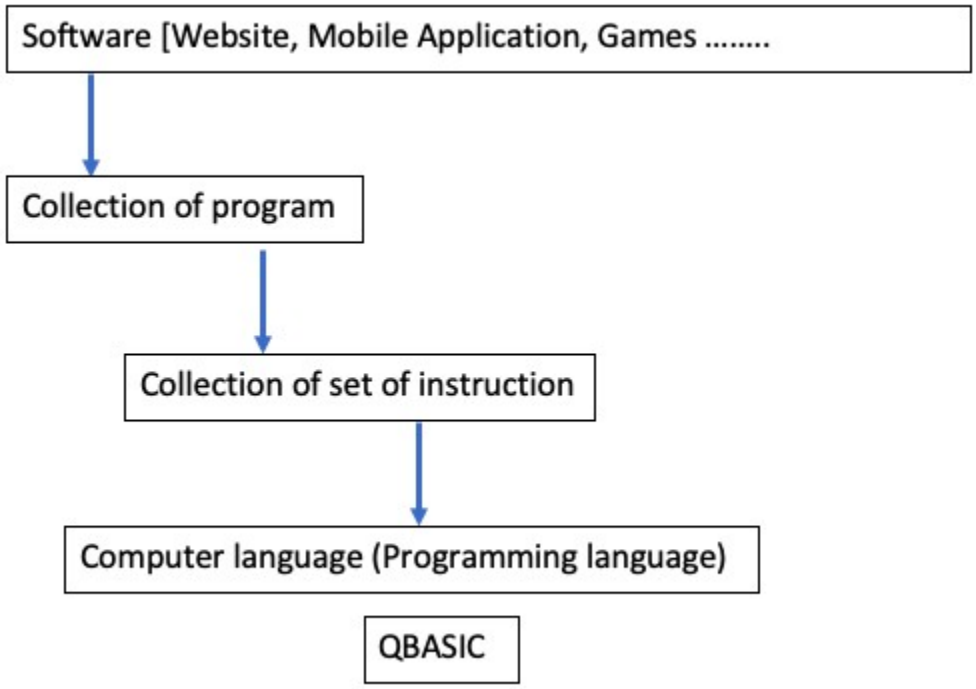
Medicine: Complex surgery and diagnosis can be done by using multimedia tools. X-Ray, CT Scan etc are the high tech technology used in medical sector which also use multimedia. More over research on new disease and medicine can be done effectively using multimedia components.

Introduction to QBASIC

QBASIC stands Quick Beginners All purpose Symbolic Instruction Code which is a popular high level language for beginners developed by Microsoft corporation originally developed by Thomas Kurtz and John Kemeny. It is very easy to use and understand so, It is popular among students.

Features of QBASIC

1. It use simple English like structure.
2. It has user friendly interface.
3. It automatically checks syntax error.
4. It has wide range keywords.
5. We can use both mouse and keyboard on its interface.
6. It capitalize keyword automatically.



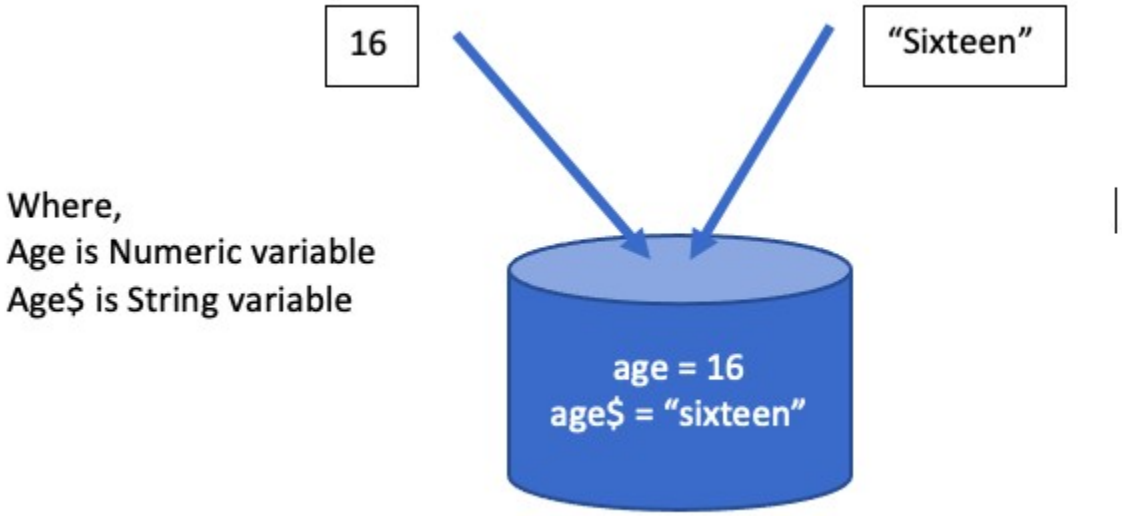
Software Breakdown

Data types used in QBASIC

Numeric data: It consist of numeric values i.e. numbers 0-9 and its combination. For eg; 45,12,1

String data: It consist of alphanumeric value i.e combination of letters and numbers. For eg; “global” , “pokhara7”

Variables: Those entities which holds either numeric or alphanumeric (string) values and changes its value throughout the time of program execution is called variables. There are two types of variables.



Variables in QBASIC

Numeric variable: Those entities which holds only numeric values and changes its value throughout the time of program execution is called numeric variables.

Eg, age = 17, i =2 , wardno = 12

String variable: Those entities which holds only alphanumeric values and changes its value throughout the time of program execution is called string variables.

Note: String variable should end with '$' sign and its respective value should be enclosed within double quotation " ".

Example: school$ = "global", fname$ = "Krishna" , address$ = "Pokhara"

<u>Rules while writing variables name:</u>

1. Variable name should be 1 to 40 character long.
2. Blank space in variable name is not allowed.

   For eg, ward no = 12 (Invalid) , wardno = 12(valid)

   School name$ = "global" (Invalid)

   Schoolname$ = "global" (Valid)

3. Any special symbol except $, #, !, %, & symbols are not allowed in variable name.

Ward*no = 13 (Invalid) , ward$no = 14 (invalid)

4. Keyword cannot be used as a variable name.

Print =3 (Invalid)

Cls =8 (Invalid)

Name =4 (invalid) if,else,while,for

5. Variable name should not start with number.

123abc = 2 (invalid), abc123 =2 (valid)

123fname$ = “global” (invalid)

fname123$ = “global” (valid)

Constant: Those entities which holds either numeric or alphanumeric (string) values and doesn’t changes its value throughout the time of program execution is called constant. There are two types of constant.

Numeric constant: Those entities which holds only numeric values and doesn’t changes its value throughout the time of program execution is called numeric constant.

Eg, age = 17, i =2 , wardno = 12

String constant: Those entities which holds only alphanumeric values and doesn’t changes its value throughout the time of program execution is called string constant.

Note: String variable should end with ‘$’ sign and its respective value should be enclosed within double quotation “ “.

Example: school$ = “global”, fname$ = “Krishna” , address$ = “Pokhara”

Operators: The special sign or symbol that we use in our program to perform some specific functions or operation are known as operators. Types of operators:

Arithmetic operators: It performs mathematical calculations

+ , - , * , / , \ , MOD, ^

5+2 =7

5/2=2.5 (exact division)

5\2 =2 (integer division)

5 MOD 2 = 1 (Modulus division)

5^2 = 25

Relational operator: It helps to compare different operands

>, <, >= , <= ,= , <> (not equal to)

Logical operator: It helps to make logical comparison.

AND, OR, NOT

String operators: It helps to add two or more string. The process of adding two or more string is known as string concatenation.

+

C$ = a$+b$

QABSIC Expression

a=$r^{2.}$ →→ a=r^2
a=l.b →→ a =l*b
i =p*t*r100p*t*r100 →→i = (p*t*r)/100
QBASIC statements and program

CLS (Clear Screen)

PRINT Statement: Display information on screen.

Syntax:

PRINT “Sample text”

OR

age = 13

PRINT age

PRINT “Age is =”;age

INPUT Statement: It helps to take input from the user.

Syntax:

INPUT variable_name

INPUT “Any text”;VN

Q1) Write a program to calculate area of rectangle. [A=l*b]

```
CLS
INPUT “Enter length”;l
INPUT “Enter Breadth”;b
A=l*b
PRINT “Area is: ”;A
END
```

Q2) WAP to calculate simple interest [i=(p*t*r)/100]

```
CLS
INPUT “Enter principal”;p
INPUT “Enter time”;t
INPUT “Enter rate”;r
i=(p*t*r)/100
PRINT “Simple interest is: ”;i
END
```

Q3) WAP to calculate volume of cylinder. [$v=pr^2h$]

```
CLS
pi = (22/7)
INPUT “Enter radius”;r
INPUT “Enter height”;h
v = pi*r^2*h
PRINT “Volume is”;v
END
```

Q4) WAP to calculate average of three number. [Av=(a+b+c)/3]

```
CLS
INPUT “Enter first number”;a
INPUT “Enter second number”;b
INPUT “Enter third number”;c
av=(a+b+c)/3
PRINT “Average is: ”;av
END
```

Q5) WAP to convert Nepali rupee into American dollar. [1$ = 118Rs]

```
CLS
INPUT “Enter Nepali rupee”; N
A = N/118
PRINT “America dollar”; A
END
```

Q6) WAP to convert Celsius temperature into Fahrenheit. c−0100=f−32180c-0100=f-32180

18*c = 10*f-320

18*c+320 = 10*f

f = (18*c+320)/10

C = (10*f-320)/18

```
CLS
INPUT “Enter Celsius”; c
f = (18*c+320)/10
```

```
PRINT “Fahrenheit temperature”; f
END
```

IF Statement:

1. IF statement
2. IF ELSE statement
3. ELSEIF statement

1) IF statement

Syntax:

```
IF (condition) THEN

    Block of statements//

END IF
```

Program example:

```
CLS
INPUT “Enter your age”; a
IF a>18 THEN
PRINT “You are eligible to vote”
END IF
END
CLS
INPUT “Enter your percentage”; p
IF p>=40 THEN
PRINT “You are pass”
END IF
END
```

2) IF ELSE statement

Syntax:

```
IF (condition) THEN

    Block of statements no.1//
```

```
    ELSE
        Block of statements no.2//
    END IF
```

Program example:

```
CLS
INPUT “Enter your age”; a
IF a>18 THEN
PRINT “You are eligible to vote”
ELSE
PRINT “You are not eligible to vote”
END IF
END
CLS
INPUT “Enter your percentage”; p
IF p>=40 THEN
PRINT “You are pass”
ELSE
    PRINT “You are fail”
END IF
END
```

Q1) Write a program to input 2 different numbers and find the greatest number.

```
CLS
INPUT “Enter two number”; a,b
IF a>b THEN
    PRINT a; “is greatest”
ELSE
    PRINT b; “is greatest”
END IF
END
```

Q2) Write a program to check whether the given number is odd or even.

```
CLS
INPUT “Enter a number” ; n
```

```
a = n MOD 2
IF a=0 THEN
 PRINT n; ”is Even”
ELSE
 PRINT n; ”is Odd”
END IF
END
```

Q3) Write to check whether the given number is exactly divisible by 5 and 7.

```
CLS
INPUT “Enter a number” ; n
a = n MOD 5
b = n MOD 7
IF a=0 AND b=0 THEN
   PRINT n;” is divisible by both 5 and 7”
ELSE
   PRINT n;”is not divisible by both 5 and 7”
END IF
END
```