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Chapter 1
FUNDAMENTALS OF COMPUTER

1.1 Data and Information

1. Meaningful and processed form of data is known as ……. Score 1

Ans. Information

2. Define data. Score 2

Ans. **Data** denotes raw facts and figures such as numbers, words etc.
Eg: 100, Manoj

3. How data is different from information ? Score 2

Data – Raw facts and figures.
Information – Processed data.

1.2 Data processing

1. List the stages of Data processing. Score 3

Ans. (a) Capturing data
(b) Input of data
(c) Storage of data
(d) Processing / manipulating data
(e) Output of information
(f) Distribution of information

1.3 Functional units of a computer

1. List down the functional units of a computer by using a diagram. Score 2

Ans.

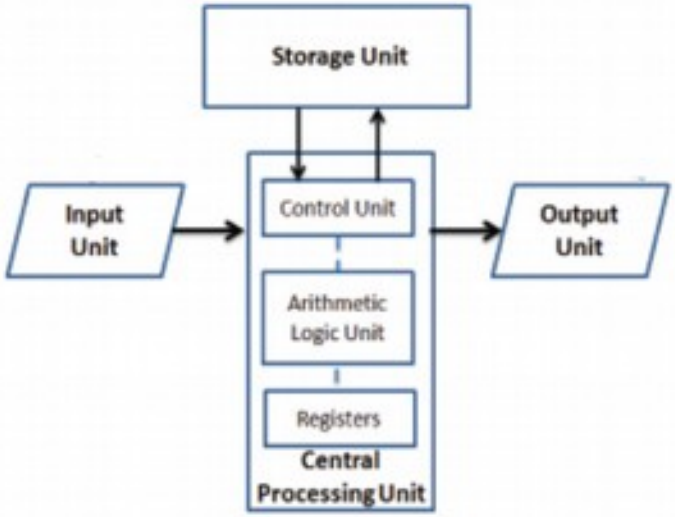

Fig. 1.7 : Functional units of a computer

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2. Explain the components of CPU (Central Processing Unit). Score 3

Ans. The components of CPU are

a. Arithmetic Logic Unit (ALU),

b. Control Unit (CU)

c. Registers.

a. Arithmetic Logic Unit (ALU) **-** It performs calculations and logical operations such as comparisons and decision making.

b. Control Unit (CU) **-** It obtains instructions from the memory, interprets the operation and issues signals to the concerned unit.

c. Registers **-** These are temporary storage elements that facilitate the functions of CPU.

3. CPU has three components. Which one of the following is the CORRECT option?

a) ALU, CU and ROM

b) ALU, CU and RAM

c) ALU, CU and Registers

d) ALU, RAM and ROM Score 1

Ans. c) ALU, CU and Registers

1.4 Computer - as a data processor

1. What are the advantages and Imitations of a computer. Score 3

Ans.

Advantages – Speed, Accuracy, Diligence, Versatility, Huge Memory

Limitations – Lack of IQ, Lack of decision making power.

2. Explain any three advantages of Computers. Score 3

Ans.

Speed - A computer can perform millions of operations in a second.

Accuracy - A computer can perform arithmetic operations with a very high degree of accuracy.

Diligence - Computer can operate for long hours untiringly.

Versatility - Computer can be used to perform many different kinds of processing tasks.

1.5 Number system

1. The number of symbols used in a number system is called .....… Score 1

Ans. Base

2. The base of Hexadecimal number system is …… Score 1

Ans. 16

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3. Write MSD and LSD in the number $(5876)_{10}$. Score 2

Ans. MSD - 5
LSD - 6

1.6 Number conversions

1. Find the smallest number in the list.

a. $(1101)_2$ b. $(A)_{16}$ c. $(13)_8$ d. $(15)_{10}$ Score 2

Ans.

(ആദ്യമായി എല്ലാ നമ്പരുകളേയും decimal ലേക്ക് convert ചെയ്യുക.)

$(1101)_2$ $= 1 \times 2^3 + 1 \times 2^2 + 0 \times 2^1 + 1 \times 2^0$
$= 1 \times 8 + 1 \times 4 + 0 \times 2 + 1 \times 1$
$= 8 + 4 + 0 + 1$
$= (13)_{10}$

$(A)_{16}$ $= (10)_{10}$

$(13)_8$ $= 1 \times 8^1 + 3 \times 8^0$
$= 1 \times 8 + 3 \times 1$
$= 8 + 3$
$= (11)_{10}$

Therefor $(A)_{10}$ is the smallest number.

2. Fill the series.

$(151)_8$,$(153)_8$,$(155)_8$, ……, …….. Score 1

Ans. $(157)_8$, $(161)_8$

3. If $(11011)_2 = (A)_8 = (B)_{16} = (C)_{10}$. Find the value of A, B, C Score 3

Ans.

(ഈ ചോദ്യത്തിന്റെ അർത്ഥം $(11011)_2$ ന തുല്യമായ octal, hexadecimal, decimal നമ്പറുകൾ കണ്ടുപിടിക്കുക എന്നാണ്.)

$(11011)_2$ $= 011 \quad 011$ (Short cut method)
$= 3 \quad 3$
$= (33)_8$

$(11011)_2$ $= 0001 \quad 1011$ (Short cut method)
$= 1 \quad 11$
$= (1B)_{16}$

$(11011)_2$ $= 1 \times 2^4 + 1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 1 \times 2^0$
$= 1 \times 16 + 1 \times 8 + 0 \times 4 + 1 \times 2 + 1 \times 1$
$= 16 + 8 + 2 + 1$
$= (27)_{10}$

Therefor A = $(33)_8$ B = $(1B)_{16}$ C = $(27)_{10}$

9. Convert the hexadecimal $(A2D)_{16}$ into its octal equivalent. Score 2

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Ans.

$(A2D)_{16}$ = (1010 0010 1101)$_2$

$(101000101101)_2$ = 101 000 101 101

= 5 0 5 5

Therefor $(A2D)_{16}$ = $(5055)_8$

10. a) Convert $(1010.11)_2$ to decimal. Score 2

b) Find the missing terms in the following series.

18_{16}, $1A_{16}$, $1C_{16}$, …… , …….. Score 1

Ans.

(a) $(1010.11)_2$

(1010) = $1 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$

= 1 x 8 + 0 x 4 + 1 x 2 + 0 x 1

= 8 + 0 + 2 + 0

= 10

0.11 = 1 x 2-1 + 1 x 2-2

= 1 x 0.5 + 1 x 0.25

= 0.5 + 0.25

= 0.75

Therefor $(1010.11)_2$ =$(10.75)_{10}$

(b) 1E, 20

11. Convert the number $(198)_{10}$ into the other three number systems. Score 3

Ans.

$(198)_{10}$ = $(11000110)_2$

$(198)_{10}$ = $(306)_8$

$(198)_{10}$ = $(C6)_{16}$

12. If $(M)_8$ = $(96)_{10}$ = $(N)_2$, find M and N Score 3

Ans.

$(96)_{10}$ = $(140)_8$

$(96)_{10}$ = $(60)_{16}$

(ചെയ്തു നോക്കുക)

13. Fill in the blanks

a) $(DA)_{16}$ = (.....)$_2$

b) $(25)_{10}$ = (……)$_8$ Score 2

Ans.

a) $(DA)_{16}$ = (1101 1010)

= $(11011010)_2$

b) $(25)_{10}$ = $(19)_8$

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14. Find the value of x, y and z from the following

a) $(10101)_2 = (x)_{10}$ Score 1

b) $(107)_8 = (y)_2$ Score 1

c) $(351)_{10} = (z)_{16}$ Score 2

Ans.

a) $(10101)_2 = (21)_{10}$

b) $(107)_8$ = (001 000 111)

= $(001000111)_2$

c) $(351)_{10} = (15F)_{16}$

1.8 Data representation

1.8.1 Representation of numbers

1. Represent -83 in 1's complement form. Score 2

Ans.

Binary of 83 in 8-bit form = $(01010011)_2$

-83 in 1's complement form = $(10101100)_2$

2. Write the two's complement form of the decimal number -119. Score 2

Ans.

Binary of 119 in 8-bit form = $(01110111)_2$

-119 in 2's complement form = 10001000 +

1

= $(10001001)_2$

3. State the benefit of using two's complement representation as compared to one's complement form. Score 1

Ans.

1. Range is more. (256 numbers can be represented)
2. There is only one way of zero representation. So there is no ambiguity.

4. If the binary equivalent of 56 is $(111000)_2$ find the 1's compliment form, and Sign & Magnitude form of –56 (negative 56) in 8 bits. Score 2

Ans.

Sign & Magnitude form

Number is -ve, so the first bit (MSB) is 1.

7 bit equivalent of 56 = $(0111000)_2$

So -56 can be represented as $(10111000)_2$

1's complement

Binary of 56 in 8-bit form = $(00111000)_2$

-56 in 1's complement form = $(01000111)_2$

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5. Represent -35 in the following forms

(Hint : Use 8 bit form of representation).

a) Sign and magnitude

b) One's complement.

c) Two's complement. Score 3

Ans.

a)

Number is -ve, so the first bit (MSB) is 1.

7 bit equivalent of 35 = $(0100011)_2$

So -35 can be represented as $(10100011)_2$

b)

Binary of 35 in 8-bit form = $(00100011)_2$

-35 in 1's complement form = $(11011100)_2$

c)

Binary of 35 in 8-bit form = $(00100011)_2$

-35 in 2's complement form = 11011100 + 1

= $(11011101)_2$

7. "There are three methods for representing an integer number in computer memory". Which are the three methods? Explain briefly. Score 3

Ans.

The three methods for representing an integer number in computer memory are

i) Sign and magnitude representation

ii) 1's complement representation

iii) 2's complement representation

i) Sign and magnitude representation

In this method, first bit from left (MSB) is used for representing sign of integer and remaining 7-bits are used for representing magnitude of integer. For negative integers sign bit is 1 and for positive integers sign bit is 0.

ii) 1's complement representation

In this method, first find 8 bit binary equivalent of integer. 1's complement of a binary number is obtained by replacing every 0 with 1 and every 1 with 0. If the number is positive, the 8-bit form binary equivalent itself is the 1's complement representation.

iii) 2's complement representation

In this method, first find 8 bit binary equivalent of integer. If the number is positive 8-bit form binary itself is the representation. 2's complement of a binary number is calculated by adding 1 to its 1's complement.

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1.8.2 Representation of characters

1. Name the character representation coding scheme developed in India and approved by the Bureau of Indian Standards (BIS). Score 1

Ans. ISCII

2. Write a short note on Unicode. Score 2

Ans. Using 8-bit ASCII we can represent only 256 characters. This cannot represent all characters of written languages of the world and other symbols. Unicode originally used 16 bits which can represent up to 65536 characters. Unicode can represent data in almost all written languages of the world.

3. Write the full form of ASCII. Score 1

Ans. American Standard Code for Information Interchange

4. Compare ASCII with UNICODE. Score 3

Ans. ASCII stands for American Standard Code for Information Interchange. It uses 7 bits to represent each character. So it can represent 128 characters. Another version is ASCII-8, which uses 8 bits for each character. So it can represent 256 different characters.

Unicode originally used 16 bits which can represent up to 65536 characters. Nowadays Unicode uses more than 16 bits and hence it can represent more characters. Unicode can represent data in almost all written languages of the world.

1.8.3 Representation of audio, image and video

1. Write full form of JPEG. Score 1

Ans. Joint Picture Experts Group

Chapter 2
Components of the Computer System

1.Hardware

1.1 Processor

1. The register in CPU that holds address of next instruction to be executed. Score 1

Ans. Program Counter (PC)

2. What is the importance of registers in computer system? Name any two registers. Score 2

Ans. Registers are storage locations inside CPU. It speeds up the execution of programs.

a. Accumulator
b. Memory Address Register (MAR)
c. Memory Buffer Register (MBR)
d. Instruction Register (IR)

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e. Program Counter (PC)

3. Explain any two types of CPU Registers. Score 2

Ans.

a. Accumulator : The accumulator is a part of the Arithmetic Logic Unit (ALU). This register is used to store data and result of an arithmetic and logical operation.

b. Memory Address Register (MAR) : It stores the address of data.

c. Memory Buffer Register (MBR) : It stores the data.

d. Instruction Register (IR) : It stores the instructions to be executed by the processor.

e. Program Counter (PC) : It stores the address of the next instruction to be executed.

1.2 Peripherals and Ports

1. USB stands for …….. Score 1

Ans. Universal Serial Bus

2. Which one of the following is used to connect a projector to a computer? Score 1

a) USB port b) PS/2 port c) Parallel port d) VGA port

Ans. d) VGA port

3. Write the full form of HDMI. Score 1

Ans. High Definition Multimedia Interface

1.3 Memory

1. How many BITS are there in a BYTE ? Score 1

Ans. 8 BITS

2. Which of the following is equivalent to 1 MB?

(a) 1000 KB (b) 1024 Bytes (c) 1024 KB (d) 1024 bits

Ans. (c) 1024 KB

3. What are the types of memories used in computers. Score 6

Ans. Memory is a place where we can store data, instructions and results temporarily or permanently.

Memory can be classified into two.

a. primary memory

b. secondary memory

a. Primary storage

Primary memory is a semiconductor memory that is accessed directly by the CPU. This includes mainly three types of memory such as **RAM**, **ROM** and **Cache** memory.

i. Random Access Memory (RAM)

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RAM refers to the main memory that microprocessor can access. It allows reading and writing. RAM is a **volatile memory**.

ii. Read Only Memory (ROM)

ROM is a permanent memory that can perform only read operations and its contents cannot be easily altered. ROM is non-volatile.

There are some modified types of ROM that include:

1. PROM (Programmable ROM) - It can be programmed only once. PROMs are programmed at the time of manufacture.

2. EPROM (Erasable Programmable ROM) - It can be erased using ultra violet radiation and can be programmed using special electronic circuits.

3. EEPROM (Electrically Erasable Programmable ROM) - It can be erased and rewritten electrically.

iii. Cache memory

Cache memory is a small and fast memory between the processor and RAM (main memory). Frequently accessed data, instructions, intermediate results, etc. are stored in cache memory for quick access.

b. Secondary Memory

Secondary memory is a permanent memory. Secondary memory is much larger in size than RAM, but is slower.

The major categories of storage devices are **magnetic**, **optical** and **semiconductor** memory.

i. Magnetic storage devices

Magnetic storage devices use plastic tape or metal/plastic disks coated with magnetic materials. Read/write heads are used to access data from these devices.

Example : magnetic tapes, floppy disks, hard disks, etc.

ii. Optical storage devices

Optical disk uses low-powered laser beam to read from and write data into it. Data is written on a single continuous spiral in the form of pits and lands.

Example : CD, DVD and Blu-Ray

iii. Semiconductor storage (Flash memory)

Flash drives use EEPROM chips for data storage. They do not contain any moving parts and hence they are shockproof. Flash memory is faster and durable.

4. Arrange the following memory devices on the base of their operation speed in ascending order. Score 2

a) Hard disk b) Cache c) RAM d) Registers

Ans. a) Hard disk c) RAM b) Cache d) Registers

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5. Compare primary storage and secondary storage. Score 2

Ans.

Primary memory is a semiconductor memory that is accessed directly by the CPU. It is capable of sending and receiving data at high speed. This includes mainly three types of memory such as **RAM**, **ROM** and **Cache** memory.

Secondary memory is of permanent nature. Secondary memory is much larger in size than RAM, but is slower. The major categories of storage devices are **magnetic**, **optical** and **semiconductor** memory.

6. _____ memory is a small and fast memory between the processor and RAM. Score 1

Ans. Cache

7. Compare RAM and ROM. Score 2

Ans.

RAM	ROM
• It is faster than ROM • It stores the operating system, application programs and data when the computer is functioning. • It allows reading and writing. • It is volatile, i.e. its contents are lost when the device is powered off.	• It is a slower memory • It stores the program required to boot the computer initially • Usually allows reading only. • It is non-volatile, i.e. its contents are retained even when the device is powered off.

Table 2.1 : Comparison of RAM and ROM

8. Explain any five commonly used secondary or (auxiliary) memory devices. Score 5

Ans.

Magnetic Tape

Magnetic tape is a backup device that can store huge volume of data. It consists of a thin tape with a coating of fine magnetic material. It can be used for recording analog or digital data.

Hard disk

The hard disk consists of metal disks coated with magnetic material concealed in dust free containers. Hard disks have very high storage capacity, high data transfer rates more durable and less error prone.

Compact Disk (CD)

Compact Disc is an optical storage medium capable of storing upto 700 MB of data. A CD drive uses red laser beams for reading from and writing data into CD.

Digital Versatile Disk (DVD)

Digital Versatile Disk is an optical storage media similar to CD-ROM, but with a higher storage capacity. Recording and reading of data is done using red laser beam.

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USB flash drive

A flash drive is a small external storage device, which consists of flash memory typically the size of a human thumb. USB flash drives are portable and rewritable.

1.4 Input / Output Devices

14. Almost all desktop computers have keyboard and mouse as their standard input devices. List and explain any other 5 input devices used to enter data into a computer. Score 5

Ans.

i. Light pen

A light pen is a pointing device. Light pens have the advantage of 'drawing' directly onto the screen. They are used by engineers, artists, fashion designers.

ii. Touch screen

Touch screen allows the user to operate by simply touching on the display screen. Information kiosks at railway stations and bank ATMs also use touch screens.

iii. Joystick

Joystick is a pointing device used for playing video games.

iv. Microphone

A microphone is used to input sound. It accepts sound as input and converts it to digital format.

v. Scanner

Scanners can capture information, like pictures or text, and convert it into a digital format.

15. Mr. Rajmohan wants to buy a computer. He is an engineer by profession. He wants a device which can be used to ‘draw directly on screen’. Suggest him an input device. Score 1

Ans. Light Pen

16. Categorize devices given below into input devices and output devices.

Joystick, Scanner, Plotter, Microphone, Printer, Mouse, VDU, Speaker Score 2

Ans.

Input Devices - Joy stick, Scanner, Microphone, Mouse

Output Devices – Plotter, Printer, VDU, Speaker

17. Write the full form of MICR. Score 1

Ans. Magnetic Ink Character Recognition

18. Compare Dot Matrix Printer, Inkjet Printer, Laser Printer and Thermal Printer on the basis of their working speed, quality of printing and expense for printing. Score 5

Ans.

Refer Notes.

19. Which printer is widely used as portable printer? Why? Score 3

Ans. Thermal Printer. They are smaller, lighter and consume less power.

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2. e-Waste

1. What is e-Waste? Score 1

Ans. e-Waste refers to electronic products nearing the end of their useful life.

2. List and explain the different methods for disposing electronic waste. Score 2

Ans.

a. Reuse: It refers to second-hand use or usage.

b. Incineration: e-waste is burned in specially designed incinerators at a high temperature.

c. Recycling of e-Waste: manufacturing new products from unused products.

d. Land filling: e-waste is buried in trenches which is covered by a thick layer of soil.

3. Explain students role in reducing the volume of e-waste. Score 2

Ans. Stop buying unnecessary electronic equipment.
When electronic equipment get faulty try to repair it instead of buying a new one.
Use rechargeable instead of disposable batteries.
Buy products with good warranty

4. "e-Waste is one of the major problems which we are facing all over the world". Justify the statement. Score 1

Ans. It contains toxic substances such as mercury, lead, cadmium etc. The toxic materials can cause cancer, reproductive disorders and many other health problems.

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3. Green computing or Green IT

1. Define the term, green-computing. How can you implement green-computing? Score 2

Ans. Green computing is the designing, manufacturing, using and disposing of computers and associated components efficiently and effectively with minimal or no impact on the environment.

2. As a student, explain any three approaches that you can adopt to Promote 'Green Computing'. Score 3

Ans.

Green design: Designing energy-efficient and eco-friendly computers and other digital devices.

Green manufacturing: Minimising waste during the manufacturing of computers.

Green use: Minimising the electricity consumption of computers and peripheral devices.

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4. Software

1. Write a detailed classification of software. Score 2

Ans.

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There are two types of software:

- System software
- Application software

The following are the components of system software.

a. Operating system
b. Language processors
c. Utility software

The following are the components of Application software.

a. General purpose software packages
b. Specific purpose software.

4.1 Operating System

1. Write an example of an operating system that is a free and open source software. Score 1

Ans. GNU/Linux

2. What are the major functions of an operating system? Score 2

Ans. The major functions of an Operating System are
Process management
Memory management
File management
Device management

3. "Operating System is said to be the primary software inside a computer". Justify this statement. Score 2

Ans. Operating system is a set of programs that acts as an interface between the user and computer hardware. Operating system controls and co-ordinates the operations of a computer. It acts as the resource manager of the computer system.

4.2 Language Processors

1. Differentiate between a compiler and an interpreter. Score 1

Ans. **Compiler:** Language processor that converts HLL program into machine language in a single run.

Interpreter: Language processor that converts HLL program into machine language line by line.

2. C++ uses the …… language processor for translation. Score 1

Ans. Compiler

3. Name the software that translates assembly language program into machine language program Score 1

Ans. Assembler

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4. List and explain different language processors. Score 3

Ans. Language processors are the system programs that translate high level language programs or assembly language programs into machine language.

The language processors are Assembler, Comp and Interpreter.

Assembler - Convert assembly language programs into machine language.

Compiler - Converts High Level Language program into machine language in a single run.

Interpreter - Converts High Level Language program program into machine language line by line

5. Categorize the software given below into Operating System, Application Software and Utility Program :

Linux, Tally, WinZip, MS-Word, Windows, Open Office Calc Score 3

Ans.

Operating System - Linux, Windows

Application Software – Tally, MS-Word, Open Office Calc

Utility Program - WinZip

4.3 Free and Open Source Software

1. What do you mean by free software? Score 1

Ans. Free and open source software gives the user the freedom to use, copy, distribute, examine, change and improve the software.

2. Explain any three freedom designed by FSF for softwares. Score 3

Ans.

Freedom 0 - The freedom to run program for any purpose.

Freedom 1 - The freedom to study how the program works and adapt it to your needs.

Freedom 2 - The freedom to distribute copies of the software.

3. Write two examples for open source software. Score 2

Ans. GIMP (GNU Image Manipulation Program)

Mozilla Firefox

4.4 Freeware and Shareware

1. Compare Freeware and Shareware Score 2

Ans.

Freeware	Shareware
Freeware refers to software that anyone can download from the Internet and use for free.	Sharewares give users a chance to try the software before buying it.
All the features are free.	All features are not available. To use all the features of the software, user has to purchase it.
Freeware programs can be distributed free of cost.	Shareware may or may not be distributed freely. In many cases, author's permission is needed to distribute the shareware.

Table 2.6 : Comparison of Freeware and Shareware

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Chapter 3

Principles of Programming and Problem Solving

1. Phases in Programming

1. Briefly explain different phases in Programming. Score 5

Ans.

1. Problem identification - During this phase the data involved in processing, its type and quantity, formula to be used are identified.

2. Preparing algorithms and flow-charts - During this phase, the algorithm and flow-charts are prepared.

3. Coding the program – During this phase, source code is written using an HLL.

4. Translation – During this phase source code is converted into object code.

5. Debugging – During this phase different types of errors are detected and corrected.

6. Execution and testing – The testing procedure involves running the program to process the test data that will produce 'known results'.

7. Documentation - Writing comments in programs and preparation of system manual / user manual is known as documentation.

1.1.1 Algorithm

1. What are the characteristics of an algorithm. Score 3

Ans.

(i) It should begin with instruction(s) to accept inputs.

(ii) Use variables to refer the data.

(iii) Each and every instruction should be precise and unambiguous.

(iv) Each instruction must be sufficiently basic.

(v) The total time to carry out all the steps in the algorithm must be finite.

(vi) After performing the instructions given in the algorithm, the desired results (out-puts) must be obtained.

2. ……. is a step by step procedure to solve a problem. Score 1

Ans. Algorithm

3. Write an algorithm to print first 100 natural numbers. Score 3

Ans.

Step 1: Start
Step 2 : A=1
Step 3 : Repeat step 4 while(A<=100)
Step 4 : Print A
Step 5 : Stop

4. Write an algorithm to print the multiples of 5 between 100 and 200 in descending order. Score 3

Ans.

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Step 1: Start
Step 2 : A=200
Step 3 : Repeat step 4 & 5while(A>=100)
Step 4 : Print A
Step 5 : A=A-5
Step 6 : Stop

5. Write an algorithm to find the biggest of two numbers. Score 3

Step 1 : Start
Step 2 : Input A, B
Step 3 : If A>B Then
Step 4 : Print A
Step 5 : Else
Step 6 : Print B
Step 7 : End of If
Step 8 : Stop

6. Write an algorithm to find the sum of two numbers. Score 2

Step 1 : Start
Step 2 : Input A, B
Step 3 : C=A=B
Step 4 : Print C
Step 5 : Stop

7. Write an algorithm to find the area of a rectangle (area = length * breadth) Score 3

Step 1 : Start
Step 2 : Input L, B
Step 3 : A=L*B
Step 4 : Print A
Step 5 : Stop

1.1.2 Flowchart

1. Pictorial representation of algorithms is called …….. Score 1

Ans. Flowchart

2. Draw any six flow chart symbols and specify their standardized meaning. Score 3

Ans.

a. Terminal - It is used to indicate the beginning (START) and ending (STOP) in the program logic flow.

b. Input / Output - All the input/output instructions are expressed using this symbol.

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c. Process - Arithmetic and assignment operations are expressed using this symbol.

d. Decision - It is used to indicate a point at which a decision has to be made.

e. Flow lines - Flow lines are used to indicate the flow of operation.

f. Connector - This symbol represents an "entry from", or an "exit to" another part of the flowchart.

3. In a flowchart, the terminal (ellipse) symbol is used to indicate the …… and …… in the program logic. Score 1

Ans. START, STOP

4. Which symbol is used for decision making in flowchart ? Score 1

Ans. Rhombus

5. Explain any two limitations of flow chart. Score 2

Ans.

Very time consuming and laborious to draw.

Any change or modification in the logic of the algorithm usually requires a completely new flowchart.

6. What are the benefits of flowchart over algorithm. Score 2

Ans. Better communication

Effective analysis
Effective synthesis
Efficient coding

1.2 Coding

1. Program written in HLL is known as …….. Score 1

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Ans. Source code

2. Define coding. Score 1

Ans. The process of writing program instructions to solve a problem is called coding.

1.3 Translation

1. The process of converting source code into object code is called ……. Score 1

Ans. Translation

1.4 Debugging

1. While writing a program, a student forgot to put a semicolon at the end of a declaration statement. What type of error can he except during compilation. Score 1

Ans. Syntax error

2. Name the error which is due to improper planning of the program's logic. Score 1

Logical error

3. The process of correcting the errors is known as .....… Score 1

Ans. Debugging

4. What is debugging? Which are the different types of errors that may occur in a program? Score 3

Ans. Programming errors are known as 'bugs' and the process of detecting and correcting these errors is called debugging.

In general there are two types of errors that occur in a program - **syntax errors** and **logical errors.**

Syntax errors result when the rules or syntax of the programming language are not followed.

Logical error, is due to improper planning of the program's logic.

1.5 Execution and Testing

1. Runtime error occurs in _____ stage of programming.

(Execution, Coding, Translation, Documentation) Score 1

Ans. Execution

1.6 Documentation

1. Write a short note on the importance of internal documentation. Score 3

Ans. Internal documentation helps the debugging process as well as program modification at a later stage. The logic that we applied in the program may not be remembered when we go through our own program at a later stage. Besides, the program written by one person may need to be modified by some other person in future.

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2. Which one of the following is NOT a part of program documentation. Score 1

a) Writing comments in the source code.
b) Detecting and correcting errors.
c) Preparation of system manual.
d) Preparation of user manual

Ans. b) Detecting and correcting errors.

3. Explain two types of documentations in programming. Score 3

Ans.

Internal Documentation - Writing comments in the source code is known as Internal Documentation. It helps the debugging process as well as program modification at a later stage.

External Documentation - Preparation of system manual and user manual are known as External Documentation. These are hard copy documents that contain functioning of the system, its requirements etc.

4. Comments written in the source code is known as ……. Score 1

Ans. Internal Documentation

---

2. Errors

1. Explain the different types of programming errors . Score 2

Ans.

There are three types of errors that occur in a program -

syntax errors
logical errors
run time error

Syntax errors result when the rules or syntax of the programming language are not followed.
Example : int x // no semicolon

Logical error, is due to improper planning of the program's logic.
Example : putting + operator for multiplication.

Run time error results due to the use of inappropriate data in an operation.
Example : giving 0 to C in the operation B/C

Chapter 4
Getting Started with C++

1. Tokens

1. What are tokens in C++? List any two types of tokens. Score 2

Ans. Tokens are the fundamental building blocks of the program. C++ has five types

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of tokens as listed below:

1. Keywords 2. Identifiers 3. Literals 4. Punctuators 5. Operators

2. Identify and classify the different tokens in the following C++ statement. Score 2

age=18;

Ans. age - identifier
= - operator
18 - literal
; - punctuator

---

2. Keywords

1. Distinguish between keywords and identifiers. Score 2

Ans.

The words (tokens) that convey a specific meaning to the language compiler are called keywords.

Examples : int, if

Identifiers are the user-defined words that are used to name different program elements.

Examples : Count

2. The tokens that convey a specific meaning to the language compiler are called _____ Score 1

Ans. keywords

---

3. Identifier

1. Explain the rules for naming identifiers. Score 2

Ans.

- Identifier is an arbitrary long sequence of letters, digits and underscores (_).
- The first character must be a letter or underscore (_).
- White space and special characters are not allowed.
- Keywords cannot be used as identifiers.
- Upper and lower case letters are treated differently, i.e. C++ is case sensitive.

2. Classify the identifiers given below as valid and invalid. Give reasons for invalidity.

sum, if, _Num 1, Switch, studAge Score 3

Ans.

Valid	Invalid	
sum	if	-keyword
Switch	_Num 1	- space is not allowed
studAge		

3. Classify the following identifiers as valid and invalid. Score 4

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a) Length_1 b) _Length1 c) Length 1 d) 1Length

Ans.

Valid	Invalid
Length_1	Length 1
_Length1	1Length

4. The following are invalid identifiers in C++. Write a reason for each. Score 2

a) Id# b) void c) 2ab d) avg hgt

Ans. a) Id# - special characters are not allowed
b) void - keywords
c) 2ab - first character must be a letter or underscore
d) avg hgt - space is not allowed

5. Find the invalid C++ identifiers from the list given below and give reason.

(a) count (b) 2 Number (c) _totalTax (d) Average height Score 2

Ans. (b) 2 Number - first character must be a letter or underscore
(d) Average height - space is not allowed

6. Write the invalid identifiers from the following list. Score 1

(a) 2nd year (b) main (c) count (d) break

Ans. (a) 2nd year (d) break

---

4. Literals

1. _____ are tokens that never change their values while execution takes place. Score 1

Ans. Literals

2. Differentiate between character literal and string literal. Score 2

Ans.

A single character enclosed in single quotes is called a character literal
Examples : 's' , 'S' , '$', '9'

A sequence of one or more characters enclosed within a pair of double quotes is called string constant.
Example : "Hello friends" , "123" , "C++"

3. List any three literals. Score 3

Ans. 1. Integer literals
2. Floating point literals
3. Character literals
4. String literals

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1. Categorize the following token: Score 3
(93.5, “Football”, +, float, long, %)

Ans. keyboard – float, long
Literals – 93.5, “Football”
Operator - %

Chapter 5
Data types and Operators

1. Datatype

1. What are data types? Explain the fundamental data types in C++. Score 3

Ans. Data types are the means to identify the nature of the data and the set of operations that can be performed on the data.

Fundamental data types are defined in C++ compiler. The five fundamental data types in C++ are char, int, float, double and void.

Datatype	Description	Size	Example
int	whole numbers without a fractional part	4 bytes	10, 25
char	symbols covered by the character set of the C++ language	1 byte	'A', '+',
float	Numbers with a fractional part	4 bytes	47.97
double	floating point numbers which require more precision	8 bytes	47.9785623589
void	indicates an empty set of data	0 byte	

2. The memory size of float data type in C++ is …… bytes. Score 1

Ans. 4 bytes

3. Name the C++ data type that does not require memory space. Score 1

Ans. void

4. Memory requirement of void data type in C++ is ..... byte(s). Score 1

Ans. 0 byte

5. List the three numeric data types in C++ with an example for each. Score 3

Ans. Explain about int, float, double

6. Which is the keyword used for empty data type? Score 1

Ans. void

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7. Arrange the data types in C++ in ascending order of size. Score 2

Ans. void, char, int, float, double

---

2. Variable

1. Briefly explain the important parts associated with every variables. Score 3

Ans. Variables are the names given to memory locations.

There are three important aspects for a variable.

i. Variable name
ii. Memory address
iii. Content

i. Variable name

It is a symbolic name (identifier) given to the memory location.

ii. Memory address (L-value)

The address of a variable is the starting address of the memory space allocated to a variable. The address is also called the L-value of a variable.

iii. Content (R-value)

The value stored in the location is called content of the variable. This is also called the R-value of the variable.

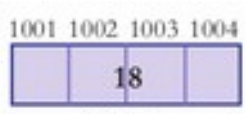

Fig 5.2 : Memory representation of a Variable

Here the variable name is Num and it consumes 4 bytes of memory at memory addresses 1001, 1002, 1003 and 1004. The content of this variable is 18. That is L-value of Num is 1001 and R-value is 18.

2. What is a variable in C++? Which are the two values associated with a variable ? Score 2

Ans. Variables are the names given to memory locations.

The two values associated with a variable are L-value and R-vale.

---

3. Operators

1. What is operator? Classify the operators based on number of operands. Score 2

Ans. Operators are tokens that can trigger computer to carry out operations.

Based on number of operands required for the operation, operators are classified into three. They are

a. unary
b. binary
c. ternary.

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2. Classify the following operators into unary and binary. Score 2

< ! = ++

Ans.

unary	binary
!	<
++	=

3. Ternary operator in C++ is _____. Score 1

Ans. Conditional Operator (? :)

4. What is the use of modulus (%) operator in C++ ? Score 2

Ans. The modulus operator gives the remainder value during arithmetic division. This operator can only be applied over integer operands.

Example : 10%4 gives the result 2

5. Identify the names of the following operators in C++. Score 1

&&, ||, !

Ans. Logical operates (Logical AND, Logical OR, NOT)

6. Write a short note on arithmetic and logical operators in C++. Score 3

Ans.

a. Arithmetic operators

Arithmetic operators are defined to perform basic arithmetic operations such as addition, subtraction, multiplication and division. The symbols used for this are +, -, * and / respectively.

b. Logical operators

Logical Operators are used to make two or more comparisons. The result of logical combinations will be either True or False (i.e. 1 or 0). The logical operators are && (logical AND), || (logical OR) and !(logical NOT).

7. Explain the different types of logical operators? Score 3

Ans. The logical operators are && (logical AND), || (logical OR) and !(logical NOT).

Logical AND (&&) operator

If two relational expressions El and E2 are combined using logical AND (&&) operation, the result will be 1 (True) only if both E1 and E2 have values 1 (True). In all other cases the result will be 0 (False).

E1	E2	E1&&E2
0	0	0
0	1	0
1	0	0
1	1	1

Table 5.6 : Logical AND

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Logical OR (||) operator

If two relational expressions El and E2 are combined using logical OR (||) operations, the result will be 0 (False) only if both El and E2 are having value 0 (False). In all other cases the result will be 1 (True).

E1	E2	E1 || E2
0	0	0
0	1	1
1	0	1
1	1	1

Table 5.7 : Logical OR

Logical NOT operator (!)

This operator is used to negate the result of a relational expression. This is a unary operation.

E1	!E1
0	1
1	0

Table 5.8 : Logical NOT

8. Compare relational and logical operators. Score 3

Ans.

a. Relational operators

Relational operators are used for comparing numeric data. The result will be either True or False. There are six relational operators in C++. They are < (less than), > (greater than), == (equal to), <= (less than or equal to), >= (greater than or equal to) and != (not equal to).

b. Logical operators

Logical Operators are used to make two or more comparisons. The result of logical combinations will be either True or False (i.e. 1 or 0). The logical operators are && (logical AND), || (logical OR) and !(logical NOT).

9. What is the difference between "=" and "==". Score 2

Ans. The = symbol assigns a value to a variable

== symbol compares two values and gives True or False as the result.

10. What is the difference between x=5 and x==5 in C++? Score 2

Ans.

x=5 - 5 is assigned to variable x

x==5 - compares two values x and 5 and gives True or False as the result.

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4. Expressions

1. What is the output of the following C++ statements. Score 2

x= -7, y=3

a) add -x with -y

b) x modulus y

Ans. a) 4 b) -1

2. If a = 5, b = 7 and c = 3, predict the output of the following expressions. Score 2

a) a < c

b) b % a

c) (a>c) && (a < b)

d) a / c

Ans. a) false b) 2 c) true d) 1

3. If x = 5, y = 5. Predict the output of the following expression. Score 1

x>y || y>x

Ans. false

4. If x = -5 and y = 3 then Predict the output of the following following operations. Score 2

a) -x b) x/y c) x%y d) -x + -y

Ans. a) 5 b) -1 c) -2 d) -8

5. Find the value of z in the following expression, if x=10 and y=4. Score 3

a) z = x % y

b) z = (x < 20) && (y < 5)

c) z = (x > 20) || (y > 5)

Ans. a) 2 b) 1 (true) c) 0 (false)

6. Write a short note on expressions. Score 2

Ans. An expression is composed of operators and operands. The operands may be either constants or variables. All expressions can be evaluated to get a result.

On the basis of the operators used, expressions are mainly classified into

a. arithmetic expressions

b. relational expressions

c. logical expressions.

7. Briefly explain any two expressions in C++. Score 2

Ans. a. Arithmetic expressions

An expression in which only arithmetic operators are used is called arithmetic expression. The operands and results of these expressions are numeric data.

Examples : 10+5, a-b

b. Relational expressions

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An expression in which only relational operators are used is called relational expression. The operands are numeric data and the results are of Boolean data. ie True (1) or False (0).
Examples : 10>5

c. Logical expressions

Logical expressions combine two or more relational expressions with logical operators and produce either True or False as the result. A logical expression may contain constants, variables, logical operators and relational operators.
Examples : (10>5) && (3<7)

---

5. Statements

1. What is statements? Explain any two types of statements in C++? Score 3

Ans. Statements are the smallest executable unit of a programming language.
Different types of statements used in C++ are

a. declaration statements
b. assignment statements
c. input statements
d. output statements
e. control statements

a. Declaration statements

This statement is used to declare a variable.
Examples: int x;

b. Input statements

Input statement is used to store data in the memory during the execution of the program. The **get from** or **extraction operator** (>>) specifies the input operation.
Examples: cin >> num;

c. Output statements

Output statement is used to output the results through any output device. The **put to** or **insertion operator** (<<) is used to specify this operation.
Examples: cout << num;
cout << "hello friends";

2. Write the syntax to declare a variable in C++. Score 2

Ans. The syntax of variable declaration is:
data_type <variable1>[, <variable2>, <variable3>, ...] ;
The data_type in the syntax should be any valid data type of C++.
Examples: int x;

3. What is cascading of I/O operators ? Give one example. Score 2

Ans.

The multiple use of input or output operators in a single statement is called cascading of I/O operators.

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Examples:

cin>>x>>y>>z;

cout<<x<<y<<z;

4. The multiple use of input or output operators in a single statement is called _____. Score 1

Ans. cascading of i/o operators.

Chapter 6

Introduction to Programming

1. Structure of C++ Program

1. Which header file is responsible for **cin** and **cout** objects. Score 1

Ans. <iostream>

2. What is the name of fiIes created to support C++ programs and kept in the standard library. Score 1

Ans. header files

3. Explain the use of header files in a program. Score 2

Ans. Header files contain the information about functions, objects and predefined derived data types. The header file iostream contains the information about the objects cin and cout. Other examples are cmath, cctype, cstdio

4. The starting symbol of a preprocessor directive statement is …… Score 1

Ans. #

5. Describe the preprocessor directives. Score 3

Ans. Preprocessors are the compiler directive statements. It give instruction to the compiler to process the information provided before actual compilation starts.

The preprocessor directive #include is used to link the header files available in the C++ library. There are some other preprocessor directives such as #define , #undef , etc.

---

2. Guidelines for coding

1. List any four guidelines for coding. Score 2

Ans. Use suitable naming convention for identifiers

Use clear and simple expressions

Use comments wherever needed

Relevance of indentation

2. What is the role of comments in a program? Explain the different ways to write comments in a C++ program. Score 3

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Ans. Comments are lines in code that are added to describe the program. They are ignored by the compiler.

There are two ways to write comments in C++:

i. Single line comments
ii. Multiline comments

Single line comment: The characters // (two slashes) is used to write single line comments. The text appearing after // in a line is treated as a comment by the C++ compiler.

Multiline comments: Anything written within /* and */ is treated as comment so that the comment can take any number of lines.

---

3. Variable Initialisation

1. What is variable initilisation ? Write example. Score 2

Ans. Supplying value to a variable at the time of its declaration is called variable initialisation. The assignment operator (=) is used for this.

It can be done in two ways as given below:

```
data_type variable = value;
        OR
data_type variable(value);
```

Examples:
```
int xyz=120;
int xyz(120);
```

---

4. Const

1. Explain the difference between float g=9.8 ; and const float g=9.8 Score 2

Ans.

float g=9.8 ; - assigns the value 9.8 into the variable g.

const float g=9.8 - This statement creates a symbolic constant g with value 9.8. The value of g never be changes during execution.

2. What is constant? Score 1

Ans. whose value can never be changed during execution.

3. Write the keyword for constant declaration in C++. Score 1

Ans. const

4. Write the keyword which is used to create symbolic constants whose value can never be changed during execution. Score 1

Ans. const

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5. Give an example of constant declaration. Score 1

Ans. const float g=9.8

---

5. Type Modifiers

1. Explain type modifiers in C++. Score 3

Ans. It alters the range of values permitted to a data type by altering the memory size and/or sign of values. Important modifiers are **signed** , **unsigned** , **long** and **short**.

---

6. More Operators

1. Which one of the following is NOT a valid C++ statement? Score 1

a) x=x+10 b) x+=10 c) x+10=x d) x=10+x

Ans. c) x+10=x

2. Write four different C++ statements to add 1 to the value stored in the variable Num. Score 2

Ans. 1) Num=Num+1 2) Num+=1 3) Num++ 4) ++Num

3. Write the equivalent arithmetic operations for the given C++ short hands. Score 2

a) x%=20 b) a+=2 c) p/=5

Ans. a) x=x%20 b) a=a+2 c) p=p/5

4. Rewrite the expression a=a+10 using arithmetic assignment statement. Score 1

Ans. a+=10

5. Explain arithmetic assignment operators. Score 3

Ans. Arithmetic assignment statement can be used for executing an arithmetic operation on a variable and to assign the result to that variable.

Example : a=a+5 can be written as a+=5

These are also known as C++ short-hands. These are all binary operators and the first operand should be a variable. Arithmetic assignment operators makes the two operations faster.

6. Write any three arithmetic assignment operator in C++. Score 3

Ans. +=, -=, *=, /=, %=

7. This operator is used for incrementing the content of an integer variable by one. Score 2

Ans. This operator is used for incrementing the content of an integer variable by one.

Example: int x=10;

x++;

The value of x will be 11.

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8. Predict the value of 'b' in the following C++ code after execution of each code snippet. Justify your answer. Score 3

a) a=5; b=a++;

b) a=5; b=++a;

Ans. a) 5 b) 6

9. Write the output of the following program. Score 2

```
#include<iostream>
using namespace std;
int main()
{
        int a=10;
        cout<<"\n a="<<a++;
        cout<<"\n a="<<++a;
}
```

Ans. a=10
a=12

10. Give the output of the following :

```
int a, b=5;
a=b++;
cout<<a<<'\t'<<b;
```

Score 2

Ans. 5 6

11. Given a=5, b=10. Find x, y, z in the following C++ expressions :

```
x=a++;
y=++b;
z=x+y;
```

Score 3

Ans. 16

12. If A=5, B=4, C=3 and D=4, then what is the result of X after the following operations? Score 3

X = A + B – C * D

Ans. -3

13. Pick odd one out from the following. Score 1

a. += b. %= c.<= d. /=

Ans. c. <=

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7. Type Conversions

1. Differentiate Type Promotion and Type Casting. Score 3

Ans. Implicit type conversion (Type promotion)

Implicit type conversion is performed by C++ compiler internally. In this type of conversion, C++ converts the lower sized operands to the data type of highest sized operand.

Example: 3+2.5
This expression will become 3.0+2.5 and the result will be 5.5

Explicit type conversion (Type casting)

This is done by the programmer by specifying the data type within parentheses to the left of the operand.
Example : 3+(float)2
Here 2 will be converted to 2.0

2. What is a type conversion? Which are the two ways of type conversion? Score 2

Ans. The conversion of data type of a data to another data type is called Type conversion.

Type conversion and can be done in two ways:
a. implicitly
b. explicitly.

3. Consider the C++ code. Score 1

```
int p=7, q=2
float a, b;
a = p/q;
b=(a+q)/q;
```

Find the values of a and b.

Ans. a=2.0 b=2.5

4. Consider the following C++ code.

```
int x=5, y=2;
float z;
z=x/y;
cout<<z;
```

Write the output of the above code. Justify your answer. Score 3

Ans. Output is 2.0

If the size of the data type of the variable at LHS is higher than that of the variable at RHS, the value at RHS is promoted (type promotion) to that of the variable at LHS. Here x and y are of type int. So x/y results integer value 2. This integer value is assigned to the float variable z. So type promotion occurs and he value 2 gets promoted to 2.0

5. Explain the operations involved in the following C++ expressions and write the output. Score 2

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a) 5 / 2 + 3
b) (10 % 3) / 2.0

Ans. a) 5 b) 1.5

6. Write the output of the following C++ expressions. Score 2

Let a=7,b=2.

a) a + b * 3 / ++b;
b) a <= 7 && b > 1;

Ans. a) 9 b) 1

Chapter 7
Control Statements

1. Control statements are classified into two. What are they ? Score 2

Ans. Control statements are classified into two:
(i) decision making/selection statements
(ii) iteration statements.

---

1. Decision Making Statements

1. Write the syntax of **if-else** statement in C++. Score 3

Ans.

```
if (test expression)
{
     statement block 1;
}
else
{
     statement block 2;
}
```

Here, if the test expression evaluates to True, only the statement block1 is executed. If the test expression evaluates to False, statement block2 is executed.

2. Write the output of the following C++ program. Score 1

```
#include<iostream>
using namespace std;
int main()
{
     int a,b,c;
     a=b=1;
```

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```
        c=2;
        if(a+b>c)
                cout<<"\n RED";
        else if(a+b<c)
                cout<<"\n GREEN";
        else
                cout<<"\n BLUE";
}
```

Ans. BLUE

3. Write the syntax of **switch** statement. Explain its working using an example. Score 5

Ans.

```
switch (expression)
{
    case constant_1    : statement block 1;
                         break;
    case constant_2    : statement block 2;
                         break;
    case constant_3    : statement block 3;
                         break;
                       :
                       :
    case constant_n-1  : statement block n-1;
                         break;
    default            : statement block n;
}
```

In the syntax **switch** , **case** , **break** and **default** are keywords. The expression is evaluated to get an integer or character constant and it is matched against the constants specified in the case statements. When a match is found, the statement block associated with that case is executed until the break statement or the end of switch statement is reached. If no match is found, the statements in the default block get executed.

4. Rewrite the following code using switch case statement. Score 2

```
if (Lan == 'M')
        cout<<"I prefer Malayalam";
else if (Lan ==' E')
        cout<<"I prefer English";
else
        cout<<" I prefer neither Malayalam nor English";
```

Ans.

```
switch(Lan)
{
```

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```
        case 'M' : cout<<"I prefer Malayalam";
                   break;
        case 'E' : cout<<"I prefer English";
                   break;
         default : cout<<"I prefer neither Malayalam nor English";
    }
```

5. Briefly explain conditional operators in C++. Score 2

Ans. Conditional operator is a ternary operator. It can be used as an alternative to if...else statement.

Syntax

Test expression ? True_case code : False_case code;

Test expression - any relational or logical expression.

True_case code and *False_case code* - constants, variables, expressions or statement.

It evaluates the Test expression and if it is True, the True_case code is executed. Otherwise, False_case code is executed.

6. Rewrite the following C++ code using **if..else** statement. Score 2

```
large=(n1>n2)?n1:n2
```

Ans.

```
if(n1>n2)
    large=n1;
else
    large=n2;
```

7. Rewrite the following C++ statement using **if..else** Score 2

```
cout<<(n%2==0?"Even":"Odd");
```

Ans.

```
if(n%2==0)
    cout<<"Even";
else
    cout<<"Odd";
```

8. Rewrite the following C++ statement using **if..else** Score 2

```
big=n1>n2?n1:n2;
```

Ans.

```
if(n1>n2)
    big=n1;
else
    big=n2;
```

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9. Define Nested If. Score 2

Ans. When we write an if statement inside another if block, it is called nesting.

Example :

```
if (score >= 60)
{
        if(age >= 18)
                cout<< " You are selected for the course! " ;
}
```

10. Differentiate between **switch** and **if..else if** statements. Score 2

Ans.

switch statement	else if ladder
• Permits multiple branching.	• Permits multiple branching.
• Evaluates conditions with equality operator only.	• Evaluate any relational or logical expression.
• Case constant must be an integer or a character type value.	• Condition may include range of values and floating point constants.
• When no match is found, `default` statement is executed.	• When no expression evaluates to True, `else` block is executed.
• `break` statement is required for exit from the `switch` statement.	• Program control automatically goes out after the completion of a block.
• More efficient when the same variable or expression is compared against a set of values for equality.	• More flexible and versatile compared to `switch`.

Table 7.1: Comparison between switch and else if ladder

11. What are the limitations of **switch** statement compared to **if..else if** ladder. Score 2

Ans. Evaluates conditions with equality operator only.
Case constant must be an integer or a character

12. If no match is found, the _____ block in switch statement is executed.
(case, else, default, break) Score 1

Ans default

13. Write a C++ program to check whether a given year is a leap year or not. Score 5

Ans.

```
#include <iostream>
using namespace std;
int main()
{
        int year ;
```

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```
        cout << "Enter year (in 4-digits): ";
        cin >> year;
        if (year % 100 == 0)
        {
                if (year % 400 == 0)
                        cout << "Leap Year\n" ;
                else
                        cout<< "Not a leap year\n" ;
        }
        else if (year % 4 == 0)
                cout << "Leap Year\n" ;
        else
                cout<< "Not a leap year\n" ;
}
```

14. Write a C++ program to find the biggest number from 3 given number. Score 5

Ans.

```
#include <iostream>
using namespace std;
int main()
{
        int x, y, z;
        cout << "Enter three numbers: ";
        cin >> x >> y >> z ;
        if(x>y&&x>z)
                cout<<x<<" is the largest number";
        else if(y>x&&y>z)
                cout<<y<<" is the largest number";
        else
                cout<<z<<" is the largest number";
}
```

15. Write a C++ program to input the amount of sales and calculate the discount amount based on the criteria given in the table. Score 5

Amount of sale	Discount rate
25,000 and above	10%
10,000 above but below 25,000	7%
Below 10,000	No discount

Ans.

```
#include <iostream>
using namespace std;
int main()
```

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```
{
        int amount;
        float discount;
        cout<<"\n Enter the amount ";
        cin>>amount
        if(amount>=25000)
                discount = amount * 0.1;
        else if(amount>=10000 && amount<25000)
                discount = amount * 0.07;
        else
                discount =0.0;
        count<<"\n Discount = "<<discount;
}
```

16. Write a C++ program to find the simple interest of an amount (P) deposited with a rate of interest (R) for a period of Years (N).

    Rate of interest = 7% If deposit amount P is less than 1 lakh.
    Rate of interest = 8% If deposit amount P is between 1 lakh and 5 lakh.
    Rate of interest = 9% If deposit amount P is above 5 lakh.

    (Hint : Simple interest = P x N x R / 100)

Ans.

```
#include <iostream>
using namespace std;
int main()
{
        int P, N;
        float R, SI;
        cout<<"\n Enter Principal,  Year ";
        cin>>P>>N;
        if(P<100000)
                R=7;
        else if(P>100000 && P<500000)
                R= 8;
        else
                R=9;
        SI=P * N * R / 100;
        cout<<"\n Simple Interest = ">>SI;
}
```

17. Rewrite the following code using else if ladder. Score 5

```
#include<iostream>
```

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```
using namespace std;
int main()
{
        int colour;
        cout<<"Enter a number between 1 and 4";
        cin>>colour;
        switch(colour)
        {
                case 1 : cout<<"Red";
                        break;
                case 2 : cout<<"Green";
                        break;
                case 3 : cout<<"Blue";
                        break;
                default : cout<<"Wrong input";
        }
}
```

Ans.

```
#include<iostream>
using namespace std;
int main()
{
        int colour;
        cout<<"Enter a number between 1 and 4";
        cin>>colour;
        if(colour==1)
                cout<<"Red";
        else if(colour==2)
                cout<<"Green";
        else if(colour==3)
                cout<<"Blue";
        else
                cout<<"Wrong Input";
}
```

18. Rewrite the following switch statement using if – else if statement : Score 5

```
switch (n)
{
        case 5 : cout<<"Excellent"; break;
        case 4 :
        case 3 : cout<<"Good"; break;
```

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```
            case 2 : cout<<"Average"; break:
            case 1 : cout<<"Poor"; break;
            default : cout<<"Invalid";
        }
```

Ans.
```
    if(n==5)
            cout<<"Excellent";
    else if(n==4 || n==3)
            cout<<"Good";
    else if(n==2)
            cout<<"Average";
    else if(n==1)
            cout<<"Poor";

    else
            cout<<"Invalid";
    }
```

19. Briefly explain conditional operators in C++. Score 2

Ans.

Conditional operator (?:) consisting of symbols ? and : (a question mark and a colon). It requires three operands to operate upon. It can be used as an alternative to if...else statement.

Its general form is:

Test expression ? True_case code : False_case code;

It evaluates the *Test expression* and if it is True, the *True_case code* is executed. Otherwise, *False_case code* is executed.

---

2. Iteration Statements

1. Which are the three loops in C++ ? Score 3

Ans. while, for, do..while

2. The variable which controls a loop is called _____. Score 1

Ans. loop control variable

3. do..wile loop is a _____ controlled loop. Score 1

Ans. exit-controlled loop

4. The following code segment prints first 10 natural numbers.

```
int n=1;
while (n<=10)
{
```

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```
        cout<<n<<"  ";
        ++n;
    }
```

Rewrite the above code using for loop. Score 2

Ans.

```
    for(int n=1; n<=10; ++n)
    {
        cout<<n<<" ";
    }
```

5. Write a C++ program to print first 10 even natural numbers. Score 5

Ans.

```
#include<iostream>
using namespace std;
int main()
{
    int i;
    for(i=2; i<=10; i=i+2)
        cout<<i<<"\n";
}
```

6. Which is the exit-controlled loop in C++. Score 1

Ans. do..while loop

7. How does exit controlled loop differ from an entry controlled loop? Score 2

Ans.

Entry controlled loop	Exit controlled loop
• Condition is checked before the execution of the body	• Condition is checked after the execution of the body
• Body may never be executed.	• Body will surely be executed at least once.
• Suitable when skipping of the body from being executed is required	• Suitable when normal execution of the body is to be ensured.

Table 3.1 : Comparison of loops

8. a) Give the output of the following code. Score 1

```
for (i=10;i<30;i+=3)
{
    cout<<i<<"\t";
}
```

b) Rewrite the above code using **while** loop. Score 2

Ans.

a) 10 13 16 19 22 25 28

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b)

```
i=10;
while(i<30)
{
        cout<<i<<"\t";
        i+=3;
}
```

9. List the four important elements of a loop. Score 2

Ans.

Initialisation
Test Expression
Body of the loop
Update statement

10. Consider the following code.

```
int i=1;
for( ; ; )
{
        cout<<i<<"\n";
}
```

a. Find the output. Score 1

b. Rewrite the code using **while** loop with i<=10 and i=i+2 in appropriate place for successful code execution. Score2

Ans.

a) No output

b)

```
int i=1;
while(i<=10)
{
        cout<<i<<"\n";
        i=i+2;
}
```

11. Write a C++ program to find the sum of numbers upto 100 by using any Ioop statement. Score 3

Ans.

```
#include<iostream>
using namespace std;
int main()
{
        int i, sum=0;
        for(i=1; i<=100; i++)
```

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```
        {
            sum=sum+i;
        }
        cout<<"Sum = "<<sum;
    }
```

12. Consider the following code.

```
int n=1;
while(n<=10)
{
    cout<<n<<"  ";
    ++n;
}
```

a. Write the output of the code. Score 1

b. Rewrite the above code using **for** loop. Score 2

Ans.

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

b)
```
int n;
for(n=1; n<=10; ++n)
    cout<<n<<" ";
```

13. Consider the following C++ code.

```
for(i=1;i<=10;++i)
    cout<<i;
```

Rewrite the above code using **while** loop. Score 2

Ans.
```
i=1;
while(i<=10)
{
    cout<<i;
    ++i;
}
```

14. Consider the following C++ code.

```
int x, sum;
sum=0;
x=1;
while(x<=5)
{
    sum=sum+x;
    x++;
}
```

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```
cout<<sum;
```

a. Which is loop control variable in the above code. Score 1
b. Write the four elements of loop in the above code. Score 2
c. Write the output of the above code. Score 1

Ans.
a) x
b) initialisation – x=1
Test expression - x<=5
Update statement – x++
Body of the loop - sum=sum+x;
c) 15

15. Distinguish between **for** loop and **while** loop with syntax. Score 3

Ans.

a.**while** statement

The while loop is an **entry-controlled loop**.

```
initialisation of loop control variable;
while(test expression)
      {
      body of the loop;
      updation of loop control variable;
      }
```

In a while loop, a loop control variable should be initialised before the loop begins and it should be updated inside the body of the loop. The condition is checked first and if it is found True, the body of the loop will be executed. That is the body will be executed as long as the condition is True.

b. **for** statement

The for loop is also an entry-controlled loop in C++. All the three loop elements (initialisation, test expression and update statement) are placed together in **for** statement. So it makes the program compact.

Syntax

```
for (initialisation; test expression; update statement)
{
      body-of-the-loop;
}
```

At first, the initialisation takes place and then the test expression is evaluated. If its result is True, body-of-the-loop is executed, otherwise the program control goes out of the for loop. After

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the execution of the loop body, update expression is executed and again test expression is evaluated. These three steps (test, body, update) are continued until the test expression is evaluated to False.

16. Write two examples for entry controlled loop. Score 2

Ans. while, for

17. Write the difference between **do-while** loop and **while** loop in C++. Score 2

Ans.

for loop	while loop	do...while loop
Entry controlled loop	Entry controlled loop	Exit controlled loop
Initialisation along with loop definition	Initialisation before loop definition	Initialisation before loop definition
No guarantee to execute the loop body at least once	No guarantee to execute the loop body at least once	Will execute the loop body at least once even though the condition is False

Table 7.2 : Comparison between the looping statements of C++

Chapter 8
Computer Networks

1. Computer Networks

1. List any four advantages of computer networks. Score 2

Ans. Resource Sharing
Price-performance Ratio
Communication
Reliability
Scalability

2. Explain any three advantages of computer network. Score 3

Ans

Resource sharing - hardware and software resources in a computer network can be shared.

Scalability: Computing capacity can be increased or decreased easily by adding or removing computers to the network.

Communication: Computer network helps user to communicate with any other user of the network through e-mail, chatting, video conferencing etc.

3. Define the following terms related to computer networks. Score 3

a) Node b) Bandwidth c) Noise

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Ans.

Node : Any device (computer, scanner, printer, etc.) which is directly connected to a computer network is called a node.

Bandwidth : The maximum data-transfer rate between computers in a network is called Bandwidth.

Noise : Noise is unwanted electrical or electromagnetic energy that lowers the quality of data signals.

4.. Any device which is directly connected to a computer network is called _____. Score 1

Ans. Node

---

2. Data Communication System

1. In communication system the term source refers to …… Score 1

a) receiver b)sender c) information d) medium

Ans. b) sender

2. What is data communication. Score 1

Ans. Data communication is the exchange of digital data between any two devices through a medium of transmission.

---

3. Communication Medium

1. a. Define communication medium. Score 1

b. Explain different types of communication medium. Score 4

Ans.

a. The medium for data transmission over a computer network is called communication channel or communication medium.

b. The communication medium between computers in a network are of two types: guided and unguided.

In guided or wired medium, physical wires or cables are used. In unguided or wireless medium radio waves, microwaves or infrared signals are used for data transmission.

a. Twisted pair cable (Ethernet cable)

It consists of four twisted pairs which are enclosed in an outer shield.

Twisted pair cables are of two types:

(i) Unshielded Twisted Pair (UTP) cables

(ii) Shielded Twisted Pair (STP) cables.

b. Coaxial cable

A coaxial cable consists of an inner conductor surrounded by a tubular insulating layer which is further covered by a tubular conducting shield.

c. Optical Fibre

Optical fibres are long thin glass fibres through which data is transmitted as light signals.

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Data travels as fast as light and can be transmitted to long distances.

d. Infrared waves

Infrared waves have a very low frequency range. These waves are used for short range communication.

2. …….. is an example of wired media. Score 1

Ans. Twisted pair cable / Coaxial cable / Optical fibre

3. Explain any two guided media. Score 2

Ans.

a. Twisted pair cable (Ethernet cable)

It consists of four twisted pairs which are enclosed in an outer shield. Twisted pair cables are of two types:

(i) Unshielded Twisted Pair (UTP) cables

(ii) Shielded Twisted Pair (STP) cables.

b. Coaxial cable

A coaxial cable consists of an inner conductor surrounded by a tubular insulating layer which is further covered by a tubular conducting shield.

4. Name the major parts of optical fibre cable. Score 2

Ans. Optical fibre has the following parts:

Core, Cladding, Coating

5 What are the advantages of Wi-Fi network. Score 2

Ans.

Not a line of sight communication.

Data transmission speed is up to 54 Mbps

Wi-Fi can connect more number of devices simultaneously

Used for communication upto 375 ft (114 m)

6. Which among the following communication technologies is the slowest? Score 1

a) Bluetooth b) wi-Fi c) Wi-MAX d) Satellite link

Ans. a) Bluetooth

7. Compare the communication technologies Bluetooth and Wi-Fi. Score 2

Ans.

a.Bluetooth

Bluetooth technology uses radio waves. This technology is used for short range communication (approx. 10 m).

b. Wi-Fi

Wi-Fi technology uses radio waves. Nowadays, this technology is widely used to share Internet connection with laptops or desktops.

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8. Write the characteristics of Bluetooth transmission. Score 2

Ans. Not a line of sight communication.
can connect upto eight devices simultaneously.
Slow data transfer rate (upto 1 Mbps).

---

4. Data Communication Devices

1. A device that regenerates the incoming signals and retransmits them to their destination is called ……. Score 1

Ans. Repeater

2. Differentiate switch and hub. Score 2

Ans.

Switch

A switch is an intelligent device that connects several computers to form a network. When a computer sends data packets, the switch reads the destination address on the packet and transmits the packet to the destination only.

b. Hub

A hub is a device that connects several computers to form a network. When a computer sends data packets, the hub transmits the packets to all other computers connected to it.

3. List any four data communication devices. Score 2

Ans. Hub, Switch, Repeater, Bridge, Router, Gateway

4. What are the uses of repeaters. Score 2

Ans. A repeater is a device that regenerates incoming signals. Repeater receives incoming data signals, amplifies the signals to their original strength and retransmits them to the destination.

5. What is the uses of Bridge. Score 1

Ans. A bridge is a device used to segmentise a network. An existing network can be split into different segments and can be interconnected using a bridge.

6. What is the uses of Router. Score 1

Ans. A router is a device that can interconnect two networks of the same type using the same protocol.

7. What is the difference between router and gateway ? Score 2

Ans.

Router is used to interconnect two networks of the same type using the same protocol.

Gateway is used to interconnect two different networks having different protocols.

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5. Data Terminal Eqipments

1. A …… is a computer peripheral that allows you to connect and communicate with other computers via telephone lines. Score 1

Ans. MODEM

2. Choose a data terminal equipment (DTE) from the following options. Score 1

a) Bridge b) Modem c) Router d) Gateway

Ans. b) Modem

3. (a) Write the names of any two data terminal equipments. Score 1

(b) Write the uses of them. Score 2

Ans.

(a) MODEM, MULTIPLEXER

(b) MODEM - A modem is used for communication between computers through telephone lines. It converts digital signals received from a computer to analog signals for telephone lines. It also converts the analog signals received from telephone lines to digital signals for the computer.

MULTIPLEXER - Multiplexer sends multiple signals on a physical medium at the same time in the form of a single, complex signal and then separate signals at the receiving end.

---

6. Network Topology

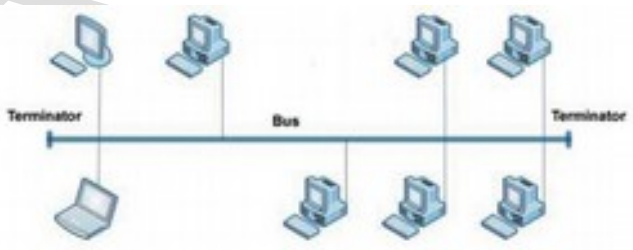
1. Define the term, topology. Score 1

Ans. The way in which the nodes are physically interconnected to form a network is called a Topology.

2. Identify the name given to the physical arrangement of computers in a network. Explain two types with block diagrams. Score 3

Ans. Topology

Bus topology



In bus topology all the nodes are connected to a main cable called bus. If a node has to send data to another node, it sends data to the bus. The signal travels through the entire length of the bus. All nodes check the bus, and only the node for which data is addressed accepts it.

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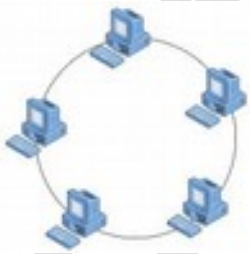
Star topology

In star topology each node is directly connected to a hub/switch. If any node has to send some information to any other node, it sends the signal to the hub/switch. This signal is then broadcasted (in case of a hub) or sent only to the intended node.

3. Compare ring topology and mesh topology. Score 3

Ring topology

A ring topology is in the form of a circle. It has no start and no end. Data travels only in one direction. While they are passed from one node to the next, each node regenerates the signal. The node for which the signal is intended reads the signal. After travelling through each node, the signal reaches back to the sending node from where it is removed.



Mesh topology

In mesh topology, every node is connected to other nodes. So there will be more than one path between two nodes. If one path fails, the data will take another path and reach the destination.

4. If all devices are connected to a central hub/switch, the topology is known as ……. Score 1

Ans. Star Topology

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7. Types of Networks

1. How is WAN different from a LAN? Score 3

Ans.

Wide Area Network (WAN)

WAN is a network crossing the limits of a city, country or continent. It can cover an area of over hundreds of Kilometers in radius. The best known example of a WAN is the Internet. It is most expensive and has low speed.

Eg. Internet, ATM

Local Area Network (LAN)

LAN is a network spanning with in a room, building, or campus. It can cover an area of radius with a few meters to a few Kilometers. A LAN is owned, controlled and managed by a single person or an organisation. It is inexpensive and has high speed.

Eg. Networks within a campus.

2. Classify the following network based on the area covered :

(a) Your home computer connected to a printer. Score 1

(b) Cable TV network in a city. Score 1

(c) Computer network at your school lab. Score 1

(a) PAN

(b) MAN

(c) LAN

---

8. Logical Classifications

1. "Client-server architecture is an example of centralized software management." Justify. Score 2

Ans. In a client-server architecture there are servers (high-end computer) and clients. When a client requests, a server provides specific services. The services include sharing of data, software and hardware resources.

2. Write the importance and list any two classifications of servers. Score 2

Ans. A server provides specific services (responses) to client upon client's request. The services include sharing of data, software and hardware resources.

Classifications for servers are

File server, Web server, Print server

---

9. Identification / Address

1. Write the full form of MAC. Score 1

Ans. Media Access Control

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10. Network Protocol

1.What is meant by network protocol? Give an example. Score 2

Ans. A network protocol is the special set of rules to be followed in a network when devices exchange data with each other.

Examples : TCP/IP, FTP, HTTP, DNS

2. What is the importance of TCP / IP protocol in computer networks? Score 2

Ans. TCP/IP is used to interconnect devices in networks. When data is to be sent from one computer to another over Internet, it is first broken into smaller packets by TCP and then sent. When these packets are received by the receiving computer, TCP checks packets for errors. If errors are found, TCP submits requests for retransmission; else packets are assembled into the original message.

Delivery of each of these packets to the right destinations is done by Internet protocol (IP).

3. The protocol used for internet communication is …….. Score 1

Ans. TCP/IP

---

11. URL

1. Classify the following URL on the basis of network protocol, domain name and file name. Score 3

http://www.dhsekerala.gov.in/index.html

Ans.

Protocol – http
domain name – www.dhsekerala.gov.in
file name – index.html

2. URL string consists of protocol, domain name and file name. Write the name of a URL and mark these three parts in it. Score 2

Ans. http://www.dhsekerala.gov.in/index.html
Protocol – http
domain name – www.dhsekerala.gov.in
file name – index.html

3. a. What is an URL? Score 1

b. Identify three parts of an URL. Score 2

Ans.

a. URL is a formatted text string used to identify a network resource on the Internet.

b. URL string can be divided into three parts.

a) Network protocol (also called the scheme)
b) Domain name (Host name or address)
c) File name

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4. What is the full form of URL. Score 1

Ans. Uniform Resource Locator

Chapter 9
Internet

1. History

1. Who developed the idea of world wide web. Score 1

Ans. Tim Berners Lee

---

2. Connecting Computer to Internet

1. Mention the components required to connect a PC to internet. Score 3

Ans.

- A computer with Network Interface Card and an operating system that supports TCP/IP.
- Modem
- Telephone connection
- An Internet account given by an Internet Service Provider (ISP)
- Software like browser, client application for e-mail, chat, etc.

---

3. Types of connectivity

2. Explain various types of broadband connectivity. Score 3

Ans.

Integrated Services Digital Network (ISDN) - Capable of transporting voice and digital data.

Cable Internet - Provides Internet access using coaxial cables laid for television transmission to our homes.

Digital Subscriber Line (DSL) - Provides connection to the Internet through standard telephone lines.

Leased Line - Leased lines are dedicated lines used to provide Internet facility.

Mobile broadband - Mobile broadband is wireless Internet access using mobile phone, USB wireless modem, tablet or other mobile devices.

3. Distinguish dial up connection and wired broadband connection. Score 2

Ans.

a. Dial-up connectivity - A dial-up connection uses the conventional telephone line and a dial-up modem. Connection is made by dialing.

b. Wired broadband connectivity - Wired broadband connections are ‘always on’ connections. Broadband connections use a broadband modem.

4. Explain any two internet sharing methods. Score 2

Ans.

Using LAN - The Internet connected to a computer in a Local Area Network (LAN) can be shared among other computers in the network.

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Using Wi-Fi network - We access Internet in our Wi-Fi enabled devices like laptops, tablets, mobile phones, etc. through Wi-Fi router or the hotspots. A drawback of Wi-Fi is that it is less secure than wired connections.

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4. Services on Internet

1. Write three services of internet. Score 3

Ans. www, Search engines, E-mail, Social Media

2. Name a web browser. Score 1

Ans. Google Chrome / Internet Explorer / Mozilla Firefox / Opera / Safari.

3. Which one of the following is NOT a browser? Score 1

a) Mozilla Firefox b) Google c) Internet Explorer d) Opera

Ans. b) Google

4. Name any search engine Score 1

Ans. Google / Bing / Yahoo Search / Ask

5. Explain the working behind the search engine. Score3

Ans. Search engine web sites use programs called web crawlers or spiders or robots to search the web. Web crawlers search the web pages stored in the different web servers and find possible keywords. The search engine website stores these keywords along with their URLs to form an index in the web servers. When we use the search engine to search a particular topic (keyword), it searches the index, and displays it as the result.

6. Which one is NOT a search engine. Score 1

a) Google b) Bing c)Facebook d) Ask

Ans. c)Facebook

7. Name the service which provides a list of websites containing information about a word or a phrase. Score 1

Ans. Search engine

8. Which one of the following statement is NOT true about e-mail. Score 1

a) E-mail is environment friendly as it do not use paper.

b) E-mail provides provision to attach text, audio, video and graphics.

c) E-mail will not spread any kind of viruses.

d) E-mail can be used to send same messages to many recipients simultaneously.

Ans. c) E-mail will not spread any kind of viruses.

9. Internet offers a variety of services. One of these services requires an address like

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journey23@gmail.com. Name this service and write the reasons for the wide use of this service. Score 3

Ans. E-mail

Advantages of using e-mail

Speed, Easy to Use, Provision of attachments, Environment friendly Reply to an e-mail, Cost effective, Available anywhere anytime.

10. Explain cc and bcc sections in an e-mail. Score 2

Ans.

Cc (Carbon copy) – A box to provide the e-mail addresses of the secondary recipients.

Bcc (Blind carbon copy) – A box to provide the e-mail addresses of the tertiary recipients.

11. Briefly explain the sections of e-mail. Score 3

Ans.

To (Recepient Address) – A box to provide the e-mail addresses of the primary recipients.

Cc (Carbon copy) – A box to provide the e-mail addresses of the secondary recipients.

Bcc (Blind carbon copy) – A box to provide the e-mail addresses of the tertiary recipients.

Subject – A box to provide a meaningful subject.

Content – Type your message here.

12. Write any four classification of social media. Score 2

Ans. Internet forums, Social Blogs, Microblogs, Wikis, Social Networks, Content communities

13. Consider the relation given below.

Social network : facebook.com

Which among the following share a similar relationship as the above. Score 1

a) micro blog : blogger.com

b) social blog : twitter.com

c) content community : youtube.com

d) internet forum : linkedin.com

Ans. c) content community : youtube.com

14. Write any three examples of various types of social media on Internet.

Score 3

Ans. microblog - twitter.com

social blog - blogger.com

content community - youtube.com

Social network : facebook.com

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15. Write any two drawbacks in using social media. Score 2

Ans. Intrusion to privacy, Addiction, Spread rumours

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5. Cyber Security

1. Write any three threats that affects a computer network. Score 3

Ans. Computer Virus, Worm, Trojan Horse, Spams, Hacking, Phishing, Denial of service attack, Man in the middle attack

2. Pick the odd one out. Score 1

a) Virus b) Trojan horse c) Wikis d) Worm

Ans. c) Wikis

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3. What is computer virus ? Score 2

Ans. A computer virus is a program that attaches itself to another program or file. It spread from one computer to another without our knowledge and interferes with the normal operation of a computer. A virus might corrupt or delete data on our computer, replicate itself and spread to other computers or even erase everything in the hard disk.

4. Define the terms. Score 2

a) Phishing

b) Hacking

Ans. Phishing is an attempt to acquire information such as usernames, passwords and credit card details by posing as the original website.

Hacking is a technical effort to manipulate the normal behavior of network connections and connected systems.

5. Explain Hacking. Score 3

Ans.

Hacking is a technical effort to manipulate the normal behavior of network connections and connected systems.

Computer experts perform hacking to test the security and find the vulnerabilities in computer networks and computer systems. Such computer experts are often called '**white hats**'

Computer criminals break into secure networks to destroy data or make the network unusable. Such criminals are called '**black hats**'.

grey hat hackers fall between white and black hackers. They sometimes act illegally, though with good intentions, to identify the vulnerabilities.

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6. Preventing Networks Attack

1. The small text files used by browsers to remember e-mail id, user name, etc. are known as …….. Score 1

Ans. cookies

2. Define the following terms :

(a) Cookies

(b) Firewall Score 2

Ans.

(a). Cookies are small text files that are created when we visit a website. Cookies remembers our user name, preferences, e-mail address, etc.

(b) A firewall is a system of computer hardware and software that provides security. It analyses incoming data and determines whether they should be allowed or not based on a rule set.

Chapter 10
IT Applications

1. e-Governance

1. Application of ICT for delivering government services to citizens in a convenient and transparent manner is called …….. Score 1

Ans. e-Governance

2. Define e-Governance. Write any four advantages of e-Governance. Score 3

Ans. Application of ICT for delivering government services to citizens in a convenient and transparent manner is called

Advantages

- leads to automation of government services
- strengthens the democracy
- more transparency in the functioning
- makes every government department responsible saves unnecessary visits of the public to offices

3. Explain the infrastructure of e-Governance. Score 3

Ans.

e-Governance infrastructure mainly consists of

State Data Centers (SDC)
State Wide Area Network (SWAN)
Common Service Centers (CSC)

State Data Centers (SDC) - for providing core infrastructure and storage.

State Wide Area Network (SWAN) - for connectivity. Kerala State Wide Area Network (KSWAN) has been set up as a backbone of the State

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Information Infrastructure (SII).
Common Service Centers (CSC) - as service delivery points. Example: AKSHAYA

4. Briefly describe any two benefits of e-Governance. Score 2

Ans.

leads to automation of government services – ensures information is easily available to all citizens.

more transparency in the functioning – helps eliminate corruption.

saves unnecessary visits of the public to offices – saves time and money.

5. Write any two challenges for implementing e-Governance. Score 2

Ans.

- Those who live in remote areas with lower e-Literacy will face difficulty to access the services of e-Governance.
- Security measures are highly required since there is possibility of cyber-attack.
- Huge initial investment and planning are required.
- Many people are anxious about the sharing of their personal information.
- Integrity of various departments is very much essential for the efficiency and effectiveness of e-Governance.

6. Write any three types of interactions in e-governance. Score 3

Ans.

Government to Government (G2G) - It is the electronic sharing of data and/or information among government agencies, departments or organisations.

Government to Citizens (G2C) - It creates an interface between the government and citizens.

Government to Business (G2B) - e-Governance tools are used to aid the business community to interact with the government.

Government to Employees (G2E) - Government, being the biggest employer has to interact with its employees on a regular basis.

7. What is CSC? Score 2

Ans. Common Service Centers (CSC) - are service delivery points. Example: AKSHAYA

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2. e-Business

1. Which one of the following is NOT an e-business web site. Score 1

a) www.amazone.com b) www.dhsekerala.gov.in

c) www.keralartc.com d) www.irtc.com

Ans. b) www.dhsekerala.gov.in

2. Compare the advantages and disdvantages of implementing e-Business. Score 3

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Ans.

Advantages of e-Business

a) It overcomes geographical limitations.
b) e-Business reduces the operational cost.
c) It minimises travel time and cost.
d) It remains open all the time.
e) We can locate the product quicker from a wider range of choices.

Challenges to e-Business

a) A good percentage of the population is unaware of IT applications and its uses.
b) Most of the customers do not possess credit card, debit card and net banking system, which is necessary for e-Business.
c) If not used with caution, customers may lose valuable information like their credit card number, passwords, etc.
d) customers don't have this 'touch and feel' advantage.

3. Name a service that facilitates money transaction between buyers and sellers in such cases. Score 1

Ans. e-Commerce

4. What is EPS ? Give one example. Score 2

Ans. A system of financial exchange between buyers and sellers in an online environment is called an Electronic Payment System (EPS).
Eg. financial exchange using debit / credit card, digital cash.

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3. e-Learning

1. Explain any three e-Learning tools. Score 3

Ans.

a. Electronic books reader (e-Books) - Portable computer devices that are loaded with digital book content.
b. e-Text - Textual information available in electronic format is called e-text.
c. Online chat - It helps communicating with people at different places.
d. e-Content - e-Learning materials made in different multimedia formats like videos, presentations, graphics, animations, etc are called e-content.
e. Educational TV channels - There are many telecasting/webcasting channels which are dedicated for the e-Learning purpose.
Example: VICTERS

2. Write any three advantages of e-Learning. Score 3

Ans.

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- The ability to offer courses on variety of subjects to large number of students from distant location.
- cost for learning is much less.
- People with limited financial resources are very much supported by the lower cost of e-Learning.
- It provides facility to do online courses from various nationally or internationally reputed institutions.
- Time and place is not a constraint for e-Learning.

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4. ICT enabled services

1. Write names of any three ICT enabled services. Score 3

Ans. BPO (Business Process Outsourcing)
KPO (Knowledge Process Outsourcing)
Call centers

2. Remya has got a job at a call center. What is a call center? What kind of job does a call center provide? Score 3

Ans.

A call centre is a telephone service facility set up to handle a large number of both incoming and outgoing calls for an organisation.

Basic responsibility of a call centre is to handle the telephone calls for supporting various services provided by an organisation. Generally the calls can be classified as **in-bound calls** and **out-bound calls**. In-bound calls are usually meant to seek assistance, help, or to order, while out-bound calls are meant for sales promotion or other messages.

3. In ICT, BPO stands for ……. Score 1

Ans. Business Process Outsourcing

4. Define the term Tele conferencing. Score 2

Ans.

Teleconferencing is a meeting or conference held between two or more parties in remote locations by the use of IT infrastructure and services.

Advantages - Saving time, reducing travel expense.

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