HLS & SCB SBU

Solution – 1

(1) Ans = C

- Microcomputers are small, general-purpose computers that are designed for **individual use**.
- **Mainframe** computers are large, powerful computers that are used for enterprise applications.
- **Minicomputers** are medium-sized computers that are more powerful than microcomputers but less powerful than mainframe computers.
- **Supercomputers** are the most powerful computers in the world. They are used for scientific research and other applications that require extreme computing power.

(2) Ans – B

- A semiconductor is a material that has electrical conductivity between that of a conductor and an insulator. Semiconductors are used to make chips because they can be used to create transistors, which are the basic building blocks of chips.
- Control bus, control unit, and parity unit are all components of a computer system, but they are not used to make chips.

(3) Ans – C

The three main components of the CPU are:

Control Unit (CU)
Arithmetic and Logic Unit (ALU)
Primary Memory (Main memory)

(4) Ans – C

(5) Ans – C

Assembler: It is a type of system software that converts Assembly language code to machine language module object.

(6) Ans – D

(7) Ans – D

Toggle keys are keys that switch between two modes with each press.
For example, the **Caps Lock key toggles** between all letters as uppercase and lowercase.

(8) Ans – C

This refers to software whose source code is freely available and can be modified or distributed by anyone.
Open source software is typically created as a collaborative effort in which programmers improve upon the code and share the changes within the community. Linux is an example of open source software.

(9) Ans – C

The file system known as **File Allocation Table (FAT)** was created for personal computers. It was initially created in 1977 for use with floppy discs before being modified for use with hard discs and other hardware.
An operating system maintains a file allocation table (FAT) on a hard drive that shows a map of the clusters—the fundamental units of logical storage on a hard disk—in which a file has been stored.

(10) Ans – D

(11) Ans – B

Second-generation computers were based on **Transistors instead of vacuum tubes.**
1959-1965 is the period of second-generation computers.

(12) Ans – A

A **hybrid computer** is a combination of an **analog computer** and a **digital computer**.

(13) Ans – A

The **memory unit is the amount of data that can be stored in the storage unit**. This storage capacity is expressed in terms of Bytes.

SR.NO.	UNITS AND DESCRIPTION
1	Bit (Binary Digits) 0 and 1 (Bit)
2	1 Byte = 8 Bits
3	Kilobyte (KB) 1 KB = 1024 Bytes
4	Megabyte (MB) 1 MB = 1024 KB
5	Gigabyte (GB) 1 GB = 1024 MB
6	Terabyte (TB) 1 TB = 1024 GB

(14) Ans – D

- The **instruction register contains the current instruction most recently fetched**.
- It is a special register that holds the instruction that the processor is currently executing.
- The program counter holds the memory address of the next instruction to be executed.
- The compiler is a software tool that translates source code into machine code.
- The data register holds data that is being used by the processor.

(15) Ans – A

- The **inkjet printer** prints pictures or figures by spraying ink onto paper.
- **Non-impact printers** don't have any connection between the printing device and the paper. To print pictures or figures non-impact printers use a spray of ink, laser, or heat and pressure.
- A **non-impact printer** does not strike the ink ribbon so as a result, it **prints faster than impact printers**, and also **they are less noisy.**

(16) Ans – B

The **UTF-8 encoding system** is a universally accepted standard for encoding characters. UTF stands for **Unicode Transformation Format**, and the '8' signifies that it **uses 8-bit** blocks to represent a character.

(17) Ans – A

(18) Ans – A

Blu-ray discs can be single-layer or dual-layer. A single-layer disc has 25 GB and a dual-layer disc has 50 GB storage capacity.

(19) Ans – B

Oracle is NOT an antivirus software. Oracle primarily focuses on **database management systems, cloud services, and enterprise software**, and it is not known for providing antivirus solutions.

(20) Ans – C

(21) ANS – D

First Generation Computers	1946 - 1954	Vacuum Tubes
Second Generation Computer	1955 - 1964	Transistors
Third Generation Computer	1964 - 1977	Integrated Circuits
Fourth Generation Computer	1978 - Present	VLSI or Microprocessors
Fifth Generation Computer	Present and Future	ULSI or Bio-Chips

(22) ANS – D

Cybercrime is criminal activity that either targets or uses a **computer, a computer network or a networked device.**

(23) ANS – B

An Ethernet hub is a network device used to connect different devices through wires. Data arriving on any of the lines are sent out on all the others. The limitation of hub is that if data from two devices come at the same time, they will collide.

(24) ANS- D

(25) ANS- B

Mesh Topology:- Each computer on the network is connected to every other computer thanks to the mesh topology's distinctive network architecture. It creates a peer-to-peer link between all of the network's devices. It provides a high amount of redundancy, so data still has a backup path to its destination even if one network cable breaks.

(26) **ANS- A**

(27) **ANS- C**

MAN(Metropolitan Area Network):- It is an extended form of LAN which covers a larger geographical area like a city or a town. Data transfer rate in MAN also ranges in Mbps, but it is considerably less as compared to LAN.

(28) **ANS – A**

$X = ABC + AB\overline{C} + \overline{A}B$

$X = AB(C + \overline{C}) + \overline{A}B$

$X = AB + \overline{A}B \quad [C + \overline{C} = 1]$

$X = (A + \overline{A})B$

$X = 1.B \quad [A + \overline{A} = 1]$

$X = B$

(29) **ANS- C**

Examples of e-commerce websites are:

- **Flipkart.**
- Amazon.
- **Uber.**
- **Swiggy.**
- eBay.
- Walmart.
- Ola.

(30) ANS – A

The truth table **X** is:

X	Y	F	X
0	0	**0**	**0**
0	1	**0**	**0**
1	0	**1**	**1**
1	1	**1**	**1**

(31) ANS- C

A number's base determines its type: a binary number has a base of 2, an octal number has a base of 8, a decimal number has a base of 10, and a number with a base of 16 belongs to the hexadecimal number system.

(32) ANS – B

The natural masks for classes A, B, and C, which specify the network and host sections of each class, are as follows:

- Class A natural mask 255.0.0.0
- Class B natural mask 255.255.0.0
- Class C natural mask 255.255.255.0

(33) ANS – D

Total Internal reflection: The total reflection of light from a higher refractive index medium back to its normal medium at an **angle more than a critical angle is known as total internal reflection.**

(34) ANS – D

MAC stands for Media Access Control. The MAC address, also known as the physical or hardware address, is a unique value associated with a network adapter called a NIC.

(35) ANS- A

A **cursor** is a **position indicator** on a computer display **screen** where a user can **enter text**.
The cursor is also a **visible** and **moving pointer** that the **user controls** with a **mouse, touch pad, or similar input device**.

(36) ANS – C

(37) ANS- B

Open and Create a new database	Ctrl + N
Open existing database	Ctrl + O
Quit and Exit access	Alt + F4
Print the selected object	**Ctrl + P**
Save a database object	Ctrl + S
Open the save as dialog box	F12
Show shortcut menu	Shift + F10
Show the access keys	Alt

(38) ANS – D

(39) ANS – B

(40) ANS – A

An impact printer with a fixed number of pins or wires is known as a dot matrix printer. Generally, one or more vertical columns of pins or wires are used to organize the components.

LED:- When current passes through a light-emitting diode (LED), a semiconductor device, light is released.

Laser printer:- Sharp visuals and reliable black tones are provided by laser printers, which provide high-quality printing. They are now frequently used for desktop publishing as well as the printing of letters and reports.

Inkjet printer:- An inkjet printer is a computer accessory that prints text documents and photos on paper using tiny droplets of ink.

(41) ANS – B

A reciprocal license, also known as a copyleft license, not only allows the software to be used for any purpose, but also enforces that any changes or modifications to the software must be licensed under the same terms as the original.

(42) ANS- D

applications for designing and creating graphics, including Canva, Adobe Photoshop, CorelDraw, and **AutoCAD.**

(43) ANS – B

It is also known as **main storage or memory**, is the main area in a computer in which data is stored for quick access by the computer's processor.

(44) ANS – B

- **Projector:** A projector is an output device that projects an image from a computer screen onto a larger surface, such as a wall or a whiteboard.
    - This allows users to share their work with a larger audience.
- **Scanner:** A scanner is an input device. It converts images or text into a digital format.
    - This allows users to store and edit their work electronically.
- **OCR:** An OCR device is an input device that converts text from a scanned image into a digital format.
    - This allows users to extract text from documents that are not in a digital format.
- **MICR:** A MICR device is an input device that reads numbers and letters that are printed in magnetic ink.
    - This is used in banking applications to read account numbers and other data on checks.

(45) ANS – B

(46) ANS – A

The purpose of an OCR computer input device is to turn scanned images of printed, typed, or handwritten text into digital text.

(47) ANS – C

(48) ANS – B

Volatile memory is computer memory that loses its data when the computer is turned off.

(49) ANS – D

(50) ANS – D

In LAN technology, There are several technologies such as Ethernet, Token Ring, Token Bus, FDDI (Fiber Distributed Data Interface), and ATM (Asynchronous Transfer Mode). Some of these technologies survived for a while, but Ethernet is by far the dominant technology.

(51) ANS – B

Based on the geographical area covered and data transfer rate, computer networks are broadly categorized as:

- PAN (Personal Area Network)
- LAN (Local Area Network)
- MAN (Metropolitan Area Network)
- WAN (Wide Area Network)

(52) ANS – D

The **bridge** is used to connect similar LANs with the same protocols. A bridge operates at the **data link layer.** It is also used for interconnecting two LANs working on the same protocol. It has a single input and single output port, thus making it a 2 port device. A bridge must contain addressing and routing capability.

(53) ANS – D

Office LANs that are spread geographically apart on a large scale can be connected using a corporate **Wide Area Network**(WAN)

(54) ANS – C
(55) ANS – B
(56) ANS – A
(57) ANS – C

Network Types	Range(approximately)
PAN (Personal Area Network)	1 m to 10 m
LAN (Local Area Network)	10 m to 1 km
MAN (Metropolitan Area Network)	10 km to 99 km
WAN (Wide Area Network)	100 km to 1000 km

(58) ANS – A

A backbone network can be used to connect remote LAN's.

The bridges act as connecting devices connecting LANs and point-to-point networks, such as leased telephone lines or ADSL lines. The point-to-point network in this case is considered a LAN without stations. The point-to-point link can use a protocol such as PPP.

(59) ANS – D

Mesh topology:

In this, each device has a dedicated point to point link to every other device. Dedicated means that a link carries traffic only between two devices it connects. It is the most reliable topology.

(60) ANS – D

If all the branches of a graph are represented with arrows, then that graph is called a directed graph.
These arrows indicate the direction of current flow in each branch.
Hence, this graph is also called an **oriented graph.**

(61) ANS – B
(62) ANS – B

In a star topology, each device has a dedicated point-to-point link only to a central controller, usually called a hub. The devices are not directly linked to one another.

(63) ANS – D

For any circuit or network,

$$M = B - n + 1$$

Where, M = Number of mesh (independent loop)

B = number of branches

n = number of nodes

$B = M + n - 1$

Calculation:

$B = 3 + 4 - 1$

$B = 6$

(64) ANS – D

A single cable links all of the included nodes in a bus topology. The primary cable serves as the network's backbone. If the common cable breaks, the entire system will be brought to a halt.

(65) ANS – D

A closed path in a circuit where more than two meshes can occur is known as Loop i.e. there may be many meshes in a loop, but a mesh does not contain on one loop.

(66) ANS – C

- For any circuit or network,
- M = B - n + 1

Where,

M = Number of mesh (independent loop)

B = number of branches

n = number of nodes

(67) ANS – B

Given

N = 12

Total link = $\frac{n\times(n-1)}{2}$

= 6 × 11

=66

(68) ANS – B

Given

n = 6

The number of ports per device = n-1

= 5

(69) ANS – A

(70) ANS – C

A repeater is a device that operates only in the physical layer. A repeater receives a signal and, before it becomes too weak or corrupted, regenerates the original bit pattern.

(71) ANS – D

A computer network is a group of computers linked together for the purpose of communication and sharing resources.

(72) ANS – B

(73) ANS – D

The following communication and networking technologies have been used to implement WANs.

- Asynchronous Transfer Mode
- **Cable modem**
- **Dial-up internet**
- Digital subscriber line
- **Fibre-optic communication**
- Frame Relay
- ISDN
- Leased line
- SD-WAN
- Synchronous optical networking

(74) ANS – D

A personal area network (PAN) is a network used for data transmission amongst devices such as computers, telephones, tablets, personal digital assistants, fax machines and printers, that are located close to a single user

(75) ANS – B

The most common network protocols are:

- Ethernet
- Local Talk
- Token Ring
- FDDI
- ATM

(76) ANS – B

It is a type of computer network device that provides interconnection with other bridge networks that use the same protocol.
Bridge devices work at the data link layer of the Open System Interconnect (OSI) model, connecting two different networks together and providing communication between them.
Frames from one LAN can be transmitted to another LAN via Bridge

(77) ANS –D

In LAN technology, There are several technologies such as Ethernet, Token Ring, Token Bus, FDDI (Fiber Distributed Data Interface), and ATM (Asynchronous Transfer Mode). Some of these technologies survived for a while, but Ethernet is by far the dominant technology.

(78) ANS – A

The **Storage Area Network** is abbreviated as SAN. A Storage Area Network (SAN) is a dedicated, specialized, high-speed network that stores data at the block level. It distributes a shared pool of storage devices to several servers.

(79) ANS – A

Offline messaging is a new trend in secure communication.
The off-grid messenger apps, also known as mesh messengers, don't need access to public infrastructure like cell phone towers or internet to send messages from one phone to another.
Instead, they rely on Bluetooth or direct Wi-Fi connection.

(80) ANS – B

- **Uploading:** The process of transferring files from one **computer** to another computer **over** the **Internet,** usually a web server, is called **uploading**. Users can **upload images, videos, audio files** and so on.
- **Downloading:** The **process** of **transferring** files from one **computer to another computer** through the Internet is called downloading. Users can **download images, videos, audio files** and so on.
- **Spoofing: Spoofing** is known as a **malicious act** done by an attacker who is acting as a trusted entity to collect the victim's confidential data.

(81) ANS – B
(82) ANS- D

Both **POP3** and **IMAP** are used to receive messages with Gmail, Yahoo, and Hotmail.
Post Office Protocol 3 (POP3) is an internet standard protocol used by local email clients to retrieve email from a remote server over a TCP/IP connection.
IMAP, which stands for **Internet Message Access Protocol**, is an Internet standard protocol used by email clients to retrieve messages from a mail server.

(83) ANS – B
(84) ANS – D

(85) ANS – A

MIME types include text/HTML for specific web pages. For plain text, use text/plain. "Download this file" is the meaning of application/octet-stream.

A media type, commonly referred to as a MIME type or multipurpose internet mail extension, describes the structure and content of a file, document, or collection of bytes.

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