Class 7

Answer Key

iPlus Ver. 2.0

1. Computer—Hardware Components

Let's Catch Up (Page 16)

1. Scanner
2. Mouse
3. Printer
4. Projector
5. Pen Drive
6. Hard Disk

Exercise

Section A (Objective)

A. 1. a 2. a 3. c 4. b 5. a
6. a 7. c

B. 1. output devices 2. store 3. 3D camera 4. input devices
5. Wireless

C. 1. False 2. False 3. False 4. False 5. True

Section B (Subjective)

A. 1. Modem stands for Modulator-Demodulator.

2. The types of scanners are:
   a. Hand-Held scanner
   b. Flatbed scanner
   c. Sheetfed scanner

3. Yes, mouse and keyboard can be wireless.

4. A virtual keyboard is operated by typing on a detectable surface rather than pressing physical keys.

IMPRINT 1

5. CD- RW stands for Compact Disk Rewritable.
6. Skylake is Intel's multi-core chips code which boots graphics and applications while improving battery and life in laptops.

B. 1. The differences between Input and Output Devices are as follows:

Input Devices

a. Input devices are devices through which a computer accepts data and instructions.

b. Example of the input devices are:

Mouse, Keyboard

Output Devices

a. Output devices are devices through which a computer displays the information and result of computation to the user.

b. Example of the output devices are:

Monitor, Printer

2. CPU (Central Processing Unit) is a processor, sometimes called a microprocessor. It is the brain of the computer that does all the calculations and runs all the programs.

It manages all the operations and carries out the basic instructions which operate a computer.

3. Modems are of two types: internal and external. An internal modem is located inside the CPU box, just like the motherboard plate. On the other hand, an external modem is a separate device that you can connect to the computer with the help of a USB port. It generally contains indicators in the form of small lights.
4. A port is a slot on the motherboard that is used to connect other components of the computer such as keyboard, mouse, monitor, etc. to the motherboard. Three types of orts are:

a. Serial Port

b. Universal Serial Bus (USB) Port

c. Parallel Port

5. Different types of CDs are:

a. **CD-ROM (Compact Disc Read Only Memory):** A CD-ROM is a CD that contains data that was written when the CD was manufactured. The data cannot be modified or erased.

b. **CD-R (Compact Disc Recordable):** A CD-R can be used to write data by the user only once. This data cannot be changed or erased.

c. **CD-RW (Compact Disc Rewritable):** A CD-RW can be used to write data again and again. The data can be erased and modified as many times as required.

C. Competency-based/Application-based questions:

1. Graphic Tablet
2. Drum Plotter

Crack The Code

P	A	P	E	A	U	B	V	S	M	P	S
R	M	O	D	E	M	E	I	O	N	D	O
I	M	R	O	Z	N	A	D	R	F	A	U
M	T	T	U	V	R	L	E	Q	L	T	N
M	O	T	H	E	R	B	O	A	R	D	D
R	Z	Y	U	M	P	T	C	F	Q	B	C
A	L	M	S	I	E	O	A	B	Q	A	A
K	S	U	V	O	R	B	R	Z	R	S	R
E	L	L	O	C	T	L	D	A	F	E	D

2. Number System

Let's Catch Up (Page 24)

1. Divide 26 by 2: 26 ÷ 2 = 13 with a remainder of 0.
2. Write down the remainder (0) as the rightmost digit of your binary number.
3. Now, divide the quotient (13) by 2: 13 ÷ 2 = 6 with a remainder of 1.
4. Write down the remainder (1) to the left of the previous remainder.
5. Continue this process by dividing the new quotient (6) by 2: 6 ÷ 2 = 3 with a remainder of 0.
6. Write down the remainder (0) to the left of the previous remainders.
7. Again, divide the new quotient (3) by 2: 3 ÷ 2 = 1 with a remainder of 1.
8. Write down the remainder (1) to the left of the previous remainders.
9. Continue one more time by dividing the last quotient (1) by 2: 1 ÷ 2 = 0 with a remainder of 1.
10. Write down the remainder (1) to the left of the previous remainders.

You should have the binary representation of 26 as 11010.

So, in binary, 26 is represented as 11010.

Exercise

Section A (Objective)

A. 1. b 2. a 3. c 4. b 5. a

B. 1. 0 2. 2 3. base-2 system 4. 12
5. binary

C. 1. True 2. True 3. True 4. True 5. True

Section B (Subjective)

A. 1. A number system made up of eight digits from 0 to 7, is known as the octal number system.

2. A number system is a way to express quantities used for counting, comparing amounts, performing calculations and representing values.

3. The total number of digits used in a number system is called its base or radix. For example, in binary number system every number is formed using only 0 and 1, that's why the base of the binary number is 2.

B. 1. To convert a decimal number into a binary number:

Step 1 Divide the decimal number by 2 (the base of the binary number system).

Step 2 Note down the quotient and the remainder.

Step 3 Divide the quotient obtained again by 2 and note down the resulting quotient and remainder.

Step 4 Repeat the procedure till you reach a quotient less than 2.

Step 5 List the last quotient and all the remainders (moving from bottom to top).

2. To convert a binary number into a decimal number, follow the given steps:

a. Multiply each digit of the binary number by 2 to the power of n, where n is the position of the digit starting from 0 on the right.

b. Add the result.

Example:

Convert $(101001)_2$ to decimal number.

$= (1\times2^5) + (0 \times 2^4) + (1 \times 2^3) + (0 \times 2^2) + (0 \times 2^1) + (1 \times 2^0)$

Sum of the products = 32 + 0 + 8 + 0 + 0 + 1 = 41

Therefore, $(101001)_2 = (41)_{10}$

3. The rules for subtract two binary numbers are:

X	Y	X + Y
0	0	0 – 0 = 0
0	1	0 – 1 = 1 (borrow 1, so that 10 – 1 = 1)
1	0	1 – 0 = 1
1	1	1 – 1 = 0

C. Competency-based/Application-based questions:

1. $(256)_8$ belongs to octal number system and $(10001)_2$ belongs to binary number system. He can tell this from the base.
2. Hexadecimal number system

D. 1. 1. $(10111.011)^2 = 1 \times 2^4 + 0 \times 2^3 + 1 \times 2^2 + 1 \times 2^1 + 1 \times 2^0 + 0 \times 2^{-1} + 1 \times 2^{-2} + 1 \times 2^{-3}$

$= 1 \times 16 + 0 + 1 \times 4 + 1 \times 2 + 1 \times 1 + 0 + 1/4 + 1/8$

$= 16 + 4 + 2 + 1 + 0.25 + 0.125$

$= (23.375)_{10}$

2. (a)

$$\begin{array}{r} 1\ 0\ 0\ 0 \\ +\quad 1\ 0\ 1 \\ \hline 1\ 1\ 0\ 1 \end{array}$$

(b)

$$\begin{array}{r} (1)(1)(1)\ \text{Carry} \\ 1\ 0\ 1\ 1 \\ +\quad 1\ 0\ 1 \\ \hline 1\ 0\ 0\ 0\ 0 \end{array}$$

(c)

$$\begin{array}{r} (1)\ \text{Carry} \\ 1\ 0\ 0\ 1 \\ +\quad 1\ 0\ 1 \\ \hline 1\ 1\ 1\ 0 \end{array}$$

(d)

$$\begin{array}{r} (1)(1)(1)\ \text{Carry} \\ 1\ 1\ 1\ 1 \\ +\ 1\ 1\ 1\ 1 \\ \hline 1\ 1\ 1\ 1\ 0 \end{array}$$

3. (a)

2	39 – 4
2	19 – 1
2	9 – 1
2	4 – 1
2	2 – 0
	1 – 0

Hence, $(39)_{10} = (100111)_2$

(b)

2	72
2	36 – 0
2	18 – 0
2	9 – 0
2	4 – 1
2	2 – 0
	1 – 0

Hence, $(72)_{10} = (1001000)_2$

(c)

2	128
2	64 – 0
2	32 – 0
2	16 – 0
2	8 – 1
2	4 – 0
2	2 – 0
	1 0

Hence, $(128)_{10} = (10000000)_2$

(d)

2	55
2	27 – 1
2	13 – 1
2	6 – 1
2	3 – 0
	1 – 1

Hence, $(55)_{10} = (110111)_2$

(e)

2	173
2	86 – 1
2	43 – 0
2	21 – 1
2	10 – 1
2	5 – 0
2	2 – 1
	1 – 0

Hence, $(173)_{10} = (10101101)_2$

Crack The Code

A. 1. $(5)_{10}$
2. $(11111010)_2$
3. $(43)_{10}$
4. $(187)_{10}$

B. 1. 011001
2. 01101

IMPRINT 1

3. Computer Virus

Let's Catch Up (Page 34)

AVG Norton McAfee

Exercise

Section A (Objective)

A. 1. d 2. c 3. b 4. c 5. d
6. a 7. a 8. d

B. 1. malware 2. antivirus 3. firewall 4. trojan horse

C. 1. False 2. False 3. True 4. True 5. True

Section B (Subjective)

A. 1. A macro virus is a type of computer virus that is primarily designed to infect a specific type of document, such as Word or Excel files.

2. Computer viruses-spread in several ways. Some of them are:
   a. Using virus-infected CDs/Pen Drives.
   b. Opening an infected e-mail attachment.
   c. Downloading an infected program from the Internet, Pen Drives, CDs or DVDs.
   d. Running an infected program (which can be a game, screen saver, etc.).
   e. Through local computer networks.

3. a. Trojan horse is a dangerous virus. It represents itself as helpful software program. Once the user clicks on it to agree to run it, it gains access to sensitive data and then modifies, blocks, or deletes the data.
   b. Backdoor is a type of malicious software which enters the computer bundled with other software or files. It is used to gain remote access to the host computer.

4. MBR stands for Master Boot Record.

B. 1. A malware is a type of malicious program designed to damage or carry out other unwanted actions on a computer system. Malware can affect the computer in the similar way a virus do. Some of the common malwares are worm, Trojan horse, spyware, ransomware, rootkit and backdoor.

2. A computer virus is a piece of code or program developed to corrupt the data or program files stored on the computer system. A computer worm is a type of malware that has the capability to replicate itself without any human interaction.

3. Two symptoms of an infected computer are:
   a. Start displaying unusual messages on the screen.
   b. Load the programs late.
4. The ways we can protect our system from malware attack are:
   a. Download only legal software.
   b. Use the original version of Windows.
   c. Scan Pen drive, CD and any other external storage device for viruses before opening in computer.
5. Some of the most dangerous malwares known are:
   a. Wabbit Virus (1974) makes multiple copies of itself until the system slows down and crashes.
   b. ILOVEYOU Virus (2000) worked by sending a fake "love letter" that looked like a harmless text file.
   c. Code Red Worm (2001) would spread itself with the message: "Hacked By Chinese!"
   d. Mydoom Worm (2004) scraped addresses from infected machines, then sent copies of itself to those addresses.
   e. Storm Worm (2007) attacked millions of computers with an email about approaching bad weather.

C. 1. Ravi should scan the pen drive first.
2. Don't open any unknown email.

Crack The Code

A. 1. Worms
2. Trojan
3. Ransomware
4. Program File Virus
5. Antivirus

B.

A	I	I	B	A	C	K	D	O	O	R	I
T	L	K	A	R	O	K	L	W	U	B	T
O	I	E	T	O	N	T	R	O	J	A	N
A	R	O	O	T	K	I	T	R	N	B	H
I	M	T	C	T	T	E	K	M	N	I	E
W	S	P	Y	W	A	R	E	M	Y	T	R
E	L	O	A	I	L	M	I	A	R	W	S