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Class - VII. Subject - Computer. Topic - Ch-1 Number System

Q.1 Tick the correct option.

1. ii) Binary Number System
2. i) O to 7
3. iii) Hexadecimal Number System
4. ii) 1
5) ii) LSD
6) i) Radix

Q2. Fill in the blanks.

1) bit
2) OFF
3) Base -2 system
4) 12
5) binary

Q3. Answer in one word.

1. Byte.
2. Base -10 system

3. A= 10

4. Hexadecimal number system

Q4. Answer the following questions.

i) A number system made up of eight digits from 0 to 7 , is known as the octal number system. When the octal number system is used , every number is formed using 0,1,2,3,4,5,6 and 7 . The base of the octal number system is 8. It is also known as the base -8 system. Each positioning number represents the power of base 8.

ii) A number system is a way to express quantities used for counting, comparing amounts, performing calculations and representing values. A computer represents all kinds of data and information like text , numbers, audio and video in binary form.

iii) The total number of digits used in a number system is called it's base or radix.

iv) A computer is an electronic device that has two states. On and Off. These two states of the computer are represented by two digits.1 and 0 . Here, 1 represents the electronic state On and 0 represents the electronic state Off.

V) To convert a binary number into a decimal number, follow the given steps:

Step 1. Multiply each digit of the binary number by 2 to the power of n , where n is the position of the digit starting from O on the right.

Step 2. Add up all the resulting products. This sum gives you the decimal number.

Example: Convert (101001) to decimal number.

= (1 X 2)5 + (0 X 2)4 + (1 X 2)3 + (0 X 2)2 + (0 X 2)1 + (1 X 2)0

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

= Therefore (101001)2 = (41)10

VI) In binary subtraction, the smaller binary number is subtracted from the larger one. The table below illustrates how to subtract digit Y from digit X. If Y is greater than X , we borrow 1 from the next higher position. When a binary digit of 0 borrows 1, it effectively becomes 2 . The rules for binary subtraction :

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

Q.5 Solve the following : (In book)

a) i) 5

ii) 11111010

iii) 43

iv) 187

b) i) 11001

ii) 1101

Q6. a. 1GB = 1024 MB

8 GB = 8 X 1024 = 8192 MB

8192 = 10000000000000

b. 12 ÷ 2 = 6 - R - 0

6 ÷ 2. = 3 - R - 0

3 ÷ 2 = 1 - R - 1

1 ÷ 2 = 0 - R -1

$(12)_{10}$ - 1100

Q7. Application based questions. (In book)

a. (256)8 - This number system belongs to octal number system.

(10001)2 - This number system belongs to binary number system.

b. Hexadecimal number system.