

# Chapter 1 - Fundamentals of Computer

1. The base of hexadecimal number system is (2,8,10,16) [ March 2020, Score 1 ]

**Ans.** 16

2. What are the methods of representing characters in memory. [ March 2020, Score 2 ]

**Ans.** ASCII – American Standard Code for Information Interchange – 7 bit or 8 bit  
EBCDIC – Extended Binary Coded Binary Coded Decimal Interchange Code  
ISCII – Indian Standard Code for Information Interchange. Now replaced by Unicode.  
Unicode – Can represent all characters of written languages of the world and other symbols

3. (i) Find the 2's complement of  $(100010)_2$  [ March 2020, Score 1 ]

(ii) Find the value of x, y, z from the following : [ March 2020 ]

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

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

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

**Ans.** (i) 1's complement (interchange zeros and ones) – 011101

2's complement (Add 1 to one's complement) - 011110

(ii) (a)  $1 \times 2^4 + 0 + 1 \times 2^2 + 0 + 1 = (21)_{10}$

x = 21

(b)  $(107)_8 = (001\ 000\ 111)_2$

y=001000111

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

z = 16F

4. Write full form of JPEG [ July 2019, Score 1 ]

**Ans.** Joint Picture Experts Group

5. Explain why computers are considered as the best electronic data processing machines. [ July 2019, Score 2 ]

**Ans.**

Speed: A computer can perform millions of operations in a second or in fraction of second.

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

Diligence: Since computer is a machine, it can operate for long hours untiringly.

Versatility: Computer can be used to perform many beings, different kinds of processing tasks.

Huge memory: Computer has enormous memory capacity. Huge volume of data can be stored in its memory for processing.

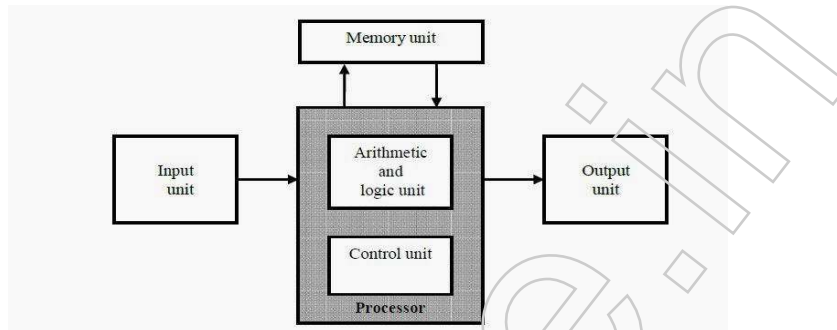
6. The number of symbols used in a number system is called ----- [ March 2019, Score 1 ]

**Ans.** Radix / Base

7. (i) List down the functional units of a computer by using a diagram. [ March 2019, Score 2 ]

(ii) What are the advantages and limitations of a computer ? [ March 2019, Score 3 ]

**Ans.** ( i )



( ii ) Advantages

**Speed:** A computer can perform millions of operations in a second or in fraction of second.

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

**Diligence:** Since computer is a machine, it can operate for long hours untiringly.

**Versatility:** Computer can be used to perform many beings. different kinds of processing tasks.

**Huge memory:** Computer has enormous memory capacity. Huge volume of data can be stored in its memory for processing.

### **Limitations**

**Lack of IQ:** A computer does not have natural intelligence as humans have.

**Lack of decision making power:** Computer cannot decide on its own and it does not possess intuitive capabilities like human.

8. Processed data is called ----- [ July 2018, Score 1 ]

**Ans.** Information

9. Fill in the blanks : [ July 2018, Score 2 ]

(a)  $(DA)_{16} = (\text{-----})_2$

(b)  $(25)_{10} = (\text{-----})_8$

**Ans.** ( a ) 1101 1010

( b ) 31

10. 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

[ July 2018, Score 3 ]

**Ans.** a) Binary representation – 00100011 (appending zeroes to the left to make as 8 bit)  
 Sign and magnitude representation 10100011 (by making the MSB as 1 for negative numbers)  
 b) Binary representation – 00100011  
 1's complement – 11011100 (by interchanging the 1's and 0's)  
 c) Binary representation – 00100011  
 2's complement - 11011101 (by adding 1 to 1's complement)

11. Meaningful and processed form of data is known as ----- [ March 2018, Score 1 ]

**Ans.** Information

12. Despite of the high speed and accuracy, computers are said to be the slaves of human beings. Why ? [ March 2018, Score 2 ]

**Ans.** Since computers have no IQ and decision making capabilities, they can only perform tasks according to the instructions given by human.

13. If  $(M)_8 = 96_{10} = (N)_2$ , Find M and N [ March 2018, Score 3 ]

**Ans.** M=140, N=1100000

14. 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
- [ July 2017, Score 1 ]

**Ans.** c) ALU, CU and Registers

15. Convert the number  $(198)_{10}$  into the other three number system [ July 2017, Score 3 ]

**Ans.** Binary –  $(11000110)_2$   
 Octal –  $(306)_8$   
 Hexadecimal –  $(C6)_{16}$

16. If binary equivalent of 56 is  $(111000)_2$  find the 1's complement form and sign & magnitude form of -56 in the 8 bit . [ July 2017, Score 2 ]

**Ans.** 8 bit representation of 56 – 00111000  
 Sign & Magnitude representation of -56 – 10111000  
 1's Complement representation of -56 – 11000111

17. Find the missing terms  $(18)_{16}$ ,  $(1A)_{16}$ ,  $(1C)_{16}$  ....., [ March 2017, Score 1 ]

**Ans.**  $(1E)_{16}$ ,  $(20)_{16}$

18. Convert  $(1010.11)_2$  to decimal [ March 2017, Score 2 ]

**Ans.** Decimal equivalent of 1010 –  $1 \times 2^3 + 0 + 1 \times 2 + 0 = 10$   
 Decimal equivalent of .11 –  $1 \times 2^{-1} + 1 \times 2^{-2} = 0.5 + 0.25 = 0.75$   
 The decimal equivalent of 1010.11 = 10.75

19. Processed data is known as ..... [ March 2017, Score 1 ]

**Ans.** Information

20. Which one of the following is considered as a brain of the computer ? [ July 2016, Score 1 ]

a) Central Processing Unit      b) Control Unit      c) Arithmetic and Logic Unit      d) Monitor

**Ans.** Central Processing Unit

21. List the stages of data processing [ July 2016, Score 3 ]

**Ans.** Data capturing, Input, Process, Storage, Output, Distribution of Information

22. Convert the hexadecimal (A2D)<sub>16</sub> into octal [ July 2016, Score 2 ]

**Ans.** Binary equivalent of ( A2D )<sub>16</sub> = 101000101101

Octal equivalent (grouping 3 bits from right to left) = ( 5055 )<sub>8</sub>

23. If ( 11011 )<sub>2</sub> = ( A )<sub>8</sub> = ( B )<sub>16</sub> = ( C )<sub>10</sub>. Find the value of A,B ,C [ March 2016, Score 3 ]

**Ans.** Decimal equivalent –  $1 \times 2^4 + 1 \times 2^3 + 0 + 1 \times 2 + 1 = 27$ ,

$$C = 27$$

Octal equivalent – 33,

$$A = 33$$

Hexadecimal equivalent – 1B,

$$B = 1B$$

24. Meaningful and processed form of data is known as ..... [ March 2016, Score 1 ]

**Ans.** Information

25. Write a short note on Unicode [ July 2015, Score 2 ]

**Ans.** 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.

26. Fill the series (151)<sub>8</sub>, (153)<sub>8</sub>, (155)<sub>8</sub>....., ..... [ July 2015, Score 1 ]

**Ans.** (157)<sub>8</sub>, (161)<sub>8</sub>

27. a) Write the 2's complement form of the decimal -119 [ July 2015, Score 2 ]

b) State the benefit of using 2's complement representation as compared to 1's complement form.

[ Score 1 ]

**Ans.** a) Binary equivalent of 119 – 01110111

1's complement – 10001000

2's complement – 10001001

b) Range is more in 2's complement.

In 2's complement there is no ambiguity in 0 representation

29. Represent -83 in 1's complement form [ March 2015, Score 2 ]

**Ans.** Binary equivalent – 01010011

1's Complement form – 10101100

30. Find the smallest number in the list.

a) (1101)<sub>2</sub>    b) (A)<sub>16</sub>    c) (13)<sub>8</sub>    d) (15)<sub>10</sub>

[ March 2015, Score 2 ]

**Ans.** Decimal equivalent of (1101)<sub>2</sub> –  $8+4+0+1=13$

Decimal equivalent of  $(A)_{16} = 10$

Decimal equivalent of  $(13)_8 = 11$

Comparing all the decimal numbers , 10 is the smallest

That is,  $(A)_{16}$

31. Name the character representation coding scheme developed by India and approved by the Bureau of Indian Standards ( BIS ). [ March 2015, Score 1 ]

Ans. ISCII

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## Chapter 2 – Components of the Computer System

1. Write the full form of HDMI [ March 2020, Score 1 ]

Ans. High Definition Multimedia Interface

2. Name the software that translates assembly language program into machine language program. [ March 2020, Score 1 ]

Ans. Assembler

3. Categorize devices given below into input devices and output devices.  
Joystick, Scanner, Microphone, Printer, Mouse, VDU, Speaker. [ March 2020, Score 2 ]

Ans. Input Devices: Joystick, Scanner, Microphone, Mouse

Output Devices: Printer, VDU, Speaker

4. Differentiate RAM and ROM. [ March 2020, Score 3 ]

Ans.

RAM	ROM
It is faster than ROM	It is a slower memory
It allows reading and writing	Allows reading only
volatile	Non volatile

5. Explain any three common methods used for e-waste disposal [ March 2020, Score 3 ]

Ans. a) Reuse: It refers to second hand use or use after slight modification.

b) Incineration: It is a controlled and complete combustion process, in which waste materials are burned in specially designed incinerators at high temperatures.