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Course: Introduction to ICT -

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Mid term paper Summer -

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Q No 1: Write a characteristic of computer
Explain each in detail?

Ans 1:

There are Eight types a
Characteristic of computer -

1) Automatic :-

Given a job - computer can
work on it automatically without human
interventions -

2) Speed :-

Computer can perform data
processing jobs very fast, usually
measured in microseconds (10^{-6}),
nanoseconds (10^{-9}) and picoseconds (10^{-12}) -

3) Accuracy :-

Accuracy of a computer
is consistently high and the
degree of its accuracy depends
upon its design. Computer errors
caused due to incorrect input
data or unreliable programs are
often referred to as Garbage -
in - Garbage - out (GIGO) -

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4) Diligence:-

Computer is free from monotony, tiredness, and lack of concentration. It can continuously work for hours without creating any error and without grumbling.

5) Versatility:-

Computer is capable of performing almost any task if the task can be reduced to a finite series of logical steps.

6) Power of Remembering:-

Computer can store and recall any amount of information because of its secondary storage capability. It forgets or loses certain information only when it is asked to do so -

7) No I.Q.:-

A computer does only what it is programmed to do. It cannot take its own decision in this regard -

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8) No Feelings:-

Computer are devoid of emotions. their judgement is based on the instructions given to them in the form of programs that are written by us (human beings).

Q No 2: Write a note on each of the following?

(a) Machine Learning Technology:-

Machine learning technology is an application of artificial intelligence (AI) that provides systems the ability to automatically learn and improve from experience without being explicitly programmed.

Machine learning technology focuses on the development of computer programs that can access data and use it learn for themselves.

b) 5G:-

A 5G is the 5th generation mobile network 5G wireless technology is meant to deliver higher multi Gbps

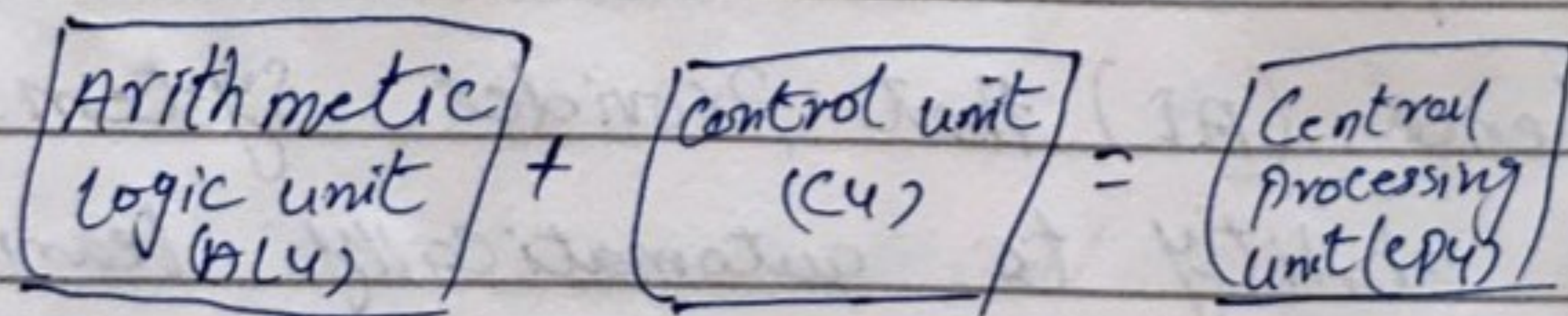
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Peak data speeds, ultra low latency
more reliability massive network capacity
increased availability and a more
uniform user experience to more users-

c) Central processing unit CPU:-

CPU central processing unit
it is the brain of a computer
system.

It is responsible for controlling the
operations of all other units of a
computer system.



d) Non-Positional Number systems:-

- * Use symbols such as I for 1, II for 2, III for 3, IIII for 4, IIIII for 5, etc.
- * Each symbols represents the same value regardless of its position in the number.
- * The symbols are simply added to find out the value of a particular number.

Difficulty:-

it is difficult to perform arithmetic
with such a number system.

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Q3: Solve the following questions -

(a) Convert $(110101010)_2$ into $()_{10}$ -

$$\begin{aligned} 110101010 &= (1 \times 8^8)_2 + (1 \times 8^7)_2 + (0 \times 8^6)_2 \\ &+ (1 \times 8^5)_2 + (0 \times 8^4)_2 + (1 \times 8^3)_2 + (0 \times 8^2)_2 + \\ &(1 \times 8^1)_2 + (0 \times 8^0) = 18907656 \end{aligned}$$

$$(110101010)_2 \text{ into } (18907656)_{10}$$

(b) Multiply binary number 1001010 and 10101101 ?

$$(10001010)_2 = (138)_{10}$$

Step by step solution -

Step 1: Write down the binary number

$$10001010$$

Step 2: Multiply each digit of the binary number by the corresponding power of two:

$$1 \times 2^7 + 0 \times 2^6 + 0 \times 2^5 + 0 \times 2^4 + 0 \times 2^3 + 0 \times 2^2 + 1 \times 2^1 + 0 \times 2^0$$

Step 3: Solve the powers -

$$1 \times 128 + 0 \times 64 + 0 \times 32 + 0 \times 16 + 1 \times 8 + 0 \times 4 + 1 \times 2$$

$$+ 0 \times 1 = 128 + 0 + 0 + 0 + 8 + 0 + 2 + 0$$

Step 4: Add up the numbers write down.

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$$128 + 0 + 0 + 0 + 8 + 0 + 2 + 0 = 138 \text{ this}$$

is the decimal equivalent of the

binary number 10001010

10101101

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

Step 1: 10101101

$$\text{Step 2: } 1 \times 2^7 + 0 \times 2^6 + 1 \times 2^5 + 0 \times 2^4 + 1 \times 2^3 + 1 \times 2^2 \\ + 0 \times 2^1 + 1 \times 2^0$$

$$\text{Step 3: } 1 \times 128 + 0 \times 64 + 1 \times 32 + 0 \times 16 + 1 \times 8 + 1 \times 4 + 0 \times 2 + 1 \times 1 = 128 + 0 + 32 + 0 + 8 + 4 + 0 + 1$$

Step 4:

$$128 + 0 + 32 + 0 + 8 + 4 + 0 + 1 = 173$$

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