Ans 1 The arithmetic and logic unit and Logic unit performs all arithmetic operations like addition, ~~subs~~ subtraction, division, and multiplication, and logical operations like AND, OR etc of the computer system. ALU is an independent unit because it performs the function independently.

It is a digital circuit representing the fundamental building block of the central processing unit (CPU) of a computer. modern CPU's contain very powerful and complex ALUs. In addition to ALU, s modern CPUs contain a control unit (CU).

The ALU can use only 'addition' to perform the other basic operations in this way. operation can be performed as follows

Substraction : a - b = a + (-1) * b.

Multiplication : a * b = a + a + a .. b times.

Division : a / b = continuously substract b from a and count how many times we can do that

3a) Youtube -

> Hardware - PC, server, Microphone, Webcame

> software - web Browser, video editing program, Sound editing Software, Mobile App user - Any public users ~~users~~ professional Youtubers, celebrities, Journalist, etc

(b) Retail software -

> Hardware - POS Terminal, workstation, Barcodes Scanner, Register screen, Receipt Printers

> software - Inventory, Customer ~~Loyalty~~ Loyalty software, E- commerce applications, Retail ~~management~~ management software.

> users - Stores, staff, customers (self service)

Ans ④ Education- The computers provides a tool in the education system known as CBE (computers based education).

CBE involves control, delivery, and evaluation of learning.

Also, Remote learning

Healthcare-

Diagnosis: X-Ray, MRI, CT Scan patient monitoring: These are used to check the patient monitoring: These are used to check the patients sign for abnormality such as in cardiac Arrest, ECG, etc.

Pharma information system: computers is used to check drug labels, expiry dates, harmful side effects, etc.

2a:

(a) $(156)_8$ → 1 5 6

↓ ↓ ↓

Binary → 100 101 110

∴ $(\underline{1}100\ 10\underline{1}\ 110)$ Converting to Decimal

↓ ↓ ↓

1 2 14

1 2 14

↓

∴ $(12E)_{16}$ (Converting to Hexadecimal)

↓

Ans.

2b:

(b) (23.6825)

23

↓

binary → 1 0111

0.6825

∴ 0.6825 × 2 = 1.3255 | 1

0.3255 × 2 = 0.251 | 0

0.251 × 2 = 1.502 | 1

0.502 × 2 = 1.004 | 1

↓

∴ Binary → $(10111.1011)_2$

(b) (23.6825)

2b:

2	23	
2	11	1
2	5	1
2	2	1
2	1	0
2	0	1

10111

0.6825

0.6825 × 2 = 1.3255 → 1

0.3255 × 2 = 0.251 → 0

0.251 × 2 = 1.502 → 1

0.502 × 2 = 1 → 1

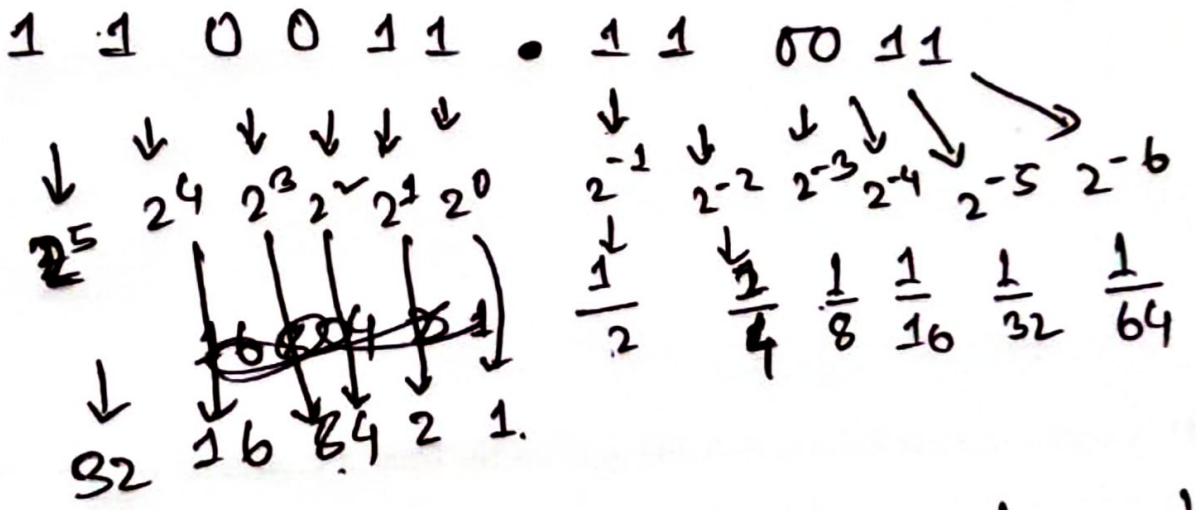
1011

∴ $(10111.1011)_2$

Ans.

2 C num

(d) $(110011.110011)_2$ to decimal



$32 + 16 + 2 + 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{32} + \frac{1}{64}$

$= (51.796825)_{10}$

Ans.