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Of physics, B.Sc. part-2 physics
(Hons) paper-iv lecture no-59

Topic: Decimal to Binary
conversion

Q. Convert decimal number 25
into binary numbers?

2	25		
2	12	1	← First remainder
2	6	0	← Second Remainder
2	3	0	← Third Remainder
2	1	1	← Fourth Remainder
	0	1	← Fifth Reaminder

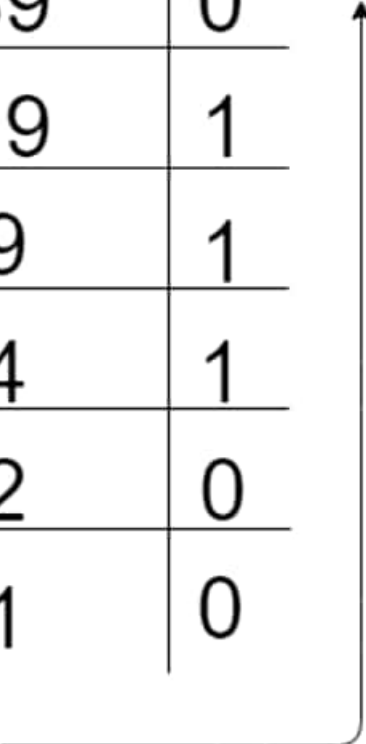
Read Up

Binary Number = 11001

Q. No-2

$$(78)_{10} = (?)_2$$

		remainder
2	78	
2	39	0
2	19	1
2	9	1
2	4	1
2	2	0
	1	0



answer is $(1001110)_2$

Q. No-3

$$(0.6875)_{10} = (?)_2$$

$$0.6875 * 2 = 1.375 \quad \text{integer 1}$$

$$0.375 * 2 = 0.75 \quad \text{integer 0}$$

$$0.75 * 2 = 1.5 \quad \text{integer 1}$$

$$0.5 * 2 = 1 \quad \text{integer 1}$$

So, answer is $(0.1011)_2$

Q.No-4

$$(25.625)_{10} = (?)_2$$

		remainder
2	25	
2	12	1
2	6	0
2	3	0
	1	1

integer part,

fractional part,

$$0.625 * 2 = 1.25 \quad \text{integer } 1$$

$$0.25 * 2 = 0.5 \quad \text{integer } 0$$

$$0.5 * 2 = 1 \quad \text{integer } 1$$

So, $(0.101)_2$

Now, answer will be $(11001.101)_2$

Q. No-5

$$(38.375)_{10} = (?)$$

		remainder
2	38	
2	19	0
2	9	1
2	4	1
2	2	0
	1	0

integer part ,fractional part,

$$0.375 * 2 = 0.75 \quad \text{integer } 0$$

$$0.75 * 2 = 1.5 \quad \text{integer } 1$$

$$0.5 * 2 = 1 \quad \text{integer } 1$$

answer is (1 0 0 1 1 0 . 1 1 0)₂

Q. No-6 convert 266 into binary numbers

2	266	0
2	133	1
2	66	0
2	33	1
2	16	0
2	8	0
2	4	0
2	2	0
2	1	

Binary conversion – 100001010