1. C

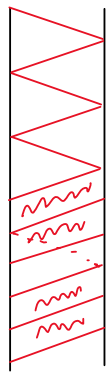
2. $t_p = 12\,ms$

$t_t = \frac{32 \times 8}{32}\,ms = 8\,ms$

$t_T = 12 + 8 = 20\,ms$

B

3.



$3RT_t + 2 \times \frac{F}{C} + RT_t - \frac{F}{C} + 2 \times \frac{F}{C} =$

$= 4RT_t + 3\frac{F}{C} = 400 + 48 = 448\,ms$

B

4. C

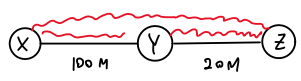
5. B

6. A

7. $\frac{40 \times 10^6 \times 2 \times 20 \times 10^{-3}}{8} = 200\,kB$

A

8.



B

9. C

10. C

11. IP1: 200.1.1000|0000.0

IP2: 200.1.1000 00|00.0

IP3: 200.1.1000 0000|.0

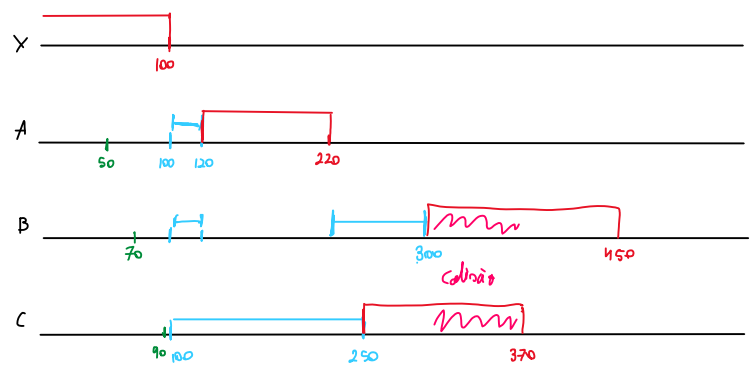
IP: 200.1.1000 0101.0

A

12. $\frac{2^{16} \times 4}{512} = \frac{2^{18}}{2^9} = 2^9 = 512 \times 500$

A

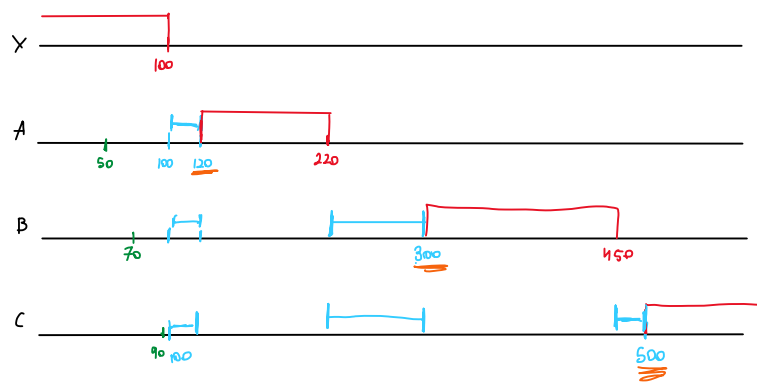
2.



.1 A - 120 .2 Apenas A .4 [0; 400[µs

B - 309 .3 B - 450 .5

C - 250 C - 370



1.

1.1 - a, b, c, h, i, l, j, k, n, s, t

1.2 - 3 Prefixos

1.3

MAC Fonte	MAC dest.	IP fonte	IP dest.	Porto fonte	Porto dest.	Protocolo
a	difundido	–	–	–	–	ARP - Request h
h	a	–	–	–	–	ARP - Reply h
a	h	a	l	α	53	DNS - Query 53
i	difundido	—	—	—	—	ARP - Request l
l	i	—	–	—	–	ARP - Reply l
i	l	a	l	α	53	DNS - Query 53
l	i	l	a	53	α	DNS - Reply 53
h	a	l	a	53	α	DNS - Reply 53

1.4

MAC Fonte	MAC dest.	IP fonte	IP dest.	Porto fonte	Porto dest.	Protocolo
a	h	a	t	α	80	TCP - SYN
i	difundido	—	—	—	—	ARP - Request n
n	i	—	–	—	–	ARP - Reply n
i	n	a	t	α	80	TCP - SYN
n	i	t	a	80	α	TCP - SYNACK
h	a	t	a	80	α	TCP - SYNACK
a	h	a	t	α	80	TCP - ACK + HTTP - GET
i	n	a	t	α	80	TCP - ACK + HTTP - GET
n	i	t	a	80	α	Ficheiro
h	a	t	a	80	α	Ficheiro

1.5

MAC Dest	Interface S_2
n	0
i	4
l	1