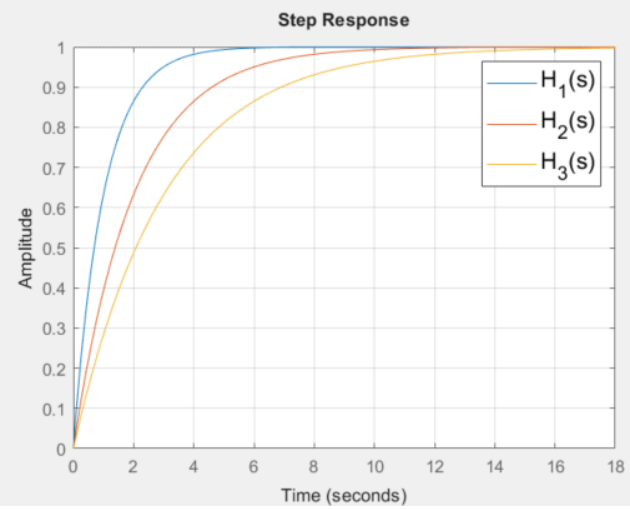
SCS

-teste grila licență iunie 2026-

1. Răspunsurile la semnal treapta unitate a trei circuite de tip RC care au funcția de transfer

$$H(s) = \frac{\frac{1}{RC}}{s + \frac{1}{RC}}$$

sunt:



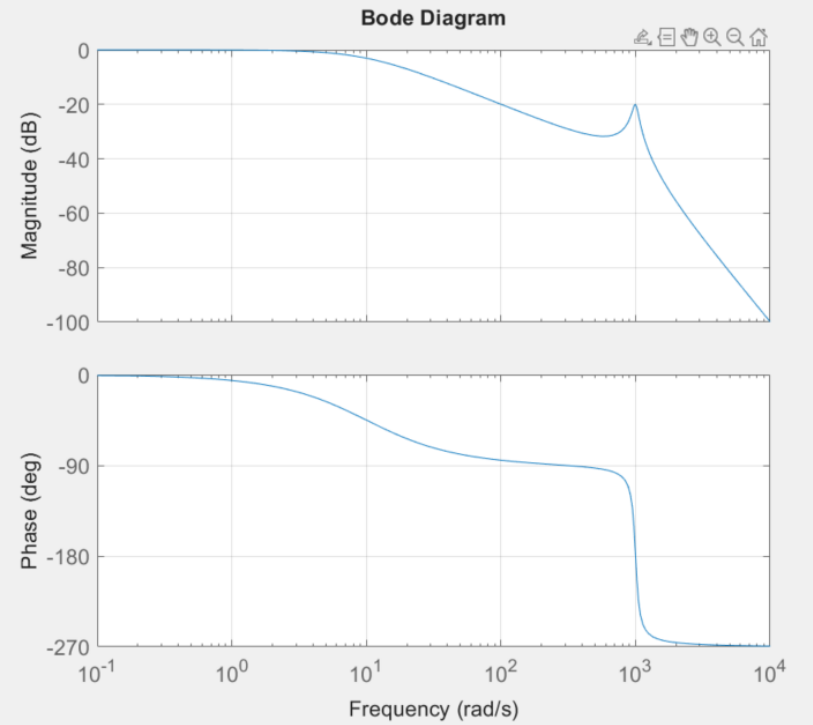
Care dintre cele 3 sisteme are produsul dintre R si C cel mai mic?

a) $\boldsymbol{H_1(s)}$
b) $H_2(s)$
c) $H_3(s)$
d) Nu sunt suficiente informații pentru a da un răspuns corect.

Răspuns corect: a)

2. Unui circuit care are diagramele Bode din figura i se aplica semnalul:

$$e(t) = 2\cos(t) + \sin(10^3 t)$$



Care dintre următoarele relații modelează cel mai bine semnalul de ieșire?

a) $\boldsymbol{y(t) = 2 \cdot \cos(t) + 10^{-1} \sin(10^3 t - \pi)}$

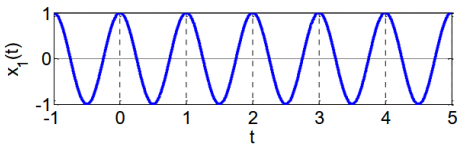
b) $y(t) = 2 \cdot \cos(t) + 10^{-20} \sin(10^3 t - \pi)$

c) $y(t) = 2 \cdot \cos(t) + \sin(10^3 t - \pi)$

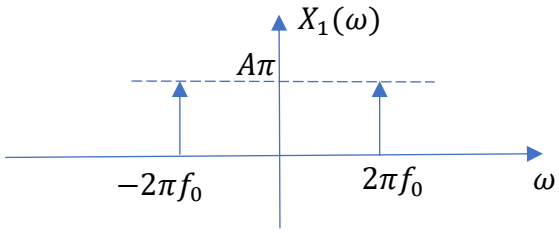
d) $y(t) = 2 \cdot 10^{-\pi} \cdot \cos(t) + 10^{-\frac{20}{20}} \sin(10^3 t)$

Răspuns corect : a)

3. Transformata Fourier a semnalului $x_1(t) = Acos(2\pi f_0 t)$ care este reprezentat in figura a) este reprezentata in figura b).

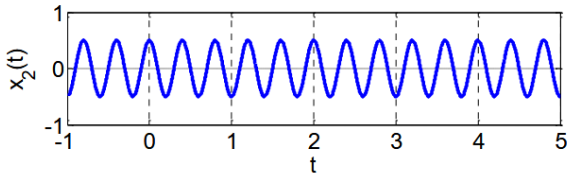


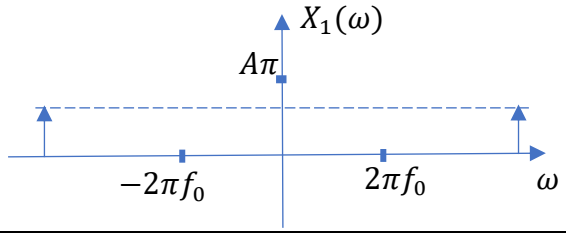
a)



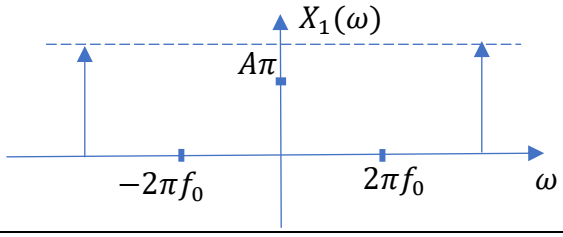
b)

Care este transformata Fourier a semnalului $x_2(t)$?

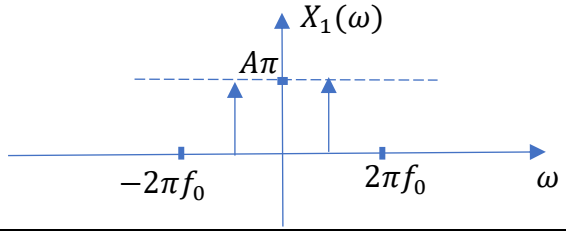




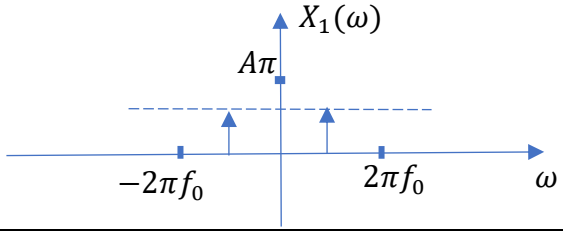
a)



b)



c)



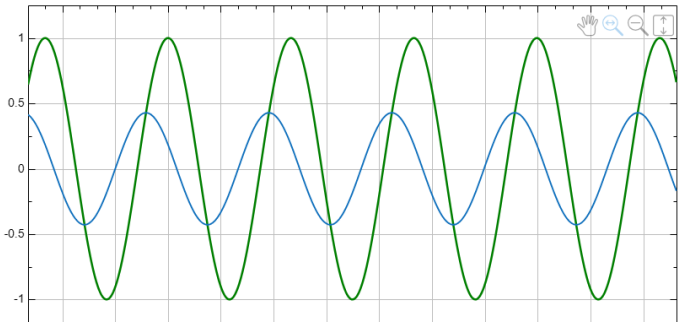
d)

4. Unui sistem cu funcția de transfer :

$$H(s) = \frac{10s}{s^2 + 10s + 10^4}$$

i se aplica semnalul $e(t) = \sin(\omega_0 t)$.

Se obține rezultatul (semnalul e(t) este cel cu verde iar cel de ieșire este cel cu albastru):

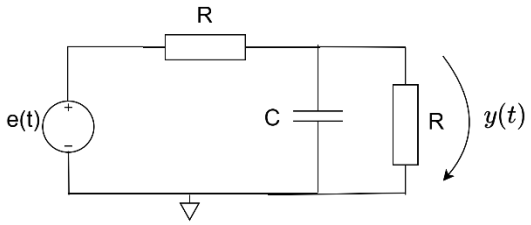


Care raspuns este corect ?

a) $\boldsymbol{\omega_0 < 100\ rad/sec}$
b) $\omega_0 > 100\ rad/sec$
c) $\omega_0 = 100\ rad/sec$
d) $\omega_0 > 10^4\ rad/sec$

Răspuns corect : a)

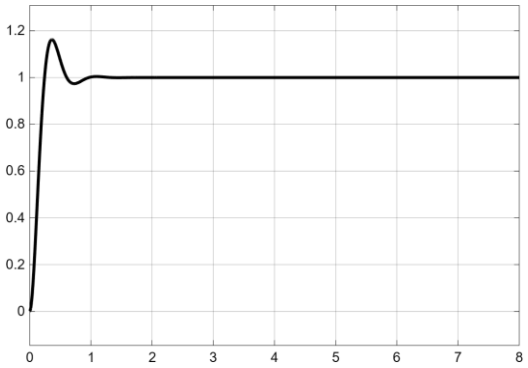
5) Daca $R = 1\Omega$ si $C = 0.5F$ care este funcția de transfer a circuitului ?



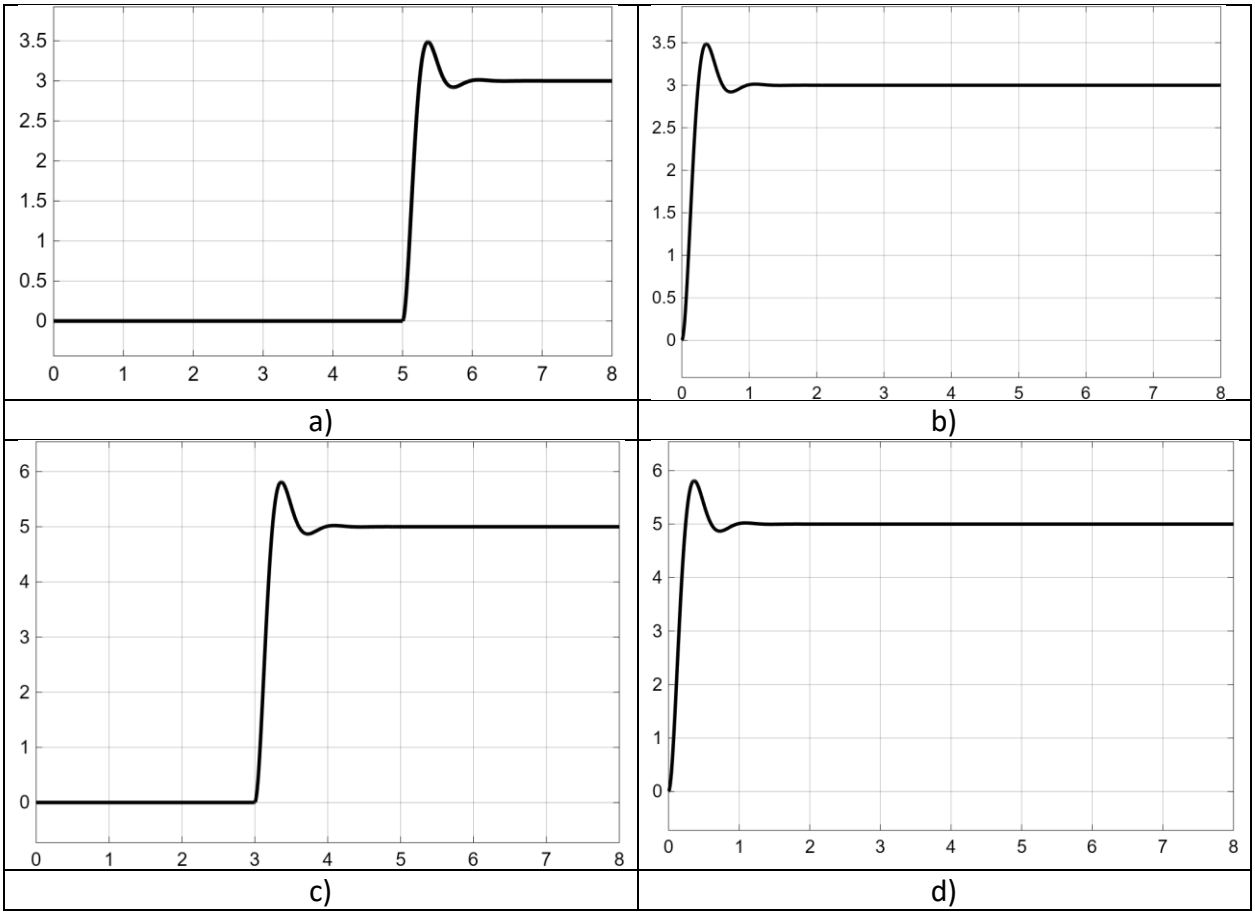
a) $H(s) = \frac{2}{s+4}$
b) $H(s) = \frac{s+1}{s+2}$
c) $H(s) = \frac{2}{s+2}$
d) $H(s) = \frac{1}{s+2}$

Răspuns corect: a)

6) Daca un sistem liniar si invariant in timp răspunde la semnalul treapta unitate ($\sigma(t)$) ca in figura de mai jos:



Care este răspunsul sistemului la semnal $3\sigma(t-5)$?



Răspuns corect: a)