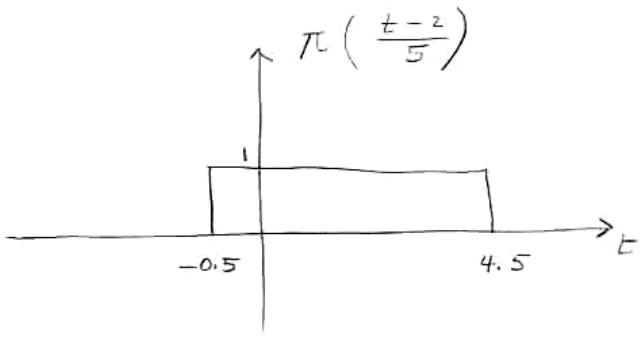
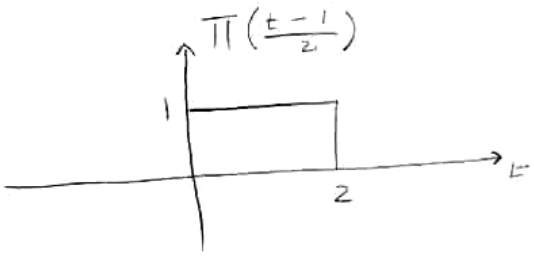
1.8

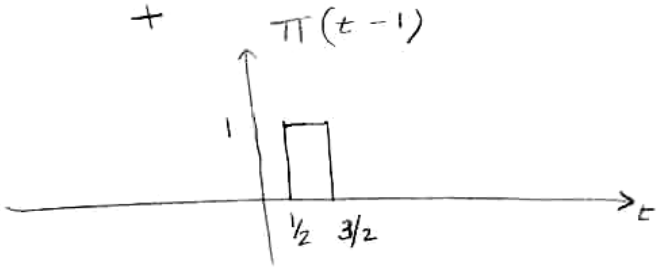
d)


$\Pi\left(\frac{t-2}{5}\right)$
1
-0.5
4.5
t

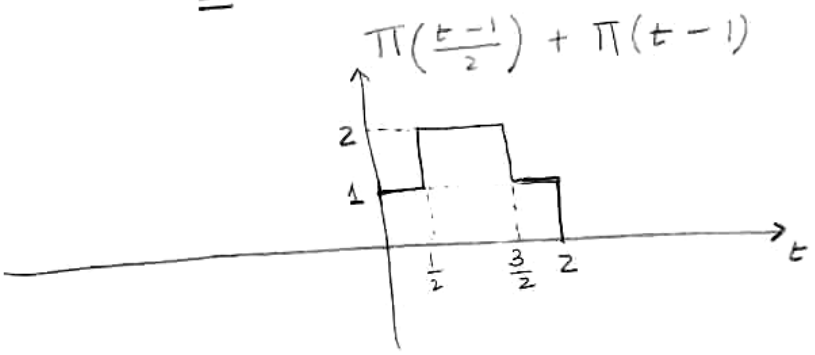
e)


$\Pi\left(\frac{t-1}{2}\right)$
1
2
t

+


$\Pi(t-1)$
1
1/2
3/2
t

=


$\Pi\left(\frac{t-1}{2}\right) + \Pi(t-1)$
2
1
1/2
3/2
2
t

1.9

a) $\frac{1}{25}$ s , b) $\frac{1}{30}$ s c) $\frac{1}{35}$ s d) $\frac{1}{5}$ s e) $\frac{1}{5}$ s

---

1.13

a) i) $\sin 50\pi t = \cos(50\pi t - 90°) = Re\left[e^{j(50\pi t - 90°)}\right]$

ii) $\cos 60\pi t = Re\left[e^{j60\pi t}\right]$

iii) $\cos 70\pi t = Re\left[e^{j70\pi t}\right]$

iv) $\sin 50\pi t + \cos 60\pi t = Re\left[e^{j(50\pi t - 90°)} + e^{j60\pi t}\right]$

v) $\sin 50\pi t + \cos 70\pi t = Re\left[e^{j(50\pi t - 90°)} + e^{j70\pi t}\right]$

b) i) $\sin 50\pi t = \cos(50\pi t - 90°) = \frac{1}{2} e^{j(50\pi t - 90°)} + \frac{1}{2} e^{-j(50\pi t - 90°)}$

ii) $\cos 60\pi t = \frac{1}{2} e^{j60\pi t} + \frac{1}{2} e^{-j60\pi t}$

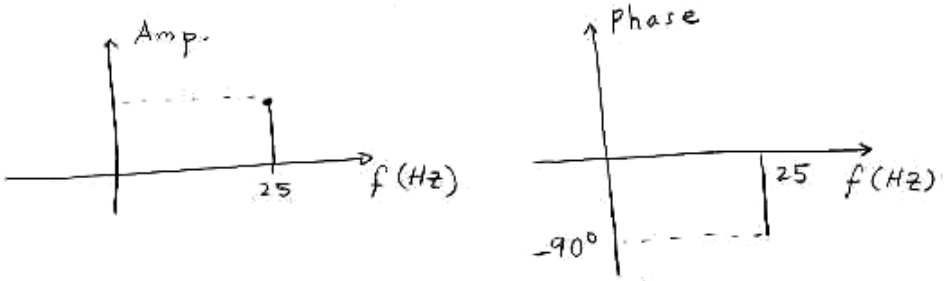
iii) $\cos 70\pi t = \frac{1}{2} e^{j70\pi t} + \frac{1}{2} e^{-j70\pi t}$

iv) $\sin 50\pi t + \cos 60\pi t = \frac{1}{2} e^{j(50\pi t - 90°)} + \frac{1}{2} e^{-j(50\pi t - 90°)} + \frac{1}{2} e^{j60\pi t} + \frac{1}{2} e^{-j60\pi t}$

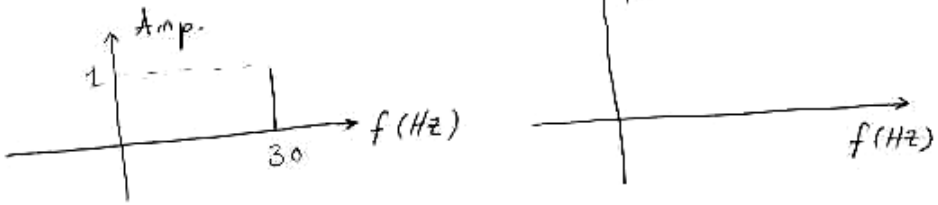
v) $\sin 50\pi t + \cos 70\pi t = \frac{1}{2} e^{j(50\pi t - 90°)} + \frac{1}{2} e^{-j(50\pi t - 90°)} + \frac{1}{2} e^{j70\pi t} + \frac{1}{2} e^{-j70\pi t}$

c)

i)

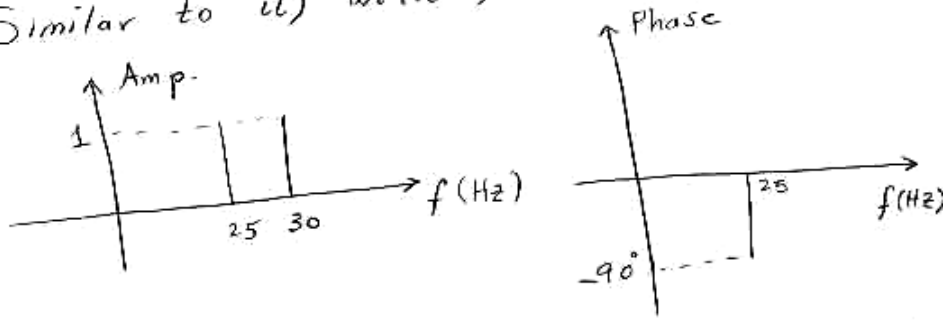


ii)



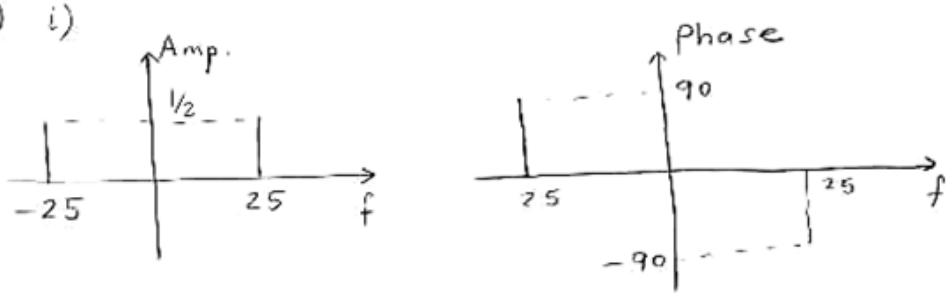
iii) Similar to ii) with $f = 35\,Hz$

iv)

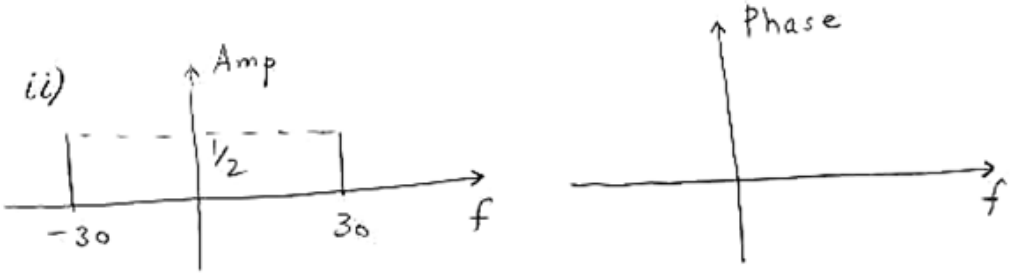


v) Similar to iv), but $f = 35\ Hz$ instead of 30 Hz.

d) i)

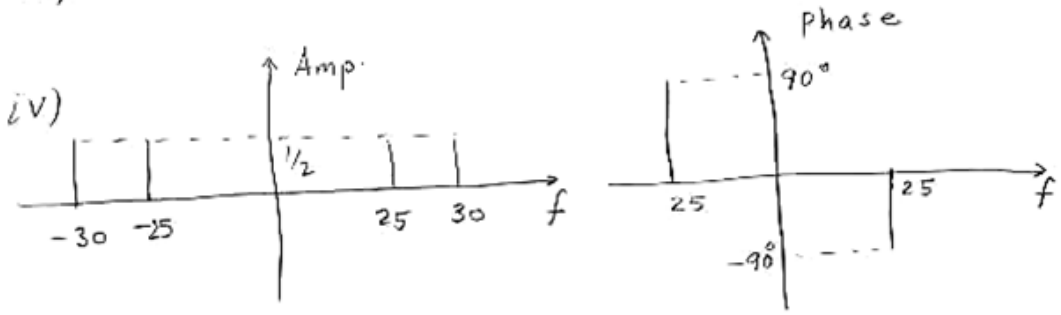


ii)



iii) Similar to ii) with $f = 35\,Hz$ instead of $30\,Hz$.

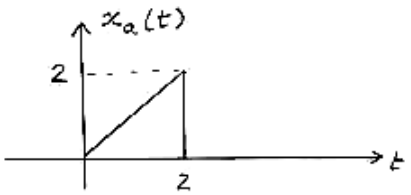
iv)



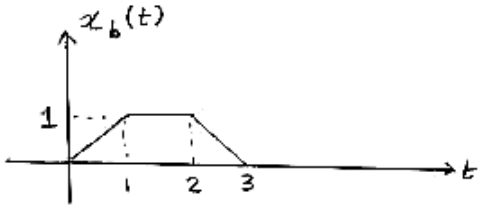
v) Similar to iv), but $f = 35\,Hz$ instead of $30\,Hz$.

1.18

a)



b)



c)