

8) To recover the baseband signal, $m(t)$, from the amplitude-modulated signal $v(t) = m(t) \cos 2\pi f_c t$, one multiplies $v(t)$ by the waveform $\cos(2\pi f_c t + \theta)$. The product waveform is transmitted through a low-pass filter which rejects the double-frequency signal. The output signal of the filter is:

a) $\frac{1}{2} m(t) \cos \theta + \frac{1}{2} m(t) \cos(4\pi f_c t + \theta)$

b) $\frac{1}{2} m(t) \cos(4\pi f_c t + \theta)$

c) $\frac{1}{2} m(t) \cos \theta$

d) $m(t)$