

An audio signal  $v_m = 20 \sin 2\pi(1500t)$  amplitude modulates a carrier  $v_c = 80 \sin 2\pi(100,000t)$ .

The value of percent modulation is \_\_\_\_\_.

Given, audio signal,

$$V_m = 20 \sin 2\pi(1500t) \dots (i)$$

$$\text{Carrier signal, } V_c = 80 \sin 2\pi(100000t) \dots (ii)$$

We know that, modulation index,

$$m_f = \frac{A_m}{A_c}$$

From Eqs. (i) and (ii), we get

$$A_m = 20, A_c = 80$$

Percentage of modulation index,

$$m_f = \frac{A_m}{A_c} \times 100 = \frac{20}{80} \times 100 = 25\%$$