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29. A signal of 5 kHz frequency is amplitude modulated on a carrier wave of frequency 2 MHz. The frequency of the resultant signal is/are:

(1) 2 MHz only (2) 2005 kHz, and 1995 kHz (3) 2005 kHz, 2000 kHz and 1995 kHz (4) 2000 kHz and 1995 kHz

**Answer:**

Given

Signal frequency  $f = 5$  kHz

Frequency of carrier  $f_c = 2000$  kHz

Therefore maximum, carrier and minimum frequency =  $f_c + f$ ,  $f_c$  and  $f_c - f = 2005$  kHz, 2000 kHz, 1995 kHz

**Correct option is (3) 2005 kHz, 2000 kHz and 1995 kHz**