

**PROBLEM:**

For each short question, pick a correct frequency<sup>1</sup> and enter the number in the answer box<sup>2</sup>:

**Question****Frequency**

- (a) A signal  $x(t)$  is defined by:  $x(t) = \Re\{e^{j6400\pi t} + e^{j9600\pi t}\}$ . Its fundamental frequency is:

**ANS =**

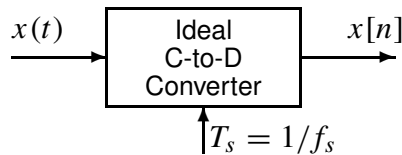
- (b) If the following MATLAB code is implemented, what is the frequency of the sound that will be produced at the output of the computer's D-to-A converter.

```
soundsc( cos(1.5*pi*(0:654321)), 8000);
```

**ANS =**

- (c) If the output from an ideal C/D converter is  $x[n] = 1000 \cos(0.25\pi n)$ , and the sampling rate is 8000 samples/sec, then determine one possible value of the input frequency of  $x(t)$ :

**ANS =**



1. 8000 Hz
2. 4000 Hz
3. 2000 Hz
4. 1600 Hz
5. 1200 Hz
6. 1000 Hz
7. 800 Hz
8. 500 Hz
9. 400 Hz

<sup>1</sup>Some questions have more than one answer, but you only need to pick one correct answer.

<sup>2</sup>It is possible to use an answer more than once.