

Name:

UIN:

1. Given  $\mathbf{f(t)} = 2\sqrt{2}\sin(1000t + \pi/4)$  and  $\mathbf{g(t)} = \mathbf{f(t)} + \frac{1}{1000} \frac{d\mathbf{f(t)}}{dt}$ , use phasor method to compute  $\mathbf{g(t)}$ . The final answer must be expressed as a single cosine function.

2. Given  $\mathbf{i(t)} = 10\sin(377t)$ ,  $\mathbf{R} = 2 \, \Omega$ ,  $\mathbf{L} = \frac{1}{377} \, \text{H}$ , find  $\mathbf{v_s(t)}$ .

