1. From the circuit given in Figure 1.

(a) Determine the values of $\mathbf{I}_L$, $\mathbf{I}_R$, $\mathbf{I}_C$, $\mathbf{V}_L$, $\mathbf{V}_R$, and $\mathbf{V}_C$. (10)

(b) Using 50 V/1cm and 25 A/1cm scale to sketch the phasor diagram of the currents and voltages in (a) to show that $\mathbf{I}_L = \mathbf{I}_R + \mathbf{I}_C$ and $\mathbf{V}_S = \mathbf{V}_L + \mathbf{V}_R$. (10)

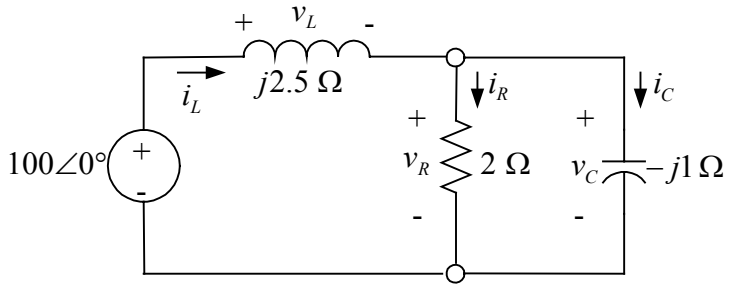

Figure 1

2. (a) Find the average value of the half-wave sinusoidal voltage waveform as shown in Figure 2. (10)

(b) Find the RMS value of the waveform in (a). (10)

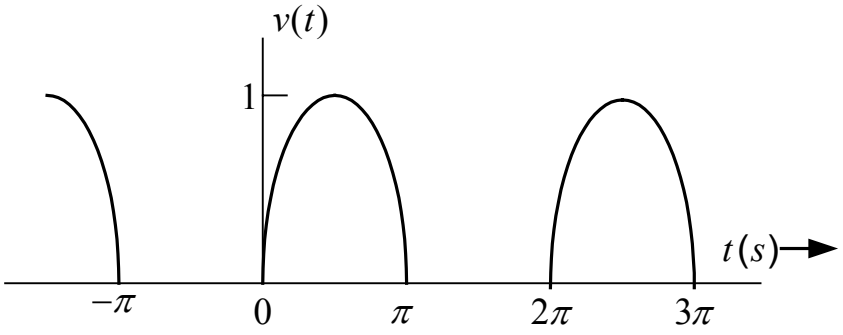

Figure 2