**EECE 290 – PSpice Quiz**

**April 23, 2016**

34%

1. For the active filter shown, determine:
2. The maximum gain

*VO*(*jω*)/*VI*(*jω*) in dB.

1. The upper and lower 3-dB cutoff frequencies.
2. (c) the equation of the low-frequency asymptote,

Ans. (a) 19.989 dB; (b) *fc*1 = 19.889 Hz,*fc*1 = 15.161 kHz;

(c) 20\*LOG10(Frequency)-20\*LOG10(19.889)+19.989.

33%

1. The periodic voltage *vI*(*t*) is applied to the *RL* circuit, as shown. Determine the magnitude and phase shift of the fifth harmonic of the periodic output voltage *vO*(*t*).

Ans. 0.1390 V; -75.91°.

33%

**3.** (a) Sketch *vO*(*t*) over the period 0 to 10 s, assuming an initial voltage of 2 V across the capacitor and an initial current of 2 A through the inductor.

(b) Determine the maximum

value of *vO* and the time at which it occurs.

Ans. 11.81 V at 84.1 ms.