United International University

Dept. of Computer Science & Engineering

Trimester: Fall, 2024 (Class Test - 04)

Course No: EEE 2113 Title: Electrical Circuits

Section: L

Time: 30minutes **Marks: 20**

1. Two voltage v_1 and v_2 appear in series so that their sum is $v = v_1 + v_2$. 5
   If $v_1 = 10\cos(50t - \pi/3)$ V and $v_2 = -5\sin(50t + 70°)$ V, find v.
2. Obtain the sinusoids corresponding to each of the following phasor: 2.5 x 2

   a) $I_1 = 2.8e^{-j\pi/3}$ A, $\omega = 377$

   b) $V_1 = -0.5 - j1.2$ A, $\omega = 10^3$

3. A linear network has a current input $7.5\cos(10t + 30°)$ A and a voltage 5
   output $120\cos(10t + 75°)$ V. Determine the associated impedance (**Z**).
   [use this formula, $Z = \frac{V}{I}$]
4. Find the phase angle between 5
   $i_1 = -10\cos(377t + 53°)$ and $i_2 = 5\sin(377t - 34°)$
   Does i_1 lead or lag i_2?