

EE 3120 – Prerequisite Test Example Problems – Answers

1. $Z_{th} = 15\angle 90^\circ \Omega$, $V_{th} = 5\angle -175^\circ \text{ V}$
2. $I_1 = 0.8\angle -85^\circ \text{ A}$
3. $V = 3.78\angle -45.28^\circ \text{ V}$
4. a) $S = 11.29 \angle 39.86^\circ \text{ kVA}$, b) $I = 56.45 \angle -39.86^\circ \text{ A}$
5. a) $8.25 \angle -15^\circ \text{ A}$, b) 747.7 W , c) 348.7 VAR , d) inductive
6. $V_S = 173.16 \angle 29.01^\circ \text{ V}$
7. $I = 1.26\angle -45.28^\circ \text{ A}$
8. $9.72\angle 43.96^\circ \text{ kVA}$
9. e) $500\angle -45^\circ \text{ VA}$, f) 353.55 W , g) 353.55 VAR , h) capacitive
10. $2.32 \angle 2.89^\circ \text{ A}$
11. i) 441.94 W ii) -765.47 VAR , iii) $883.88\angle -60^\circ \text{ VA}$
12. $R = 10.39 \Omega$, $X = 6 \Omega$, inductive
13. i) $8\angle -45^\circ \text{ A}$, ii) $960\angle 45^\circ \text{ VA}$, iv) 0.707 lagging
14. $Z_{th} = 7\angle 45^\circ \Omega$, $V_{th} = 56\angle 70^\circ \text{ V}$
15. $V_a = 124.31\angle 41.66^\circ \text{ V}$
16. $S = 400\angle 25^\circ \text{ VA}$ as a load