**CENG 102 Project Submission Sheet**

**Plant for Hydrodealkylation of Toluene to Benzene**

Approximate Answers: All within ±25%

1. 800 kW; 1000 K
2. 750 kW
3. 3000 kW
4. 800 kW; 800 K
5. 750 kW
6. 650 K
7. 1000 kW; 700 K
8. 25,000 kW
9. 2500 kW
10. 1000 K
11. a.) K1 ~ 300; K2 ~ 0.05; b.) K1eff ~ 350; K2eff ~ 0.04
12. a.) 960 K; b.) -1000 kW; 950 K
13. V ~ 800 mol/s; x1 ~ 0.05; y2 ~ 0.25; x3 ~ 0.15; y4 ~ 0.8; x5 ~ 0.7
14. L ~ 170 mol/s; y1 ~ 0.001; x4 ~ 0.05; benzene purge ~ 0.06 mol/s
15. a.) x1 ~ 0.05; y2 ~ 0.5; b.) V ~ 10 mol/s; c.) P ~ 1.5 bar; L ~ 70 mol/s
16. a.) x2 ~ 0.9; y1 ~ 0.5; b.) L ~ 130 mol/s