Three-phase Theory Extra Questions

1. What is the power factor in a circuit where VA=3650 and W=2790? 76.4

2. What is the apparent power of a 440V, wye-connected load rated at 50 KW and 90% Power Factor? 55.55 kVA

3. What is the line current of a 440V, wye-connected load rated at 50 KW and 90% Power Factor? 73 A

4. What is the power factor of a 600V, wye-connected circuit supplying 50kW at a line current of 90 amps? 53.5%

5. What are the two formulas for finding true power in a three-phase circuit? True Power = \( \sqrt{3} \times E_L \times I_L \times \text{PF} \) or True Power = 3 x EP x IP x PF

6. What are the two formulas for calculating the apparent power in a three-phase circuit? Apparent Power = \( \sqrt{3} \times E_L \times I_L \) or Apparent Power = 3 x EP x IP

7. What is the line current in a delta connected alternator when the phase current is 26.9 A? 46.5 A

8. What is the phase current in a delta connected alternator when the line current is 103A? 59.53 A

9. What is the phase current and voltage in a Delta connected load when a Y connected supply has a coil voltage of 120 V and a coil current of 34 A? 208 V 19.6 A

10. What is the phase current and voltage in a Y connected load when a Delta connected supply has a coil voltage of 120 V and a coil current of 34 A? 69.36 V 58.8 A

11. How much true power is developed in each phase of a three-phase generator if the voltage is 208 V and the current is 15 A with a power factor of 78%? 1404 W

12. How much apparent power is developed in each phase of a three-phase, wye-connected generator if the line voltage is 208 V and the line current is 15 A with a power factor of 78%? 1800 W

13. How much true power is developed in all phases of a three-phase, wye-connected generator if the line voltage is 208 V and the line current is 15 A with a power factor of 78%? 4210 W
14. How much apparent power is developed in all phase of a three-phase generator if the voltage is 208 V and the current is 15 A with a power factor of 78%? 5397 VA

15. What value of vars will correct the power factor of a circuit from 68-93% when the true power is 1500W? 1026 Vars

16. What value of vars will correct the power factor of a circuit from 68-93% when the apparent power is 1500VA? 698 Vars

17. What is the current in the phase of a delta connected load where $E_L=440V$ and $Z_p=20$ ohms? 22 A

18. What is the current in the phase of a Y connected load where $E_L=440V$ and $Z_p=20$ ohms? 12.7 A