Given the above schematic diagram and V_2: magnitude 10V, frequency 100Hz, and phase 0, answer the following questions for AC steady state analysis.

Q1. Magnitude of impedance of R1.

Q2. Magnitude of impedance of L1.

Q3. Magnitude of impedance of C1.

Q4. Magnitude of voltage across L1 terminals, i.e., V(b) – V(c).

Q5. Magnitude of voltage across C1 terminals, i.e., V(c).

If V2 frequency has been changed to 50Hz, answer the following questions for AC steady state analysis.

Q6. Magnitude of impedance of R1.

Q7. Magnitude of impedance of L1.

Q8. Magnitude of impedance of C1.

Q9. Magnitude of voltage across L1 terminals, V(b) – V(c).

Q10. Magnitude of voltage across C1 terminals V(c).

If V2 frequency has been changed to 200Hz, answer the following questions for AC steady state analysis.

Q11. Magnitude of impedance of R1.

Q12. Magnitude of impedance of L1.

Q13. Magnitude of impedance of C1.

Q14. Magnitude of voltage across L1 terminals, V(b) – V(c).

Q15. Magnitude of voltage across C1 terminals V(c).

If V2 frequency has been changed to 400Hz, answer the following questions for AC steady state analysis.

Q16. Magnitude of impedance of R1.

Q17. Magnitude of impedance of L1.

Q18. Magnitude of impedance of C1.

Q19. Magnitude of voltage across L1 terminals, V(b) – V(c).

Q20. Magnitude of voltage across C1 terminals V(c).

Write your answers in the following format.

```
A1.  f100 impR = 0 ohm
A2.  f100 impL = 0 ohm
A3.  f100 impC = 0 ohm
A4.  f100 Vbc = 0 V
A5.  f100 Vc = 0 V
A6.  f50 impR = 0 ohm
A7.  f50 impL = 0 ohm
A8.  f50 impC = 0 ohm
A9.  f50 Vbc = 0 V
A10. f50 Vc = 0 V
A11. f200 impR = 0 ohm
A12. f200 impL = 0 ohm
A13. f200 impC = 0 ohm
A14. f200 Vbc = 0 V
A15. f200 Vc = 0 V
A16. f400 impR = 0 ohm
A17. f400 impL = 0 ohm
A18. f400 impC = 0 ohm
A19. f400 Vbc = 0 V
A20. f400 Vc = 0 V
```