1. Illustrate the following terminology in brief: (30%)
   (1) Infinite bus (3%)
   (2) Skin effect (3%)
   (3) Corona (3%)
   (4) Armature reaction (3%)
   (5) Power angle (3%)
   (6) Power factor angle (3%)
   (7) Symmetrical component (3%)
   (8) Surge impedance load (3%)
   (9) Bundled conductor (3%)
   (10) Transient stable (3%)

2. There are many kinds of unbalanced fault in a power system, can you write three kinds of unbalanced fault as you know? (9%)

3. Write and explain how many bus types in the power flow analysis? (9%)

4. Draw the zero- and positive-sequence network for the one-line diagram as shown in Fig. 1. There are two generators, two transmission lines and four transformers in the system. Please identify points LMNOPQRSTU on your diagram. (12%)
   ![Diagram](image)
   Fig. 1

5. From the three-phase sources, network construction and three-phase load, Can you interpret the conditions of a balanced three-phase system? (10%)

6. A three-phase supply system is popular in industry over a single-phase supply. Can you
interpret the reasons why? (10%)

7. What is the regulating transformer? Explain how do you apply regulating transformers to control power flow in a power network. (10%)

8. Sketch a diagram to explain the equal-area stability criterion. (10%)