



**Question (1)**

**( 25 Marks)**

- (a) State briefly the types, advantages and disadvantages of both passive and active power factor correction circuits.
- (b) Discuss with the aid of diagrams the power factor correction circuit for three-phase induction motor.

**Question (2)**

**(25 Marks)**

- (a) What are the power quality problems, and the causes of poor power quality.
- (b) Explain with help of diagram the types of active power filter.

**Question (3)**

**( 25 Marks)**

- (a) Sketch and explain the types of Flexible AC Transmission Systems (FACTS).
- (b) What is LED lamp? State its advantages and disadvantages. Show how the hysteresis current mode control is used in PFC for LED lamp.

**Question (4)**

**( 25 Marks)**

- (a) What is photovoltaic and how does it work. Mention the components of PV system.
- (b) Explain the different types of electrical wind systems.

----- Good Luck -----