

UNIT-III
Air Insulated Substations (AIS)

1. AIS stands for:
A) Air Insulated System
B) Air Insulated Substation
C) Automatic Insulated Substation
D) Air Integrated Station
Answer: B
2. In an Air Insulated Substation, the insulating medium used between live parts is:
A) SF₆ Gas
B) Vacuum
C) Air
D) Oil
Answer: C
3. Indoor substations are generally used for:
A) Very high voltages only
B) Low and medium voltage installations
C) Hydroelectric stations only
D) Transmission towers
Answer: B
4. Outdoor substations are preferred for:
A) Limited space availability
B) High-voltage applications
C) Underground installations
D) Domestic wiring
Answer: B
5. Which equipment is used to interrupt fault currents in a substation?
A) Isolator
B) Bus Bar
C) Circuit Breaker
D) Transformer
Answer: C
6. The main function of a bus bar is to:
A) Step up voltage
B) Collect and distribute electrical power
C) Protect transformers
D) Measure current
Answer: B
7. Which substation equipment is operated only under no-load conditions?
A) Circuit Breaker
B) Isolator
C) Transformer

D) CT

Answer: B

8. Current Transformers (CTs) are used for:

- A) Voltage Measurement
- B) Current Measurement and Protection
- C) Power Generation
- D) Voltage Regulation

Answer: B

9. Potential Transformers (PTs) are used for:

- A) Current Measurement
- B) Voltage Measurement
- C) Power Factor Correction
- D) Switching

Answer: B

10. Lightning arresters are installed to protect equipment from:

- A) Overloading
- B) Short Circuits
- C) Lightning Surges
- D) Voltage Drops

Answer: C

11. The simplest bus bar arrangement is:

- A) Double Bus Bar
- B) Ring Bus
- C) Single Bus Bar
- D) Breaker-and-a-Half

Answer: C

12. The major advantage of a single bus bar system is:

- A) High Reliability
- B) Simplicity and Low Cost
- C) Flexibility
- D) No Maintenance

Answer: B

13. In a sectionalized single bus bar arrangement, the bus bar is divided using:

- A) Isolator
- B) Circuit Breaker
- C) Transformer
- D) CT

Answer: B

14. Sectionalizing a bus bar improves:

- A) Voltage Regulation
- B) Reliability and Maintenance Flexibility
- C) Power Factor
- D) Frequency Control

Answer: B

15. The main purpose of a transfer bus is:
- A) Voltage Transformation
 - B) Maintaining Supply During Maintenance
 - C) Measuring Current
 - D) Improving Power Factor
- Answer: B**
16. Main and transfer bus bar systems provide:
- A) Lower Reliability
 - B) Greater Flexibility in Operation
 - C) No Protection
 - D) Lower Voltage Levels
- Answer: B**
17. Which arrangement allows maintenance of a circuit breaker without interrupting supply?
- A) Single Bus Bar
 - B) Main and Transfer Bus Bar System
 - C) Single Transformer System
 - D) Radial Feeder System
- Answer: B**
18. Outdoor substations require:
- A) Less Land Area
 - B) More Land Area
 - C) Underground Construction
 - D) No Insulation Clearance
- Answer: B**
19. The heart of a substation for power distribution is the:
- A) Bus Bar
 - B) CT
 - C) PT
 - D) Isolator
- Answer: A**
20. Air Insulated Substations are generally more economical than GIS for:
- A) Extra Compact Installations
 - B) Large Open Areas
 - C) Underground Stations
 - D) Offshore Platforms
- Answer: B**

Fill in the Blanks

1. AIS stands for Air Insulated _____.
Answer: Substation
2. In AIS, _____ acts as the insulating medium.
Answer: Air

3. Indoor substations are generally used for _____ voltage levels.
Answer: Low
4. Outdoor substations are commonly used for _____ voltage transmission.
Answer: High
5. A _____ is used to interrupt fault currents.
Answer: Circuit Breaker
6. A _____ is used to isolate equipment during maintenance.
Answer: Isolator
7. The conductor arrangement used to collect and distribute power is called a _____.
Answer: Bus Bar
8. CT stands for Current _____.
Answer: Transformer
9. PT stands for Potential _____.
Answer: Transformer
10. Lightning arresters protect substation equipment from _____ surges.
Answer: Lightning
11. The simplest bus bar arrangement is the _____ bus bar system.
Answer: Single
12. A single bus bar system has _____ initial cost.
Answer: Low
13. In a sectionalized bus arrangement, the bus bar is divided into _____.
Answer: Sections
14. Sectionalization improves system _____.
Answer: Reliability
15. A transfer bus is used during equipment _____.
Answer: Maintenance
16. The main and transfer bus arrangement provides greater operational _____.
Answer: Flexibility
17. Outdoor substations require more _____ area than indoor substations.
Answer: Land
18. Bus bars are generally made of copper or _____.
Answer: Aluminum
19. Circuit breakers and isolators are classified as _____ equipment.
Answer: Switching
20. In a substation layout, transformers are used to change the _____ level.
Answer: Voltage