INDUSTRIAL ELECTRONICS
TWO MARKS
UNIT V

1. **What is the difference between ON-OFF control and phase control?**

   a. ON-OFF control: In this method, the thyristors are employed as switches to connect the load circuit to the source for a few cycles of the load voltage and disconnect it for another few cycles. Phase control: In this method, thyristor switches connect the load to the ac source for a portion of each half cycle of input voltage.

2. **What is the advantage of ON-OFF control?**
   a. Due to zero-voltage and zero current switching of thyristors, the harmonics generated by the switching action are reduced.

3. **What is the disadvantage of ON-OFF control?**
   a. This type of control is applicable in systems that have high mechanical inertia and high thermal time constant.

4. **What is the duty cycle in ON-OFF control method?**
   a. Duty cycle K = n/ (n + m), where n = no. of ON cycles, m = no. of OFF cycles

5. **What is meant by unidirectional or half-wave ac voltage controller?**

   a. Here the power flow is controlled only during the positive half-cycle of the input voltage.

6. **. What are the disadvantages of unidirectional or half-wave ac voltage controller?**
   a. Due to the presence of diode on the circuit, the control range is limited and the effective RMS output voltage can be varied between 70.7% and 100%. b. The input current and output voltage are asymmetrical and contain a dc component. If there is an input transformer, saturation problem will occur. It is only used for low power resistive load.

7. **What is meant by bidirectional or half-wave ac voltage controller?**
   Here the power flow is controlled during both cycles of the input voltage.

8. **What is the control range of firing angle in ac voltage controller with RL load?**
   The control range is F < a <180°, where F = load power factor angle.

9. What type of gating signal is used in single phase ac voltage controller with RL load?

High frequency carrier gating signal is used for single phase ac voltage controller with RL load.

10. What are the disadvantages of continuous gating signal?

a. More heating of the SCR gate.
b. Increases the size of pulse transformer.

11. What is meant by high frequency carrier gating?

Thyristor is turned on by using a train of pulses from a to p. This type of signal is called as high frequency carrier gating.

12. What is meant by sequence control of ac voltage regulators?

It means that the stages of voltage controllers in parallel triggered in a proper sequence one after the other so as to obtain a variable output with low harmonic content.

13. What are the advantages of sequence control of ac voltage regulators?

a. System power factor is improved.
b. Harmonics are reduced in the source current and the load voltage.

14. What is meant by cyclo-converter?

It converts input power at one frequency to output power at another frequency with one-stage conversion. Cycloconverter is also known as frequency changer.

15. What are the two types of cyclo-converters?

a. Step-up cyclo-converters
b. Step-down cyclo-converters

16. What is meant by step-up cyclo-converters?

In these converters, the output frequency is less than the supply frequency.

17. **What is meant by step-down cyclo-converters?**

In these converters, the output frequency is more than the supply frequency.

18. What are the applications of cyclo-converter?

a. Induction heating
b. Speed control of high-power ac drives
c. Static VAR generation
d. Power supply in aircraft or ship boards

19. What is meant by positive converter group in a cyclo converter?

The part of the cycloconverter circuit that permits the flow of current during Positive half cycle of output current is called positive converter group.

20. What is meant by negative converter group in a cyclo converter?

The part of the cyclo converter circuit that permits the flow of current during negative half cycle of output current is called negative converter group.