

School of University Polytechnic**Diploma in Electrical Engineering
Semester End Examination - Jun 2024****Duration : 180 Minutes
Max Marks : 100****Sem IV - N1DI407B - Industrial Electronics and Control**General Instructions*Answer to the specific question asked**Draw neat, labelled diagrams wherever necessary**Approved data hand books are allowed subject to verification by the Invigilator*

- 1) Define thyristor. K1(2)
- 2) Explain the speed torque characteristics of different DC motor with circuit diagram. K2(4)
- 3) Explain the construction and working principle of current source inverter with waveform. K2(6)
- 4) Illustrate the construction and working principle of chopper. Draw the circuit diagram and the output voltage and current waveform. K3(9)
- 5) Illustrate the circuit diagram of short-break static UPS and explain the construction and working of the UPS. K3(9)
- 6) Examine the difference between inverter and chopper with their circuit diagram and waveform. K5(10)
- 7) Analyze the construction and working principle of single-phase half wave converter drive. Draw the circuit diagram, quadrant diagram, and the output waveform of the drive. K4(12)
- 8) Examine the voltage across each SCR in the off-state and the discharge current of each capacitor at the time of turn-on. A string of four series-connected thyristors is provided with static and dynamic equalizing circuits. This string has to withdraw an off-state voltage of 10kV. The static equalizing resistance is 25000 ohm and the dynamic equalizing current has $RC=40$ ohm and $C=0.08$ microfarad. The leakage currents for four thyristors are 21mA, 25mA, 18mA and 16mA. K5(15)
- 9) Examine the difference between Converter and Inverter with their respective circuit diagram and waveform. K5(15)
- 10) Elaborate the working of DIAC. Give the constructional details of DIAC. Sketch its circuit diagram, DIAC symbol and the VI characteristics. K6(18)