

BACHELOR OF TECHNOLOGY (C.B.C.S.) (2020 COURSE)
B.Tech.Sem - IV Robotics & Automation Engineering : WINTER- 2022
SUBJECT : POWER ELECTRONICS & DRIVES

Day : Friday

Time : 02:30 PM-05:30 PM

Date : 25-11-2022

W-24788-2022

Max. Marks : 60

N.B.:

- 1) All questions are **COMPUSLORY**.
- 2) Figures to the right indicate **FULL** marks.
- 3) Assume suitable data if necessary.

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- Q.1 a) Explain the features of Space Vector Pulse Modulation Technique (SVPWM). (05)
b) Explain the third harmonic pulse width modulation technique in detail. (05)

OR

- Q.1 a) Explain three level voltage source converter with diagram, explain its working as well. (05)
b) What is Pulse Width Modulation (PWM)? Why it is important. Explain single pulse width modulation technique in detail. (05)

- Q.2 a) Explain the working principle of 3X3 matrix converter. Draw the diagram. (05)
b) Differentiate between Voltage source inverter (VSI) and Current source inverter (CSI). (05)

OR

- Q.2 a) What is self-commutated current source converter? Explain in detail. (05)
b) Compare matrix converter with multi pulse converter. (05)
- Q.3 a) Explain Diode clamped multi level inverter in detail with diagram. (05)
b) Explain application of multilevel inverter in reactive power compensation. (05)

OR

- Q.3 a) Explain flying capacitor multi level inverter in detail with diagram. (05)
b) Explain cascaded H bridge multi level inverter in detail with diagram. (05)
- Q.4 a) Explain four quadrant chopper drive in detail with diagram. (05)
b) Explain DC servo drive in detail along with the diagram (05)

OR

- Q.4 a) Explain close loop control of DC motor drive. (05)
b) Explain why dc series motor is more suitable to deal with the high torque over loads than other dc motors? (05)
- Q.5 a) Explain stator voltage control in detail. (05)
b) Explain v/f control method of induction motor. (05)

OR

- Q.5 a) Explain closed loop control of 3-phase induction motor. (05)
b) Explain the speed control by static slip power recovery method. (05)
- Q.6 a) Explain voltage and frequency control of synchronous motor drive. (05)
b) Explain synchronous motor with servo drive with sinusoidal waveform. (05)

OR

- Q.6 a) Explain speed control of synchronous motor by cyclo converters. (05)
b) Explain synchronous motor with servo drive with trapezoidal waveform. (05)