Roll No……..….. **Total No. of Printed Pages: 2**
Total No. of Questions: [09]

B. Tech Electrical Engineering (Semester –8th)
ADVANCE ELECTRIC DRIVES
Subject Code: BELED1-814
Paper ID: [18111551]

Time: 03 Hours **Maximum Marks: 60**
Instruction for candidates:
1. Section A is compulsory. It consists of 10 parts of two marks each.
2. Section B consist of 5 questions of 5 marks each. The student has to attempt any 4 questions out of it.
3. Section C consist of 3 questions of 10 marks each. The student has to attempt any 2 questions.

Section – A **(2 marks each)**

Q1. Attempt the following:
a. Purpose of PWM inverter control?
b. Explain SVM briefly?
c. How to control VSI current?
d. What is v/f control for?
e. Explain vector control briefly
f. Purpose of CSI in synchronous motors?
g. Compare BLDC and PMSM drives briefly?
h. SRM drive evolution overview
i. Explain DSPs in motion control
j. Explain Basic blocks realization in DSP motion control?

Section – B **(5 marks each)**

Q2. How is Selected Harmonic Elimination achieved in power converters, and what are its advantages?
Q3. What methods are commonly used for Current Control in Voltage Source Inverters (VSI), and what are their respective advantages and limitations?
Q4. What are the key characteristics and benefits of Three-Level Inverters compared to traditional two-level inverters?
Q5. Can you describe some Different Topologies used in power converters for AC drives?
Q6. How is Space Vector Modulation (SVM) applied in Three-Level Inverters?

Section – C **(10 marks each)**

Q7. What is the role of a Diode Rectifier with Boost Chopper in AC drive systems, and how does it contribute to overall performanceS?
Q8. What are Current Source Inverters (CSI) with Self-Commutated Devices, and how are they controlled to achieve desired performance in AC drive applications
Q9. How does an H-Bridge configuration enable Four-Quadrant Drive operation, and what are its applications in AC drive systems?