

**Roll No.....**  
**Total No. of Questions: [09]**

**Total No. of Printed Pages: 2**

**B. Tech Electrical Engineering (Semester -8<sup>th</sup>)**  
**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?