Roll No. | | | | | | | | | | | | | Total No. of Pages : 01

Total No. of Questions : 08

M.Tech. (EE) EI-II (2018 Batch) (Sem.–1)

PWM CONVERTER AND APPLICATIONS

Subject Code : MTEE-104A-18

M.Code : 75221

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **Attempt any FIVE questions out of EIGHT questions.**
2. **Each question carries TWELVE marks.**

1. What are major differences between voltage and current source converters? Explain the working of a current source converter using circuit diagram and corresponding waveforms.

2. Classify different types of DC/AC converters. Draw neat circuit diagram of each type of these converters.

3. Discuss in detail space vector based PWM technique for bridge converters.

4. How a practical power electronic device behaves differently from that of ideal one? Explain how conduction losses are calculated in practical power electronic circuits?

5. A 3-phase, Y-connected, 60 Hz, 4-pole induction motor has the following parameters:

   $R_1 = R_2 = 0.024\Omega$ and $X_1 = X_2 = 0.12\,\Omega$. The motor is controlled by the variable frequency control with a constant (V/f) ratio. For an operating frequency of 12Hz, calculate the maximum torque as a ratio of its value at the rated frequency for both motoring and braking.

6. Explain how current ripples are estimated in inverted fed drives?

7. With the help of a neat circuit diagram explain how switching converters are used for reactive power compensation.

8. Write short notes on :

   a) Multilevel inverters

   b) Bus clamping PWM

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.