

E

Reg. No. :

--	--	--	--	--	--	--	--	--	--	--

Question Paper Code: 52T01

M.E. DEGREE EXAMINATION, NOV 2019

Second Semester

Power Electronics and Drives

15PPE201 - ANALYSIS OF INVERTERS

(Regulation 2015)

Duration: Three hours

Maximum: 100 Marks

Answer ALL Questions

PART - A (5 x 20 = 100 Marks)

1. (a) (i) Describe modified McMurray half bridge inverters with appropriate voltage and current Waveforms. Derive the expressions for the commutating components L and C. CO1- U (12)
- (ii) What are the factors to be considered in the selection of switching devices for inverters? CO1- U (4)
- (iii) State the advantages of IGBT over MOSFET? CO1- U (4)
- Or
- (b) (i) Different types of forced commutated Thyristor inverters. CO1- U (16)
- (ii) Explain the need of connecting diodes in anti-parallel with Switches. CO1- U (4)
2. (a) (i) Explain with necessary diagram describe the space vector modulation used to control the output voltage of three phase inverter. CO2-U (12)
- (ii) Compare 120 degree mode with 180 degree mode operation of a three phase inverter CO2- U (4)
- (iii) Explain harmonic reduction of three phase inverter. CO2- U (4)
- Or
- (b) With necessary diagram describe the sinusoidal, multi pulse used to control the output voltage of three phase inverter. CO2- U (20)

3. (a) (i) Explain the operation of six step current source inverter with inductive load. CO3- U (16)
- (iii) What are the drawbacks of load commutated inverter. CO3- U (4)
- Or
- (b) Describe in detail the operation of load commutated inverter. CO3-U (20)
4. (a) (i) With neat diagram describe the operation of diode-clamped multilevel inverter. CO4- U (12)
- (ii) What are the advantages and disadvantages of flying capacitor. CO4- U (4)
- (iii) What are the disadvantages of a modified diode-clamped multilevel inverter? CO4- U (4)
- Or
- (b) (i) Drive and explain the flying capacitor multilevel inverter. CO4- U (16)
- (ii) What are the disadvantages of a modified diode-clamped multilevel inverter CO4- U (4)
5. (a) Drive and briefly explain the frequency response of series resonant inverters. CO5-U (20)
- Or
- (b) (i) Describe the operation of Class E resonant rectifier with neat wave forms. What is mean by resonant pulse converter? CO5-U (16)
- (ii) What are the advantages and disadvantages of resonant inverters with bidirectional Switches? CO5-U (4)
-